

Biodiversity Assessment Report

Northern Rivers Flood Recovery - Richmond River High Campus Redevelopment



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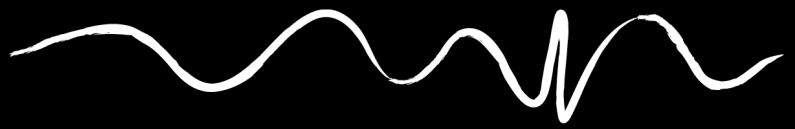
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1. Introduction

1.1 Scope and Purpose

This Biodiversity Assessment Report (BAR) has been prepared to support a Review of Environmental Factors (REF) for the rebuild of Richmond River High Campus (the activity). The REF has been prepared to support an approval for the RRHC development under Section 68 of the NSW Reconstruction Authority Act 2022 (RA Act).

The activity will be carried out at Dunoon Road, North Lismore, also known as 163 and 170 Alexandra Parade, North Lismore (the site).

The purpose of this report is to

- Identify the biodiversity values of the site (particularly habitat for threatened species or communities listed in the *Biodiversity Conservation Act 2016* (BC Act) or Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Identify any significant habitat features of biodiversity importance.
- Examine the activity against relevant statutory requirements.

1.2 Definitions used in this Report

The following definitions have been used throughout this BAR:

- **The activity** – as described in **Section 1.4**.
- **The site** – the cadastral land in which the activity occurs – described in **Section 1.3**, refer **Illustration 1.2**.
- **Activity footprint** – this includes all areas to be directly impacted by the activity.
- **The locality** – a 5 km buffer centred on the site.

1.3 The Site

1.3.1 Location and Description

The site is located at Dunoon Road, North Lismore, also known as 163 and 170 Alexandra Parade, North Lismore. The site comprises three separate lots, located to the north of Alexandra Parade, with Dunoon Road running parallel to the eastern boundary of the site.

The site is legally described as:

- Lot 1 DP 539012.
- Lot 2 DP 539012.
- Lot 1 DP 376007.

The site area is approximately 33.53 ha. The site is outlined in **Figure 1.1**.

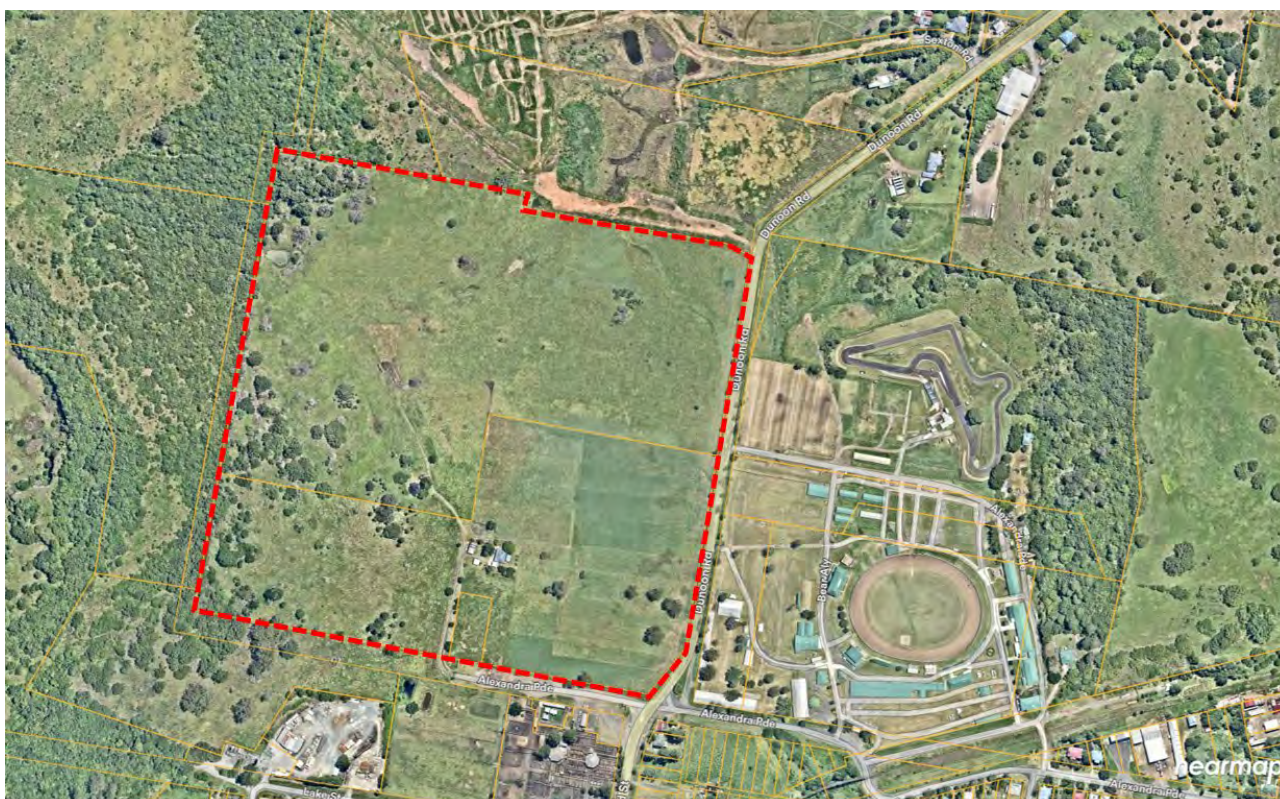


Figure 1.1 Aerial image of the site (source: Nearmap)

The site is situated to the north-west of the Lismore CBD on the north-western fringe of Lismore in an area identified for future residential growth (refer to **Illustration 1.1**).

The site has frontage to Dunoon Road along its eastern boundary and Alexandra Parade for the eastern half of the southern boundary (refer to **Illustration 1.2**). Overhead electricity and reticulated water supply services are located along these roads. The site currently contains two dwellings and ancillary agricultural buildings, and infrastructure.

The site consists of relatively flat grassland in the east towards Dunoon Road, rising towards the western boundary. The westernmost portion of the site is characterised by steep hillsides. The north-west and south-west corners of the site contain treed areas of predominantly Camphor Laurel with regenerating dry rainforest. There is a minor, unnamed drainage line traversing the northern portion of the site, flowing generally from west to east.

1.3.2 Land Use

The site is currently agricultural land used for grazing and contains two dwellings with associated outbuildings. The site is currently surrounded by rural land with forested hill slopes to the west, grazing land to the north, Lismore Showground and Lismore Kart Club to the east and a mixture of cattle saleyards, grazing land and industrial uses such as Boral Concrete to the south (refer to **Plate 1.1** to **Plate 1.4**).



Plate 1.1 View north from Alexandra Parade



Plate 1.2 Cattle yards south of Alexandra Parade



Plate 1.3 View west to the rainforest/
exotic vegetation in the north-west corner of
the site



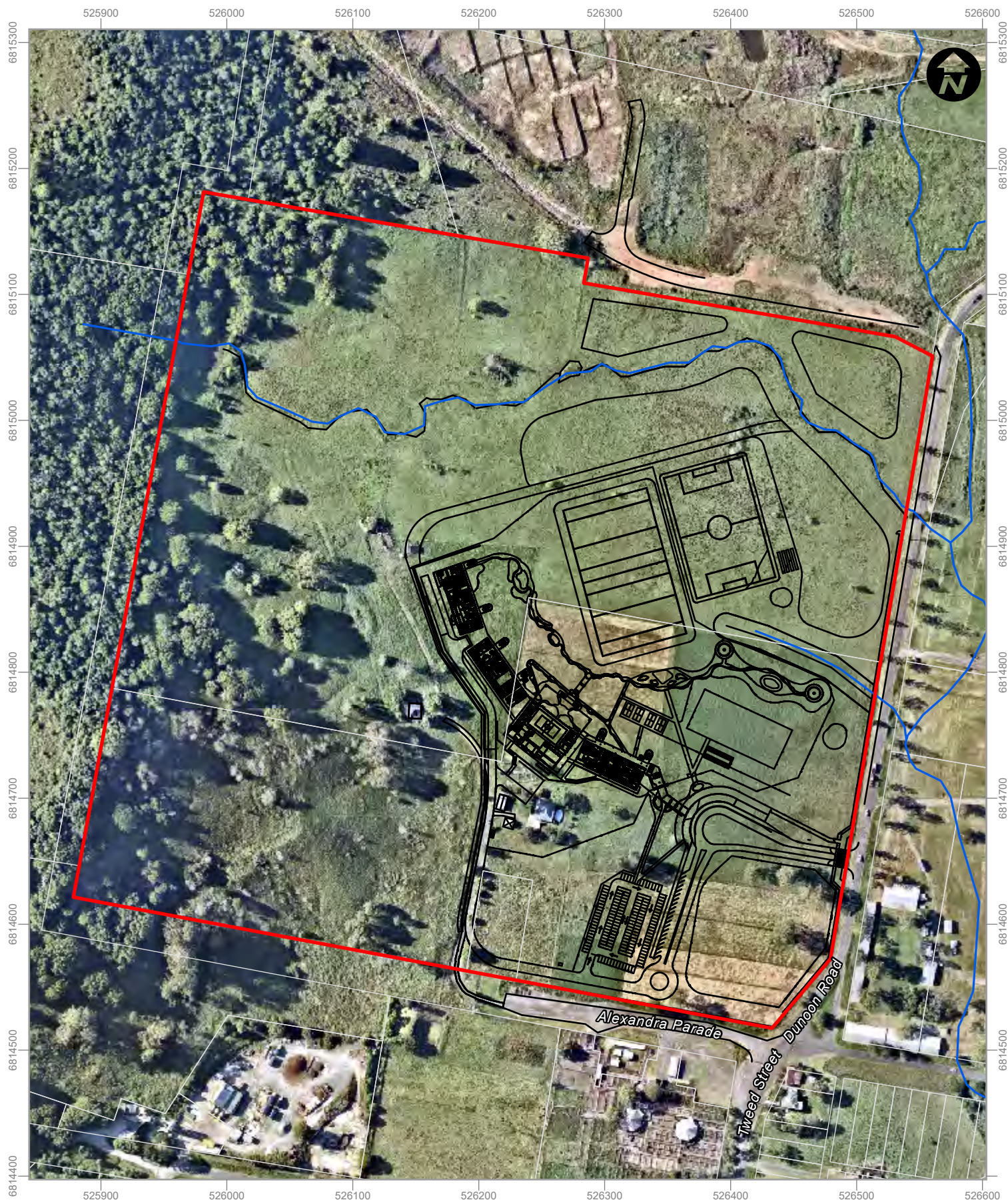
Plate 1.4 View north-east along the
northern boundary of the site



Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri

0 800 Metres

Site Locality - Illustration 1.1



LEGEND

- Site boundary
- ~ Watercourse
- Cadastre
- Site plan

0 80 Metres

The Site - Illustration 1.2



1.4 The Activity

The proposed activity comprises the relocation and rebuild of the RRHC from its existing temporary location alongside The Rivers Secondary College, Lismore High Campus at East Lismore, to the proposed site at 163 and 170 Alexandra Parade, North Lismore. The school proposal will be delivered in one stage.

A detailed description of the proposal is as follows:

1. Demolition of existing features including existing buildings, cattle drinking well, cattle sheds, and wire fencing, and tree removal to accommodate a school development.
2. Construction of new three storey buildings on the south-eastern portion of the site for the proposed public secondary school including:
 - a. General and Specialised Learning Spaces and Workshops.
 - b. Administration and Staff facilities.
 - c. Library, Hall and Movement Studio.
 - d. Construction, Hospitality and Agricultural Learning Facilities.
 - e. Amenity, Plant, Circulation and Storage Areas.
 - f. Outdoor Learning Spaces and play spaces.
3. Landscaping, including tree planting.
4. Public domain works comprising:
 - Access road off Dunoon Road, comprising a separate shared bicycle/ pedestrian pathway, and internal access roundabout.
 - Kiss and ride drop-off and pick up zones.
 - Bus transport arrangements with a separate bus zone.
5. Outdoor spaces including assembly zones, agricultural spaces, sports fields, games courts, dancing circles, yarning and dancing circles, seating and shade structures.
6. On-site car parking, including accessible spaces and provision for EV charging spaces.

Figure 1.2 shows the scope of works, and the masterplan set is provided in **Appendix A**.



Figure 1.2 Overall Site Context Plan (Source: EJE Architecture)

1.5 Personnel

Contributors to the preparation of the BAR, their qualifications and roles are listed in **Table 1.1**. All assessors involved with the project have extensive experience in assessing native vegetation, threatened species habitat and implementing the Biodiversity Assessment Method (BAM).

Table 1.1 Personnel

Name	Qualifications	Position and role
Veronica Silver	<ul style="list-style-type: none"> ■ Bachelor of Environmental Science ■ Graduate Diploma Urban and Regional Planning ■ Accredited BAM Assessor (BAAS 19063) 	Senior Ecologist – technical review and field surveys
Grant McLean	<ul style="list-style-type: none"> ■ Bachelor of Environmental Science and Management ■ Accredited BAM Assessor (BAAS19055) 	Senior Ecologist - reporting and field surveys
David Havilah	<ul style="list-style-type: none"> ■ Bachelor of Science ■ Accredited BAM Assessor (BAAS 18129) 	Senior Ecologist – field surveys
Heidi Lunn	<ul style="list-style-type: none"> ■ Bachelor of Plant Science (Plants in the Environment major) ■ Bush Regeneration Cert II & IV 	Botanist - field surveys
Anna Barca	<ul style="list-style-type: none"> ■ Associate degree of Spatial Science Major Geographic Information Systems 	GIS specialist – data management and Illustration preparation



2. Methodology

2.1 Desktop Review

The following desktop review was completed for the site:

- A search of the BioNet Wildlife Atlas (10 km x 10 km grid centred on the site).
- A search of the Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) within a 5 km radius of the site.
- A search of the NSW Department of Primary Industries (DPI) Fisheries Threatened and Protected Species Records Viewer and key fish habitat mapping.
- Review of the Lismore City Council (LCC) online interactive mapping tool.
- Review of the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) ePlanning Spatial Viewer.
- Review of the Department of Planning and Environment (DPE) Biodiversity Values Map and Threshold Tool.
- Review of vegetation mapping for the site available on Trees Near Me NSW (DPE).

Results of database searches are provided in **Appendix B** and summarised in **Section 3**.

2.2 Site Inspection

The site has been inspected on several occasions as follows:

- 1 A site inspection was initially undertaken by David Havilah and Veronica Silver (Senior Ecologists) on 29th January 2024.
- 2 David Havilah continued field surveys on 30th January 2024.
- 3 Field surveys focusing on grassland areas were undertaken by Veronica Silver, Grant McLean (Senior Ecologist) and Heidi Lunn (Botanist) on 21st August 2024.
- 4 Further targeted surveys for Hairy Jointgrass were undertaken on 12 May 2025 by Heidi Lunn (Botanist).

The following tasks were completed during site assessments:

- Undertaking vegetation survey plots in areas of pasture in accordance with the Assessing Native Groundcover (Local Land Services) requirements to determine the percentage of native vegetation cover (refer **Section 2.2.1**).
- Identifying vegetation communities to plant community type (PCT).
- Verifying vegetation communities on the site and undertaking vegetation mapping.
- Targeted searches for threatened flora species identified as potential occurrences by the desktop assessment. These included traverses searching for the threatened flora species, Hairy Jointgrass (*Arthraxon hispidus*).
- Identification of threatened ecological communities (TECs).
- Recording isolated paddock trees on the site.
- Searching for evidence of Koalas, including observation of individuals, faecal pellets and indicative scratches on smooth barked trees.



2.2.1 Quadrat Groundcover Field Assessment

The quadrat groundcover field assessment method utilised to determine the extent of native species is based on the Local Land Services document 'assessing native groundcover' (Local Land Services, 2019). It involves placing a 1 x 1 m square frame (quadrat) randomly ten times along a transect (up to 50 m in length). For each of the ten quadrat placements, estimates were recorded of the following:

- Percentage of the quadrat that has groundcover (native and non-native plants). Non-vegetative elements that are typical of the native ecosystem, such as sticks and leaf litter, were included as native groundcover.
- Percentage of groundcover in the quadrat that is native (including non-vegetative elements that are typical of the native ecosystem, such as sticks and leaf litter).

This data was utilised to calculate native vegetation extent (NVE) for groundcover with a mix of exotic and native species. To adjust NVE calculations for partially exotic groundcover in highly disturbed plant communities, the following ruleset was applied:

- If there is greater than 75% native groundcover – this is adjusted to 100% native.
- If there is between 15% and 75% native groundcover – the calculation of native vegetation extent is adjusted by multiplying the proportion (%) of native groundcover by the total area to be cleared.
- If there is less than 15% native groundcover – the area is assessed as non-native vegetation and is not included in NVE.

Five quadrat ground cover field assessments were undertaken in areas of pasture within the site to determine the mix of exotic and native species.

3. Desktop Review

3.1 Database Searches

3.1.1 Threatened Flora and Threatened Ecological Communities

BioNet search results (dated December 2024) as included in **Appendix B** identified:


- Records of 29 threatened flora species within 5 km of the site (none of which occur within the site), including 17 species listed under the EPBC Act (refer to **Table 3.1**).
- Records of 11 threatened ecological communities (TECs) within the search area (refer to **Table 3.2**).

The Protected Matters Search Tool results (dated December 2024) as included in **Appendix B** identified:

- Habitat for 32 EPBC Act listed threatened flora species within 5 km of the site.
- Habitat for five EPBC Act listed TECs within 5 km of the site.

Table 3.1 Threatened Flora Recorded Within 5 km of the Site

Scientific Name	Common Name	BC Act	EPBC Act
<i>Arthraxon hispidus</i>	Hairy Jointgrass	V	V
<i>Clematis fawcettii</i>	Northern Clematis	V	V
<i>Coatesia paniculata</i>	Axe-breaker	E	-
<i>Corchorus cunninghamii</i>	Native Jute	E	E
<i>Davidsonia jerseyana</i>	Davidson's Plum	E	E
<i>Desmodium acanthocladum</i>	Thorny Pea	V	V
<i>Diploglottis campbellii</i>	Small-leaved Tamarind	E	E
<i>Doryanthes palmeri</i>	Giant Spear Lily	V	-
<i>Endiandra hayesii</i>	Rusty Rose Walnut	V	V
<i>Floydia praealta</i>	Ball Nut	V	V
<i>Gossia fragrantissima</i>	Sweet Myrtle	E	E
<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V	V
<i>Lepiderema pulchella</i>	Fine-leaved Tuckeroo	V	-
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V	V
<i>Myrsine richmondensis</i>	Ripple-leaf Muttonwood	E	E
<i>Oberonia complanata</i>	Yellow-flowered King of the Fairies	E	-
<i>Ochrosia moorei</i>	Southern Ochrosia	E	E
<i>Owenia cepiodora</i>	Onion Cedar	V	V
<i>Randia moorei</i>	Spiny Gardenia	E	E



Scientific Name	Common Name	BC Act	EPBC Act
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE	-
<i>Rhodomyrtus psidioides</i>	Native Guava	CE	-
<i>Rhynchosia acuminatissima</i>	Pointed Trefoil	V	-
<i>Sarcochilus dilatatus</i>	Brown Butterfly Orchid	E	-
<i>Senna acclinis</i>	Rainforest Cassia	E	-
<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V	V
<i>Thesium australe</i>	Austral Toadflax	V	V
<i>Tinospora smilacina</i>	Tinospora Vine	E	-
<i>Tinospora tinosporoides</i>	Arrow-head Vine	V	-
<i>Triflorensia cameronii</i>	Cameron's Tarenna	E	-

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

Table 3.2 Database Search Results - TECs

TEC	BC Act	EPBC Act	Source
<i>Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion</i>	E	-	BioNet
<i>Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community</i>	-	E	BioNet, PMST
<i>Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland</i>	-	E	PMST
<i>Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	E	-	BioNet
<i>Grey Box—Grey Gum Wet Sclerophyll Forest in the NSW North Coast Bioregion</i>	E		BioNet
<i>Grey box-grey gum wet forest of subtropical eastern Australia</i>	-	E	PMST
<i>Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions</i>	E	-	BioNet
<i>Lowland Rainforest of Subtropical Australia</i>	-	CE	PMST
<i>Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion</i>	E	-	BioNet
<i>Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion</i>	E	-	BioNet
<i>Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions</i>	-	E	PMST
<i>Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	E	-	BioNet
<i>Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	E	-	BioNet

TEC	BC Act	EPBC Act	Source
<i>Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions</i>	E	-	BioNet
<i>White Gum Moist Forest in the NSW North Coast Bioregion</i>	E	-	BioNet

E = Endangered; CE = Critically Endangered

3.1.2 Threatened Fauna

BioNet search results (dated December 2024) as included in **Appendix B** identified:

- Records of 40 threatened fauna species within 5 km of the site (none of which occur within the site), including five species listed in the EPBC Act (refer to **Table 3.3**).

The PMST results (dated December 2024) included in **Appendix B** identified:

- Habitat for 25 EPBC Act listed threatened (terrestrial) fauna species within 5 km of the site.
- Habitat for seven EPBC Act listed migratory species within 5 km of the site.

Table 3.3 Threatened Fauna Recorded Within 5 km of the Site

Scientific Name	Common Name	BC Act	EPBC Act
Insects			
<i>Nurus brevis</i>	Shorter Rainforest Ground-beetle	E	-
Reptiles			
<i>Cacophis harriettae</i>	White-crowned Snake	V	-
Birds			
<i>Amauornis moluccana</i>	Pale-vented Bush-hen	V	-
<i>Anseranas semipalmata</i>	Magpie Goose	V	-
<i>Calyptorhynchus lathami lathami</i>	South Eastern Glossy Black-Cockatoo	V	V
<i>Carterornis leucotis</i>	White-eared Monarch	V	-
<i>Circus assimilis</i>	Spotted Harrier	V	-
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-
<i>Falco subniger</i>	Black Falcon	V	-
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-
<i>Haematopus fuliginosus</i>	Sooty Oystercatcher	V	-
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	V	-
<i>Hieraaetus morphnoides</i>	Little Eagle	V	-
<i>Hirundapus caudacutus</i>	White-throated Needletail	-	V
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-



Scientific Name	Common Name	BC Act	EPBC Act
<i>Ixobrychus flavicollis</i>	Black Bittern	V	-
<i>Ninox strenua</i>	Powerful Owl	V	-
<i>Oxyura australis</i>	Blue-billed Duck	V	-
<i>Pandion cristatus</i>	Eastern Osprey	V	-
<i>Podargus ocellatus</i>	Marbled Frogmouth	V	-
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler	V	-
<i>Ptilinopus magnificus</i>	Wompoo Fruit-dove	V	-
<i>Ptilinopus regina</i>	Rose-crowned Fruit-dove	V	-
<i>Ptilinopus superbus</i>	Superb Fruit-dove	V	-
<i>Stictonetta naevosa</i>	Freckled Duck	V	-
<i>Tyto longimembris</i>	Eastern Grass Owl	V	-
<i>Tyto novaehollandiae</i>	Masked Owl	V	-
<i>Tyto tenebricosa</i>	Sooty Owl	V	-
Mammals			
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V	-
<i>Miniopterus australis</i>	Little Bent-winged Bat	V	-
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V	-
<i>Myotis macropus</i>	Southern Myotis	V	-
<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V	-
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-
<i>Phascolarctos cinereus</i>	Koala	E	E
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-

V = Vulnerable; E = Endangered

3.2 Biodiversity Values Mapping

The site is not mapped as Biodiversity Value (BV) land on the DPE Biodiversity Values Map and Threshold Tool (refer to **Figure 3.1**).



Figure 3.1 Biodiversity Values Mapping (shown in purple) and the site (shown in blue)

3.3 SEPP (Resilience and Hazard) Mapping

This site is not depicted on SEPP (Resilience and Hazard) mapping (refer to **Figure 3.2**). The site does not include any coastal wetlands, littoral rainforests, coastal use areas, coastal environment area or coastal vulnerability area.

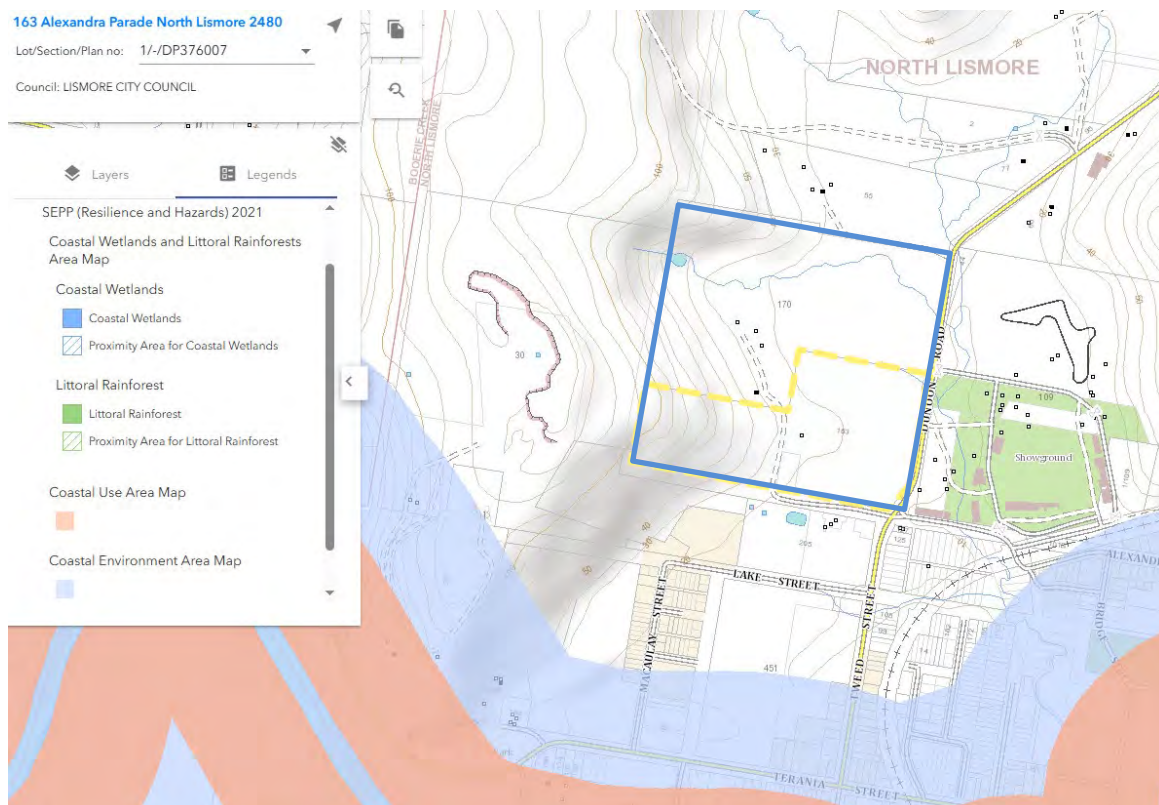


Figure 3.2 SEPP Resilience and Hazards Mapping and the site (shown in blue)

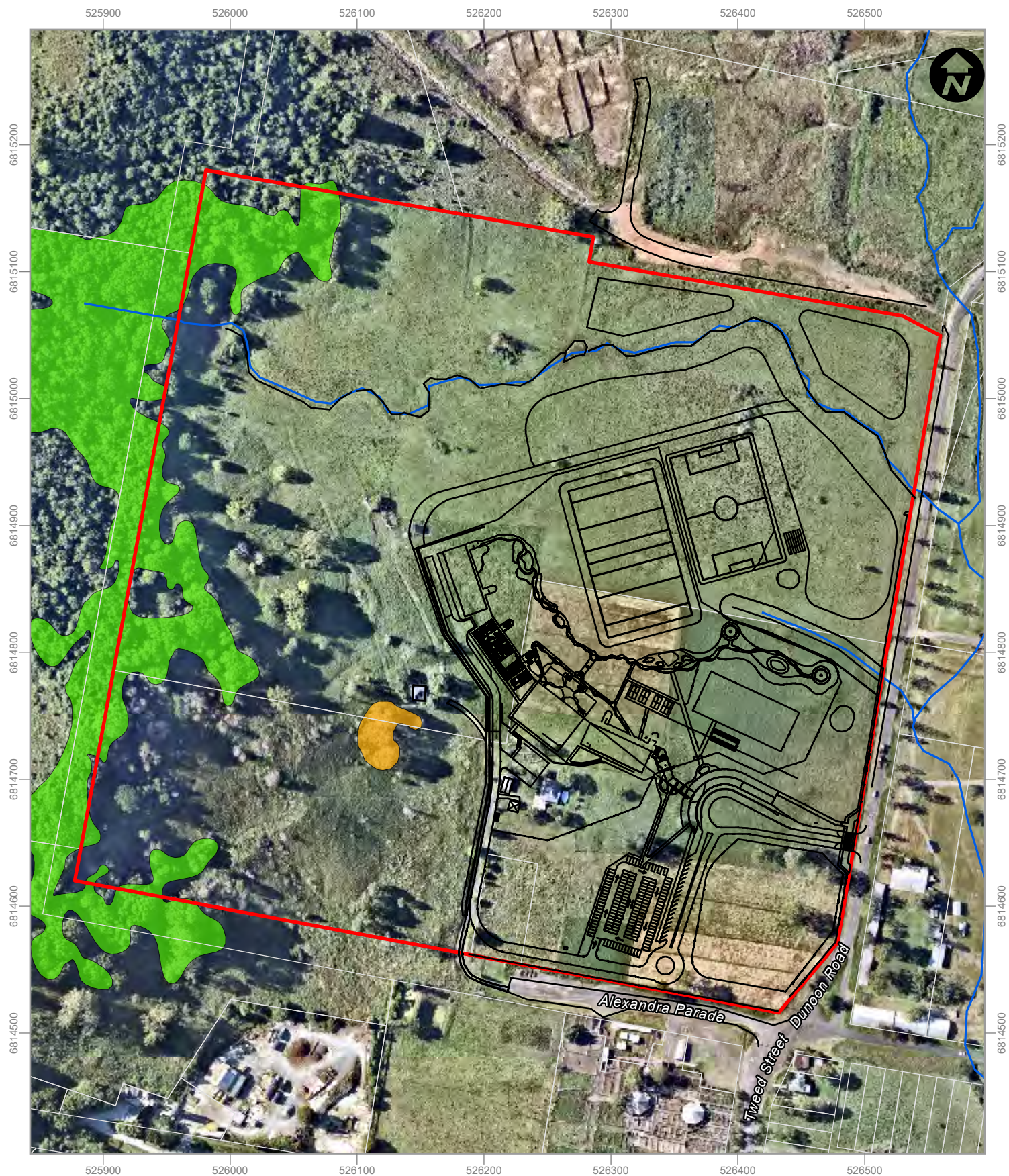


3.4 Lismore Council Koala Habitat Mapping (2013)

As shown in **Illustration 3.1**, a small patch of mapped Primary Koala habitat (shown in orange) occurs in the south-western portion of the site. Additionally, vegetation along the western edge of the site is mapped as 'Unknown Koala habitat' (shown in green). Areas on the site depicted on Council's Koala habitat mapping do not occur within the proposed activity footprint.

3.5 Wildlife Corridors

The site is not mapped as part of any Wildlife Corridor or Key Habitat as per Scotts (2003).



LEGEND

- | | | |
|---|--|---|
| ▬ Site boundary | Primary Koala habitat | ~ Watercourse |
| Cadastre | Unknown Koala habitat | — Site plan |

0 80 Metres

LCC Koala Habitat Mapping - Illustration 3.1



4. Site Assessment

4.1 Vegetation Communities

The site has been historically cleared and used for cattle grazing. In general terms, it comprises a mixture of exotic and, to a lesser extent, native grass species, making up a pasture grass complex. In the western portion of the site, areas of Camphor Laurel (*Cinnamomum camphora*)* and Large-leaved Privet (*Ligustrum lucidum*)* provide habitat for early regenerating pioneer subtropical rainforest species. Exotic and native paddock trees occur scattered throughout the site, including Forest Red Gum (*Eucalyptus tereticornis*), which occurs in the southern portion of the site outside the proposal footprint. Vegetation occurring on the site is shown on **Illustration 4.1** and described in **Table 4.1**.

Note (*) – denotes introduced species.



4.2 Threatened Ecological Communities



Areas of vegetation containing regenerating subtropical rainforest species, which comprise a degraded variant of *PCT 3064 Far North Hoop Pine Dry Rainforest*, are floristically representative of a highly degraded, early regenerating form of the BC Act listed TEC; *Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions*.

Lowland Rainforest is also a TEC under the EPBC Act, where it is known as *Lowland Rainforest of Subtropical Australia* (LRSA). The final determination for LRSA includes a guideline to determine whether vegetation meets condition thresholds. Based on native vegetation being < 50% of vegetation present within patches, PCT 3064, as it occurs on the site, does not meet the condition thresholds to be representative of the EPBC Act listed TEC.

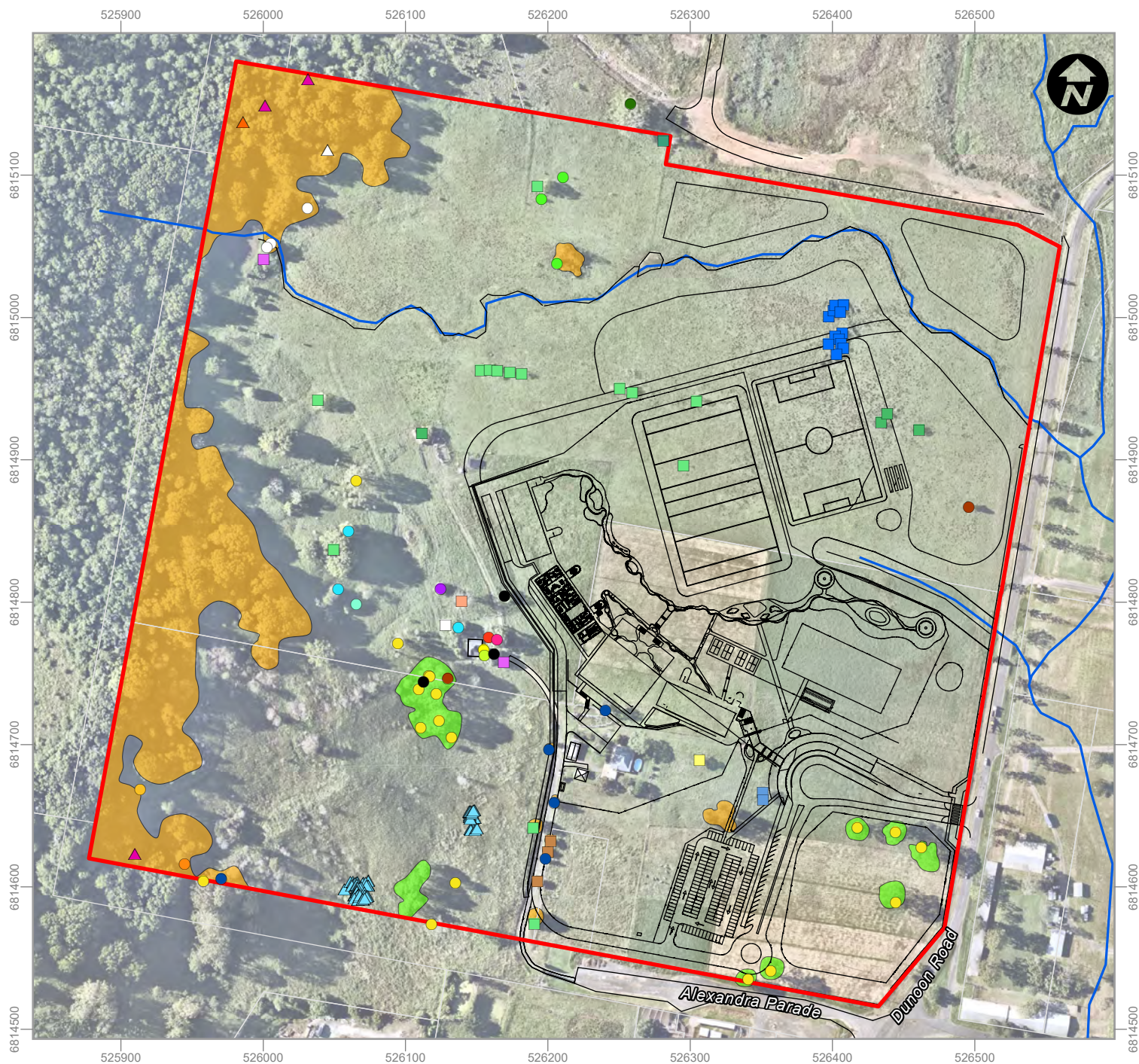
Low lying areas of pastureland in the east of the site are not representative of the TEC, *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*. Native species diversity in such areas is extremely low as a result of historical and current disturbance regimes, with these areas dominated by exotic pasture species such as Torpedo Grass (*Panicum repens*)*, Narrow-leaved Carpet Grass (*Axonopus fissifolius*)*, Paspalum (*Paspalum urvillei*)* and Kikuyu Grass (*Cenchrus clandestinus*)*. The quadrat groundcover field assessment method concluded that areas of cleared pasture comprise an average of 5% cover of native species (refer to **Appendix C**). Where there is less than 15% native ground cover, the area is assessed as non-native vegetation and is not included in NVE. Given the low species diversity and high level of disturbance, wet pasture areas are considered to be of low conservation value and not representative of Freshwater Wetland TEC.

Table 4.1 Vegetation Communities at the Site

Community Description	Photo	Plant Community Type (PCT)
<p>Cleared pastureland</p> <p>Much of the site comprises cleared pastureland with lower lying areas dominated by the exotic grass, Torpedo Grass (<i>Panicum repens</i>*). More elevated parts of the site comprise a mixture of mostly exotic grass species including Rhodes Grass (<i>Chloris gayana</i>*), South African Pigeon Grass (<i>Setaria sphacelata</i>*), Narrow-leaved Carpet Grass (<i>Axonopus fissifolius</i>*), Paspalum (<i>Paspalum dilatatum</i>)* and Kikuyu Grass (<i>Cenchrus clandestinus</i>*). Native grasses are scarce in elevated parts of the site and comprise minor occurrences of Blady Grass (<i>Imperata cylindrica</i>) and Kangaroo Grass (<i>Themeda triandra</i>).</p> <p>The quadrat groundcover field assessment method concluded that areas of cleared pasture were dominated by Torpedo Grass (<i>Panicum repens</i>*) and comprise an average of 5% cover of native species (refer to Appendix C). Where there is less than 15% native ground cover, the area is assessed as non-native vegetation and is not included in NVE.</p>		<p>Not representative of any PCT.</p>
<p>Camphor Laurel, Large-leaved Privet closed forest/ shrubland (with regenerating pioneer rainforest species)</p> <p>Closed forest/ shrubland dominated by mature Camphor Laurel* with a midstorey of Large-leaved Privet (<i>Ligustrum lucidum</i>)* and Small-leaved Privet (<i>Ligustrum sinense</i>)*. A sparse secondary tree layer occurs comprising pioneer subtropical rainforest species including Red Kamala (<i>Mallotus philippensis</i>), Guioa (<i>Guioa semiglauc</i>), Forest Sandpaper Fig (<i>Ficus fraseri</i>), Rough-leaved Elm (<i>Aphananthe philippinensis</i>) and Sweet Pittosporum (<i>Pittosporum undulatum</i>). A weedy understorey of Privet* and Lantana (<i>Lantana camara</i>)* occurs in places. The ground layer is typically bare where canopy cover is afforded. Shade Grass (<i>Ottochloa gracillima</i>) and Rough Maidenhair (<i>Adiantum hispidulum</i>) occur occasionally with Crofton Weed (<i>Ageratina adenophora</i>)* and Mistflower (<i>Adenophora riparia</i>)* throughout. Vines/ scramblers occur including Cockspur (<i>Maclura cochinchinensis</i>) and Climbing Asparagus Fern (<i>Asparagus plumosus</i>)*.</p>		<p>Although highly degraded, the presence of regenerating rainforest species indicates this community is a highly degraded/ regenerating form of PCT 3064 Far North Hoop Pine Dry Rainforest.</p>

Community Description	Photo	Plant Community Type (PCT)
<p>Patches of Forest Red Gum</p> <p>Two patches of Forest Red Gum (<i>Eucalyptus tereticornis</i>) occur in the southern portion of the site with understorey recruitment of Forest Red Gum and pioneer dry rainforest saplings evident. Groundcover within these areas comprises mostly exotic pasture grasses as described above.</p>		<p>Based on the presence of Forest Red Gum, this community is representative of a degraded variant of <i>PCT 3322 Far North Ranges Red Gum Grassy Forest</i>.</p>
<p>Isolated Paddock Trees</p> <p>Isolated paddock trees are scattered throughout the site comprising the exotic species, Camphor Laurel*, Cadaghi (<i>Corymbia torelliana</i>)* and Coral Tree (<i>Erythrina</i> sp)*.</p> <p>Native paddock trees include scattered Forest Red Gum, Swamp Box (<i>Lophostemon suaveolens</i>), Silky Oak (<i>Grevillea robusta</i>) and Hoop Pine (<i>Araucaria cunninghamii</i>).</p>		<p>Isolated paddock trees are not representative of any Plant Community Type.</p>

(*) denotes introduced species.



LEGEND

- Site boundary
- Cadastre
- PCT 3064 - Far North Hoop Pine Dry Rainforest (TEC)
- PCT 3322 - Far North Ranges Red Gum Grassy Forest
- ~ Watercourse
- Site plan

Threatened Flora

- △ Arrowhead Vine
- △ Durobby
- △ Hairy Jointgrass
- △ Thorny Pea

Exotic Trees

- Cadaghi
- Camphor Laurel
- Chinese celtis
- Cockspur Coral Tree

- Golden Raintree
- Guava
- Indian Coral Tree
- Mediterranean Cypress
- Pink Poui
- Royal Poinciana

Native Trees

- Black Wattle
- Brown Kurrajong
- Cadaghi
- Cheese Tree
- Fig
- Forest Red Gum (primary Koala feed tree)
- Frangipani
- Hoop Pine
- Moreton Bay fig

- Norfolk Island Hibiscus
- Red Kamala
- Rough leaved Elm
- Silky Oak
- Small-leaved Tuckeroo
- Swamp Box
- Weeping Fig
- White Cedar

0 80 Metres

Vegetation Mapping - Illustration 4.1



4.3 Threatened Flora

Four threatened flora species were detected at the site during site inspection. These are shown in **Illustration 4.1** and discussed in further detail below. Threatened flora species do not occur in proximity to the activity footprint.

4.3.1 Hairy Jointgrass

Hairy Jointgrass (*Arthraxon hispidus*) is listed as Vulnerable under the BC Act and the EPBC Act. The species is well distributed within the Lismore Local Government Area (LGA), generally being associated with seepage areas, wetlands and wet pasture on basalt derived soils where it is often found within paddocks grazed by cattle. Despite extensive searches in January 2024, only one plant was identified on the southern boundary of the site associated with an ephemeral drainage line (refer to **Plate 4.1**). Following a site inspection by Conservation Programs, Heritage and Regulation Group (CPHR) of DCCEEW in April 2025, which recorded additional HJG plants in the vicinity of that originally found by GeoLINK, an additional targeted survey was undertaken by GeoLINK, which recorded additional plants as shown in **Illustration 4.1**.

4.3.2 Thorny Pea

Thorny Pea (*Pedleya acanthocladum*) is listed as Vulnerable under the BC Act and the EPBC Act. The species is well represented within the Lismore LGA, where it occurs along riverine areas and on the fringes of dry rainforest. Three living plants were detected on the site associated with PCT 3064, occurring in the west of the site (refer to **Plate 4.2**). It is noted that within this area, a number of dead plants were also detected.

4.3.3 Arrow-head Vine

Arrow-head Vine (*Tinospora tinosporoides*) is listed as Vulnerable under the BC Act and is not listed under the EPBC Act. The species is associated with areas of lowland subtropical rainforest, typically in rocky basalt areas. The species is well represented in the Lismore LGA. One Arrow-head Vine was detected in the north-west corner of the site within an area of degraded PCT 3064 (refer to **Plate 4.3**).

4.3.4 Durobby

Durobby (*Syzygium moorei*) is listed as Vulnerable under the BC Act and the EPBC Act. The species grows in lowland subtropical rainforest, north of the Richmond River. A grove of several Durobby trees occurs in the north-west of the site within an area of degraded PCT 3064. The presence of these specimens on the site occurs south of the known distribution of the natural population of this species, which is known to have a southern limit of around Tintenbar. Specimens on site may have been planted.



Plate 4.1 Hairy Jointgrass near south-west corner of the site (refer to Illustration 4.1)



Plate 4.2 Thorny Pea in north-west corner of the site (refer to Illustration 4.1)



Plate 4.3 Arrow-head Vine in north-west corner of the site (refer to Illustration 4.1)

4.4 Threatened Fauna

4.4.1 Fauna Habitats

The following fauna habitats are present on the site:

- Forest Red Gums occurring on the site are a primary Koala feed tree. A small patch of mapped 'Primary Koala habitat' occurs in the central/ south-western portion of the site, providing potential habitat for this species. No scats were detected beneath Forest Red Gums on the site, however, it is possible that these trees may be used on occasion by Koalas ranging throughout the broader area rather than as part permanent/ breeding habitat.
- Areas of fragmented and degraded vegetation are likely to support a range of common bird and mammal species. Flowering eucalypts and rainforest trees provide good resources for fruit and nectar feeding birds (Pigeons, Fruit-doves, Honeyeaters, Friarbirds, Lorikeets, Figbirds, etc.) and also support insect feeding species such as Thornbills, Fantails, etc.
- Grassland areas may provide habitat for a range of grassland birds and reptiles.
- The entire site is likely to be used for foraging by several species of microchiropteran bats and flying-foxes are likely to utilise fruiting figs and rainforest trees on an opportunistic basis.


4.4.2 Threatened Fauna

No threatened fauna were detected at the site.

A potential occurrence assessment has been completed for threatened fauna species identified by the BioNet database searches (refer to **Appendix E**). Based on this assessment, threatened fauna species considered known/ potential occurrences at the site are shown in **Table 4.2**. One species, the White-eared Monarch, is known to occur in proximity to the site, with recent records occurring immediately to the north-west of the site. Suitable habitat for White-eared Monarch however, is located on the upper vegetated slopes but not in proximity to the activity footprint.

Table 4.2 Threatened Fauna with Potential to Occur at the Site

Scientific Name	Common Name	BC Act	EPBC Act	Potential to Occur
<i>Cacophis harriettae</i>	White-crowned Snake	V	-	Moderate – degraded habitat likely on the site but has been recorded previously in disturbed habitats.
<i>Carterornis leucotis</i>	White-eared Monarch	V	-	High – records to the immediate north-west of the site.
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-	Moderate – may utilise the site as part of broader foraging areas.
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V	-	Moderate – may utilise the site as part of broader foraging areas.
<i>Miniopterus australis</i>	Little Bent-winged Bat	V	-	Moderate – may utilise the site as part of broader foraging areas.



Scientific Name	Common Name	BC Act	EPBC Act	Potential to Occur
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V	-	Moderate – may utilise the site as part of broader foraging areas.
<i>Myotis macropus</i>	Southern Myotis	V	-	Moderate – may utilise the site as part of broader foraging areas.
<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V	-	Moderate – may utilise the site as part of broader foraging areas.
<i>Phascolarctos cinereus</i>	Koala	E	E	High – areas of mapped Primary Koala habitat occur on the site.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	High – would forage opportunistically within vegetation occurring at the site.
<i>Ptilinopus magnificus</i>	Wompoo Fruit-dove	V	-	Moderate – may utilise the site on occasion.
<i>Ptilinopus regina</i>	Rose-crowned Fruit-dove	V	-	High – likely to utilise the site on occasion.
<i>Ptilinopus superbus</i>	Superb Fruit-dove	V	-	Moderate – may utilise the site on occasion.
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	Moderate – may utilise the site as part of broader foraging areas

4.4.3 Aquatic Fauna

A small unnamed tributary of Wilsons Creek traverses the northern portion of the site, flowing west to east. This stream is not mapped as Key Fish Habitat (KFH) by NSW Department of Primary Industries (DPI).

Upon inspection, this first order stream was observed to drain from a man-made dam near the foot of the vegetated hill slopes. It is a low-lying ephemeral drainage depression mostly without defined banks. Minimal water was present within this waterway at the time of the inspection in January 2024, and accordingly, the potential for aquatic fauna to occur is minimal.

5. Impacts to Biodiversity Values

The activity is sited within cleared pastureland and would have minimal impacts on biodiversity. Direct impacts of the activity are outlined below. Tree removal has been informed by the Arboricultural Impact Assessment (GHD, 2025).

- Removal of native vegetation comprising:
 - 0.05 ha of PCT 3064.
 - 15 Silky Oak.
- Removal of exotic vegetation comprising:
 - 12.18 ha of cleared, mostly exotic pastureland.
 - Seven Camphor Laurel (*Cinnamomum camphora*)*.
 - Two Chinese Celtis (*Celtis sinensis*)*.
 - Two Golden Rain Trees (*Koelreuteria paniculata*).
 - One Cockspur Coral Tree (*Erythrina crista-galli*)*.
 - One Chinaberry (*Melia azedarach*)*.
 - One Pink Poui (*Tabebuia rosea*)*.

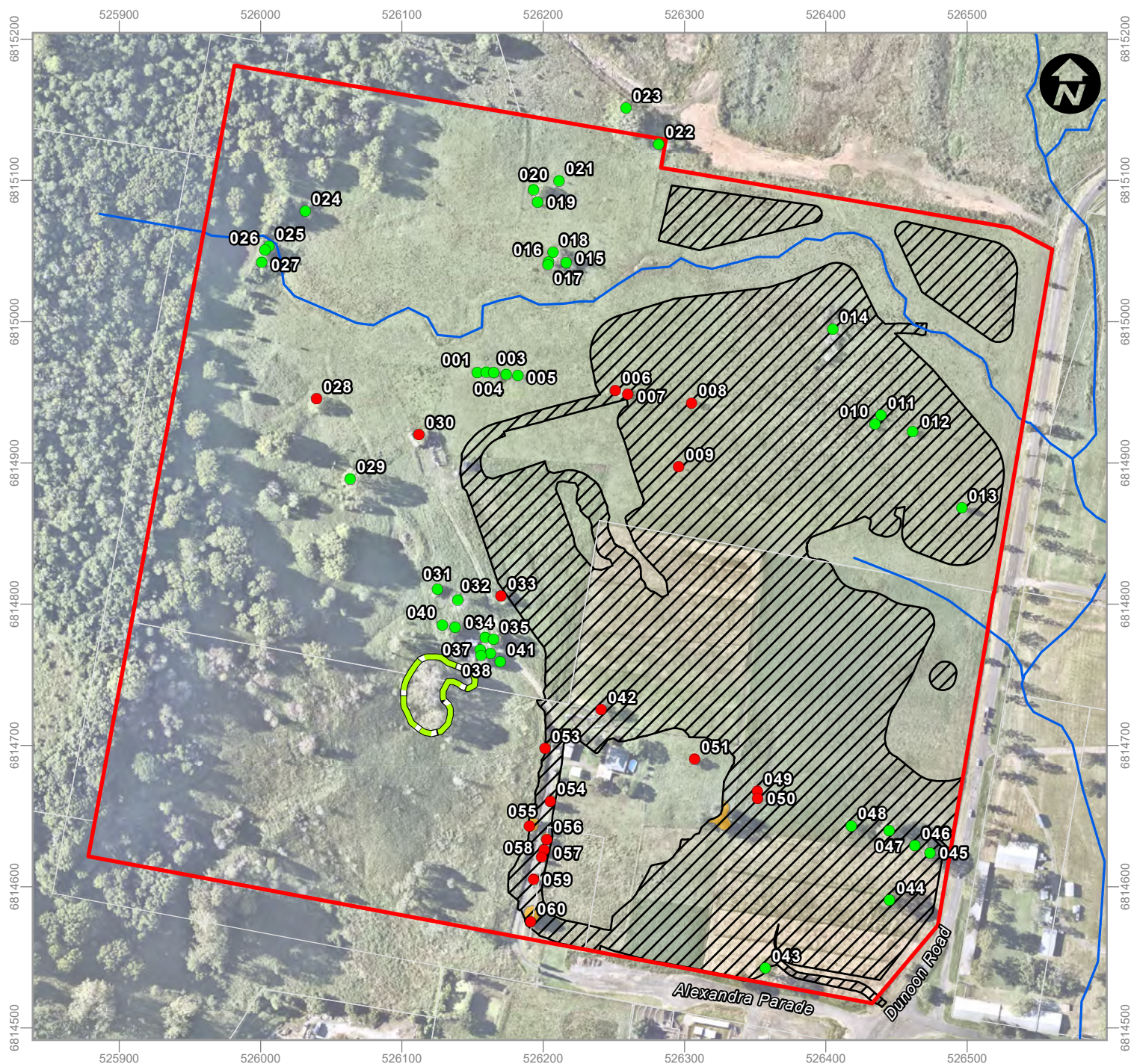
Refer to **Appendix A** for the proposed design and **Illustration 5.1** for the proposed activity footprint.

An assessment of impacts to biodiversity values is included in **Table 5.1**.

Table 5.1 Assessment of Impacts to Biodiversity Values

Biodiversity Value	Assessment of Impacts
Vegetation abundance 1.4 (b) BC Regulation	The proposed work is sited within areas of cleared pastureland comprising a suite of exotic and native grass species such as Swamp Millet, Rhodes Grass*, South African Pigeon Grass*, Narrow-leaved Carpet Grass*, Paspalum* and Kikuyu Grass*. Approximately 12.28 ha of cleared pastureland would be removed to facilitate the activity. Fifteen native trees (Silky Oak), assigned as a highly degraded form of PCT 3064 would be removed as a result of the activity. Fourteen exotic trees would also be removed as a result of the activity.
Vegetation integrity 1.5 (2)(a) BC Act	<p>Four threatened flora species were detected on the site. These species are not within the activity footprint and would not be impacted by the activity.</p> <p>The activity would mainly affect areas of cleared pastureland. Low lying areas of pastureland in the east of the site are not representative of the TEC, <i>Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>. Native species diversity in such areas is extremely low as a result of historical and current disturbance regimes with these areas dominated by exotic pasture species such as Torpedo Grass (<i>Panicum repens</i>)*, Narrow-leaved Carpet Grass (<i>Axonopus fissifolius</i>)*, Paspalum (<i>Paspalum urvillei</i>)* and Kikuyu Grass (<i>Cenchrus clandestinus</i>)*. The quadrat groundcover field assessment method concluded that areas of cleared pasture comprise an average of 5% cover of native species (refer to Appendix C). Where there is less than 15% native ground cover, the area is assessed as non-native vegetation and is not included in NVE. Given the low species diversity and high level of disturbance, wet pasture areas are considered to be of low conservation value and not representative of Freshwater Wetland TEC.</p> <p>Several threatened fauna species are considered to have the potential to occur on the site on occasion as part of broader foraging ranges in</p>

Biodiversity Value	Assessment of Impacts
	<p>the local area. Habitat for such species would not be impacted by the activity, given that it has been sited within areas of cleared pastureland.</p> <p>In relation to prescribed impacts:</p> <ul style="list-style-type: none"> ■ No karsts, caves, crevices, cliffs and other geological features of significance occur at the site. ■ No rocks occur at the site. ■ Non-native vegetation on the site is not considered to provide permanent/ regularly used habitat for threatened species. ■ Impacts to threatened fauna as a result of increased noise/ light are considered to be negligible given the site's location within cleared agricultural land.
Threatened species abundance 1.4(a) BC Regulation	<p>As the site is highly disturbed, impacts on threatened species abundance are considered to be negligible. In relation to indirect impacts:</p> <ul style="list-style-type: none"> ■ Whilst the activity may lead to an increase in traffic and associated risk of vehicle strikes to fauna, this is likely to be negligible given that the site and surrounds are predominantly cleared and currently used for agricultural purposes. ■ One farm dam is located upslope in the north-western portion of the site. ■ Offsite indirect impacts to threatened fauna are considered unlikely with the implementation of standard construction mitigation measures.
Habitat connectivity 1.4(c) BC Regulation Threatened species movement 1.4(d) BC Regulation	<p>Given the lack of native vegetation within the proposal footprint, it does not currently contribute to local habitat connectivity or movement corridors. Areas of vegetation in the western portion of the site would not be impacted by the activity and would continue to contribute to connectivity for local fauna assemblages.</p>
Flight path integrity 1.4 (e) BC Regulation	<p>The activity does not occur within any mapped wildlife corridors. Given the lack of impacts to vegetation resulting from the activity, no impacts to flight path integrity for any threatened fauna species are considered likely to occur.</p>
Water sustainability 1.4(f) BC Regulation	<p>A first order stream is mapped on the site from DPE's Hydro Line spatial data map. This small unnamed tributary of Wilsons Creek traverses the northern portion of the site flowing west to east. This drainage line is not mapped as KFH by NSW DPI.</p> <p>Upon inspection, this first order stream was observed to drain from a man-made dam near the foot of the vegetated hill slopes. It is a low-lying ephemeral drainage depression mostly without defined banks. It is currently grazed and lies within an area of cleared pastureland where native species diversity is extremely low as a result of historical and current disturbance regimes. Minimal water was present within this waterway at the time of the inspection in January 2024. Due to the current and historic disturbance history, the potential for aquatic fauna to occur is minimal.</p> <p>Hydrological processes associated with this feature would be managed as part of the detailed design process such that impacts to threatened species/ TECs are unlikely to occur.</p>



LEGEND

- | | |
|---|--|
| Site boundary | Activity footprint |
| Cadastre | Vegetation Impacted |
| Primary Koala habitat | PCT 3064 - Far North Hoop Pine Dry Rainforest (TEC) |
| ~ Watercourse | ● Tree to be removed |
| | ● Tree to be retained |

0 80 Metres


Biodiversity Impacts - Illustration 5.1

6. Mitigation

Mitigation measures outlined in **Table 6.1** are recommended to minimise potential biodiversity impacts resulting from the activity.

Table 6.1 Proposed Biodiversity Related Mitigation Measures

Mitigation Number	Aspect/ Section	Mitigation Measure	Reason for Mitigation Measure
1	Flora	<ul style="list-style-type: none"> Tree protection zones are to be established around trees to be retained prior to works commencing on site and maintained for the extent of establishment works on the site. 	To minimise potential impacts to retained trees.
2	Flora	<ul style="list-style-type: none"> The limit of vegetation clearing is to be clearly delineated on site prior to works commencing. 	To minimise potential impacts to retained trees.
3	Fauna	<ul style="list-style-type: none"> Pre-clearing surveys are to be undertaken if any hollow-bearing trees are to be removed each morning by an ecologist or spotter-catcher. 	To ensure nesting or roosting fauna are not present within vegetation to be removed.
4	Fauna	<ul style="list-style-type: none"> Should Koalas be found on site during the clearing of native vegetation and/ or earthworks, works must: <ul style="list-style-type: none"> be temporarily suspended within a range of 50 m from any tree which is occupied by a Koala; be avoided in any area between the Koala and the nearest areas of habitat to allow the animal to move to adjacent undisturbed areas; must not resume until the koala has moved from the tree of its own volition. 	To minimise potential impacts to Koalas (if present).
5	Fauna	<ul style="list-style-type: none"> Any injured fauna are to be taken to WIRES or Northern Rivers Wildlife Carers (NRWC). The contact details of WIRES (1300 094 737) and NRWC (6628 1866) are to be made known to the site supervisor and ecologist. 	To provide injured fauna with adequate care if injured.
6	Habitat Protection/ Erosion	<ul style="list-style-type: none"> An Erosion and Sediment Control Plan must be implemented in accordance with the Landcom/ Department of Housing <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (Blue Book). The controls must be in place, inspected and managed until the works are complete and all exposed erodible materials are stable relevant to each construction stage. Inspection records must be kept and provided to the Post Approval and Compliance Team on request. 	To minimise potential impacts to waterways.
7	Biosecurity	<ul style="list-style-type: none"> Measures are to be implemented during construction works so that machinery and plant do not introduce weed seed, propagules, pathogens such as myrtle rust or phytophthora to the site (e.g. by adoption and implementation of the 'Arrive Clean, Leave Clean' guidelines (DoE 2015). 	To minimise spread of weeds and pathogens.



Mitigation Number	Aspect/ Section	Mitigation Measure	Reason for Mitigation Measure
8	Weeds	<ul style="list-style-type: none"> ■ Biosecurity risk weeds are to be managed according to requirements under the <i>Biosecurity Act 2015</i> and/ or Council management measures. 	To minimise spread of weeds.
9	Biosecurity	<ul style="list-style-type: none"> ■ Contractors are to ensure all machinery is cleaned prior to entering the works areas to ensure that soil, vegetation, Fire Ants and Yellow Crazy Ant is not imported to the site. Any observations of Fire Ants or Yellow Crazy Ant are to be reported to the Biosecurity Hotline, the DPI website, or via the Local Lands Services office. 	To minimise the potential movement of Fire Ants and Yellow Crazy Ants.
10	Fauna Habitat	<ul style="list-style-type: none"> ■ Vegetation to be impacted should not be pushed into adjacent vegetation. 	To minimise impacts on retained vegetation.



7. Statutory Requirements

The following section examines the findings of the site assessment with regard to relevant statutory requirements that require consideration for the REF.

7.1 Biodiversity Conservation Act 2016 (BC Act)

The BC Act requires a test of significance (five-part test) when assessing whether an action, development or activity is likely to significantly affect threatened species, ecological communities or their habitats.

No Assessments of Significance (five-part tests) have been undertaken for threatened ecological communities or threatened flora known to occur on site, and threatened fauna with potential to occur at the site given:

- Impacts to *Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions* TEC are limited to highly degraded, isolated stands of Silky Oak occurring as clumped paddock trees (equating to 0.05 ha). This community also occurs proximate to the site forming a larger contiguous area of lowland rainforest. The impacted vegetation is highly disturbed and comprises a relatively minor amount of vegetation in the context of the site and adjacent areas. The lowland subtropical rainforest community within the wider locality is expected to persist and remain unaffected by the activity. The activity is not expected to significantly affect or alter the extent or composition of the TEC such that its local occurrence is likely to be placed at risk of extinction.
- Threatened flora species are not proximate to the activity footprint and would not be impacted by the activity.
- Threatened fauna species considered to have potential to occur on the site may only occur on occasion as part of broader foraging ranges in the local area.
- Significant habitat for threatened fauna species would not be impacted by the activity given that it has been sited within areas of cleared pastureland.
- Non-native vegetation on the site is not considered to provide permanent/ regularly used habitat for threatened species.
- Increased impacts to threatened fauna as a result of increased noise/ light are considered to be negligible given the sites location within cleared agricultural land.

Based on the search results and site assessment, no significant impacts to any BC Act listed threatened entities would be likely to result from the activity.

7.2 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 site assessment, no significant impacts to any MNES would be likely to result from the activity (refer to **Table 7.1**).

Table 7.1 Assessment of MNES

Matter	Potential Impact
Any impact on a World Heritage property?	
No World Heritage properties occur within 5 km of the site.	Nil
Any impact on a National Heritage place?	
No National Heritage places occur within 5 km of the site.	Nil
Any impact on a Wetland of International Importance?	
No wetlands of international importance (Ramsar sites) occur within 5 km of the site.	Nil
Any impact on the Great Barrier Reef Marine Park?	
The Great Barrier Reef Marine park is distant from the site.	Nil
Any impact on a Commonwealth marine area?	
No Commonwealth marine areas occur within 5 km of the site.	Nil
Any impact on nationally threatened species and ecological communities?	
Habitat for five threatened ecological communities and 66 threatened species is identified within 5 km of the site.	Minor
No EPBC Act listed TECs occur on site.	
A highly degraded form of Lowland subtropical rainforest listed as candidate <i>Lowland Rainforest of Subtropical Australia</i> TEC under the EPBC Act is present, with 0.05 ha impacted by the activity.	
Three EPBC Act listed threatened flora species (Hairy Jointgrass, Thorny Pea and Durobby) occur on site (refer to Section 4.3). Threatened flora species are not proximate to the activity footprint and would not be impacted by the activity.	
Two EPBC Act listed threatened fauna (Koala and Grey-headed Flying-fox) have the potential to occur on site (refer to Section 4.4). Threatened fauna species considered to have potential to occur on the subject land may only occur on occasion as part of broader foraging ranges in the local area. Significant habitat for threatened fauna species would not be impacted by the activity given that it has been sited within areas of cleared pastureland.	
The activity would be unlikely to result in the removal of habitat important to any threatened fauna species in a local context and would not contribute significantly to any listed key threatening processes.	
Any impact on Migratory species?	
Habitat for 13 migratory species is identified within a 5 km radius of the site. Given the relatively fragmented and disturbed habitat present, migratory species are unlikely to be significantly affected by the activity.	Negligible
Does the Activity involve a nuclear action (including uranium mining)?	
The activity does not involve a nuclear action.	Nil
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	
The activity does not involve any impact on a water resource, in relation to coal seam gas development and large mining development.	Nil



8. Evaluation of Environmental Impacts

The activity described will not affect areas of outstanding biodiversity value or Wilderness Areas. The Activity is unlikely to significantly affect threatened species or ecological communities or their habitats, within the meaning of the *Biodiversity Conservation Act 2016*, and therefore a Species Impact Statement (or Biodiversity Development Assessment Report (BDAR) if the Proponent elected) is not required. The activity is also unlikely to affect Commonwealth land or have a significant impact on any matters of national environmental significance in relation to the EPBC Act.

Overall, the proposed activity is not expected to have a significant impact on the biodiversity values present at the site.



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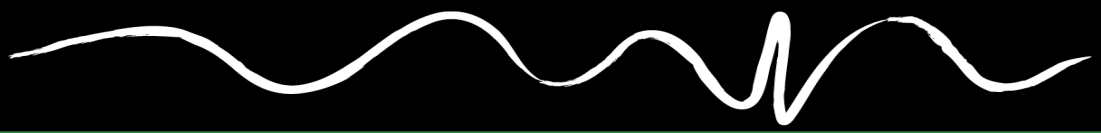
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Appendix A

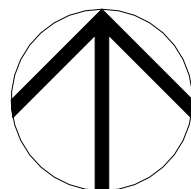
Proposed Plans



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REV	DATE	COMMENTS
A	11/02/2024	FOR REVIEW
B	13/02/2025	FOR INFORMATION
C	28/02/2025	UPDATED ARCHITECTURE DRAWINGS
D	02/04/2025	FOR REVIEW
E	13/05/2025	PRELIMINARY ISSUE FOR REF
F	19/06/2025	ISSUE FOR REF
G	23/06/2025	ISSUE FOR REF

DRN	CHKD	VRFD
MM	KG	
MM	KG	
MM	KG	
MM	KG	
MM	KG	
MM	KG	

PROJECT : **RICHMOND RIVER
HIGH CAMPUS**

CLIENT : **SINSW**

SITE : **DUNOON ROAD, NORTH LISMORE**

DRAWING : **OVERALL SITE CONTEXT PLAN**

WORK IN FIGURED DIMENSIONS IN PREFERENCE TO SCALE. CHECK DIMENSIONS AND LEVELS ON SITE PRIOR TO THE ORDERING OF MATERIALS OR THE COMPLETION OF WORKSHOP DRAWINGS. IF IN DOUBT ASK. REPORT ALL ERRORS AND OMISSIONS.
Autodesk Docs://Richmond River - Flood Recovery/RRHC-EJE-00-ZZ-M3-A-0001.rvt

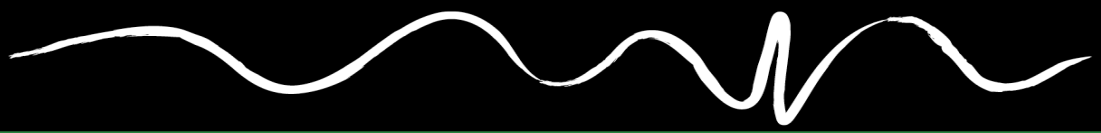
PROJECT No : **14931** DRAWN : **MM** DATE : **23/06/2025** SCALES : **1 : 1500 @ A1**
1 : 3000 @ A3

PHASE : **SD** BUILDING ID : **00** Level No : **ZZ** SEQUENTIAL No : **A-DA0010** REV : **G**

FILE NAMING No. (IN ACCORDANCE TO SINSW - MIDP)

RRHC- EJE- 00- ZZ-DR- A-DA0010

EJE Integrity
Innovation
Inspiration



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) Entities in selected area [North: -28.75 West: 153.22 East: 153.32 South: -28.85] returned a total of 5,948 records of 69 species.
Report generated on 10/12/2024 11:03 AM



Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Common status	Records	Info
Animalia	Reptilia	Elapidae	2645	<i>Cacophis harriettae</i>		White-crowned Snake	V,P		2	
Animalia	Aves	Anseranatidae	0199	<i>Anseranas semipalmata</i>		Magpie Goose	V,P		1	
Animalia	Aves	Anatidae	0216	<i>Oxyura australis</i>		Blue-billed Duck	V,P		5	
Animalia	Aves	Anatidae	0214	<i>Stictonetta naevosa</i>		Freckled Duck	V,P		7	
Animalia	Aves	Columbidae	0025	<i>Ptilinopus magnificus</i>		Wompoo Fruit-Dove	V,P		13	
Animalia	Aves	Columbidae	0021	<i>Ptilinopus regina</i>		Rose-crowned Fruit-Dove	V,P		35	
Animalia	Aves	Columbidae	0023	<i>Ptilinopus superbus</i>		Superb Fruit-Dove	V,P		2	
Animalia	Aves	Podargidae	0314	<i>Podargus ocellatus</i>		Marbled Frogmouth	V,P		10	
Animalia	Aves	Apodidae	0334	<i>Hirundapus caudacutus</i>		White-throated Needletail	V,P	V,C,J,K	9	
Animalia	Aves	Ciconiidae	0183	<i>Ephippiorhynchus asiaticus</i>		Black-necked Stork	E1,P		44	
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		2	
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucogaster</i>		White-bellied Sea-Eagle	V,P		30	
Animalia	Aves	Accipitridae	0225	<i>Hieraetus morphnoides</i>		Little Eagle	V,P		4	
Animalia	Aves	Accipitridae	8739	<i>Pandion cristatus</i>		Eastern Osprey	V,P,3		1	
Animalia	Aves	Falconidae	0238	<i>Falco subniger</i>		Black Falcon	V,P		1	
Animalia	Aves	Rallidae	0053	<i>Amauornis moluccana</i>		Pale-vented Bush-hen	V,P		1	
Animalia	Aves	Haematopodidae	0131	<i>Haematopus fuliginosus</i>		Sooty Oystercatcher	V,P		1	
Animalia	Aves	Jacaniidae	0171	<i>Irediparra gallinacea</i>		Comb-crested Jacana	V,P		123	
Animalia	Aves	Scolopacidae	0168	<i>Gallinago hardwickii</i>		Latham's Snipe	V,P	V,J,K	45	
Animalia	Aves	Cacatuidae	8862	^^ <i>Calyptorhynchus lathami lathami</i>		South-eastern Glossy Black-Cockatoo	V,P,2	V	1	
Animalia	Aves	Psittacidae	0260	<i>Glossopsitta pusilla</i>		Little Lorikeet	V,P		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		1	
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	Pomatostomidae	8388	<i>Pomatostomus temporalis</i>		Grey-crowned Babbler (eastern subspecies)	V,P		1	
Animalia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>		Varied Sittella	V,P		1	

Animalia	Aves	Monarchidae	0376	<i>Carterornis leucotis</i>	White-eared Monarch	V,P		2	
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	Koala	E1,P	E	2627	
Animalia	Mammalia	Petauridae	1137	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		12	
Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	965	
Animalia	Mammalia	Molossidae	1329	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V,P		2	
Animalia	Mammalia	Vespertilionidae	1372	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V,P		2	
Animalia	Mammalia	Vespertilionidae	1357	<i>Myotis macropus</i>	Southern Myotis	V,P		3	
Animalia	Mammalia	Vespertilionidae	1336	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		32	
Animalia	Mammalia	Vespertilionidae	1361	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		5	
Animalia	Mammalia	Miniopteridae	1346	<i>Miniopterus australis</i>	Little Bent-winged Bat	V,P		26	
Animalia	Mammalia	Miniopteridae	3330	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		9	
Animalia	Insecta	Carabidae	1010	<i>Nurus brevis</i>	Shorter Rainforest Ground-beetle	V,3		285	
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	5	
Plantae	Flora	Doryanthaceae	1020	<i>Doryanthes palmeri</i>	Giant Spear Lily	V,P		1	
Plantae	Flora	Fabaceae (Caesalpinioideae)	8772	<i>Senna acclinis</i>	Rainforest Cassia	E1		1	
Plantae	Flora	Fabaceae (Faboideae)	2833	<i>Desmodium acanthocladum</i>	Thorny Pea	V	V	421	
Plantae	Flora	Fabaceae (Faboideae)	9217	<i>Rhynchosia acuminatissima</i>	Pointed Trefoil	V		3	
Plantae	Flora	Lauraceae	3491	<i>Endiandra hayesii</i>	Rusty Rose Walnut	V	V	1	
Plantae	Flora	Meliaceae	3682	<i>Owenia cepiodora</i>	Onion Cedar	V	V	1	
Plantae	Flora	Menispermaceae	7167	<i>Tinospora smilacina</i>	Tinospora Vine	E1		7	
Plantae	Flora	Menispermaceae	3691	<i>Tinospora tinoporoides</i>	Arrow-head Vine	V		147	
Plantae	Flora	Myrtaceae	11894	<i>Gossia fragrantissima</i>	Sweet Myrtle	E1	E	50	
Plantae	Flora	Myrtaceae	4283	<i>Rhodamnia rubescens</i>	Scrub Turpentine	E4A	CE	21	
Plantae	Flora	Myrtaceae	4284	<i>Rhodomyrtus psidioides</i>	Native Guava	E4A	CE	1	
Plantae	Flora	Myrtaceae	4290	<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V	V	2	
Plantae	Flora	Orchidaceae	6990	<i>Oberonia complanata</i>	Yellow-flowered King of the Fairies	E1,P,2		3	
Plantae	Flora	Orchidaceae	4581	<i>Sarcochilus dilatatus</i>	Brown Butterfly Orchid	E1,P,2		2	
Plantae	Flora	Poaceae	4776	<i>Arthraxon hispidus</i>	Hairy Jointgrass	V	V	888	
Plantae	Flora	Primulaceae	11951	<i>Myrsine richmondensis</i>	Ripple-leaf Muttonwood	E1	E	2	
Plantae	Flora	Proteaceae	5354	<i>Floydia praealta</i>	Ball Nut	V	V	7	
Plantae	Flora	Proteaceae	5432	<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V	V	2	
Plantae	Flora	Proteaceae	5446	<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V	V	9	
Plantae	Flora	Ranunculaceae	5494	<i>Clematis fawcettii</i>	Northern Clematis	V	V	13	
Plantae	Flora	Rubiaceae	8297	<i>Randia moorei</i>	Spiny Gardenia	E1	E	4	

Plantae	Flora	Rubiaceae	13561	<i>Triflorensia cameronii</i>	Cameron's Tarenna	E1		5	
Plantae	Flora	Rutaceae	12433	<i>Coatesia paniculata</i>	Axe-Breaker	E1		13	
Plantae	Flora	Santalaceae	5871	<i>Thesium australe</i>	Austral Toadflax	V	V	3	
Plantae	Flora	Sapindaceae	5889	<i>Diploglottis campbellii</i>	Small-leaved Tamarind	E1,2	E	1	
Plantae	Flora	Sapindaceae	8291	<i>Lepiderema pulchella</i>	Fine-leaved Tuckeroo	V		1	
Plantae	Flora	Tiliaceae	6198	<i>Corchorus cunninghamii</i>	Native Jute	E1	E	6	

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) Communities in selected area [North: -28.75 West: 153.22 East: 153.32 South: -28.85] returned 0 records for 11 entities.
Report generated on 10/12/2024 11:05 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Com. 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		P	
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		P	
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 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	P	
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: 10-Dec-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	66
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	15
Commonwealth Heritage Places:	None
Listed Marine Species:	24
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	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
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In buffer area only
Grey box-grey gum wet forest of subtropical eastern Australia	Endangered	Community may occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area	In feature area
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species

[Resource Information]

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

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Critically Endangered	Species or species habitat may occur within area	In feature area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area	In feature area
Erythroriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In feature area
FISH			
Maccullochella ikei Clarence River Cod, Eastern Freshwater Cod [26170]	Endangered	Species or species habitat may occur within area	In feature area
FROG			
Litoria olongburensis Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat may occur within area	In feature area
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area	In feature area
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
INSECT			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
Phyllodes imperialis smithersi Pink Underwing Moth [86084]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus tridactylus Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Amyema plicatula [81879]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Baloghia marmorata Marbled Balogia, Jointed Baloghia [8463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat may occur within area	In feature area
Bulbophyllum globuliforme Miniature Moss-orchid, Hoop Pine Orchid [6649]	Vulnerable	Species or species habitat may occur within area	In feature area
Clematis fawcettii Stream Clematis [4311]	Vulnerable	Species or species habitat known to occur within area	In feature area
Coleus nitidus listed as Plectranthus nitidus Nightcap Plectranthus, Silver Plectranthus [91380]	Endangered	Species or species habitat may occur within area	In buffer area only
Corchorus cunninghamii Native Jute [14659]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat may occur within area	In feature area
Endiandra floydii Floyd's Walnut, Crystal Creek Walnut [52955]	Endangered	Species or species habitat may occur within area	In feature area
Endiandra hayesii Rusty Rose Walnut, Velvet Laurel [13866]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Floydia praealta Ball Nut, Possum Nut, Big Nut, Beefwood [15762]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gossia fragrantissima Sweet Myrtle, Small-leaved Myrtle [78867]	Endangered	Species or species habitat known to occur within area	In feature area
Hicksbeachia pinnatifolia 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 known to occur within area	In feature area
Leichhardtia longiloba listed as Marsdenia longiloba Clear Milkvine [91911]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In feature area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Myrsine richmondensis Purple-leaf Muttonwood, Lismore Muttonwood [83888]	Endangered	Species or species habitat known to occur within area	In buffer area only
Ochrosia moorei Southern Ochrosia [11350]	Endangered	Species or species habitat known to occur within area	In feature area
Owenia cepiodora Onionwood, Bog Onion, Onion Cedar [11344]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pedleya acanthoclada listed as Desmodium acanthocladum Thorny Pea [93275]	Vulnerable	Species or species habitat known to occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area	In feature area
Randia moorei Spiny Gardenia [10577]	Endangered	Species or species habitat known to occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Sophora fraseri [8836]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Syzygium hodgkinsoniae Smooth-bark Rose Apple, Red Lilly Pilly [3539]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area	In feature area
Vincetoxicum woollsii listed as Tylophora woollsii [40080]	Endangered	Species or species habitat may occur within area	In feature area

REPTILE			
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

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

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [11276]	NSW	In buffer area only

Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [11269]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [11271]	NSW	In buffer area only

Communications, Information Technology and the Arts - Australian Broadcasting Corporation		
Commonwealth Land - Australian Broadcasting Corporation [15759]	NSW	In buffer area only
Commonwealth Land - Australian Broadcasting Corporation [15758]	NSW	In buffer area only
Commonwealth Land - Australian Broadcasting Corporation [15760]	NSW	In buffer area only

Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [11273]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11274]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11270]	NSW	In buffer area only

Defence		
Commonwealth Land - Defence Service Homes Corporation [16162]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11280]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11281]	NSW	In buffer area only
Defence - LISMORE GRES DEPOT ; 41 RNSWR LISMORE [10061]	NSW	In buffer area only

Commonwealth Land Name		State	Buffer Status
Defence - Defence Housing Authority			
Commonwealth Land - Defence Housing Authority [15446]		NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [15943]		NSW	In buffer area only
Listed Marine Species [Resource Information]			
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Wilson	Nature Reserve	NSW	In buffer area only

Regional Forest Agreements	[Resource Information]
Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.	

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

EPBC Act Referrals					[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Controlled action					
330 kV Transmission Line, 205km in Length	2010/5326	Controlled Action	Completed	In buffer area only	

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Relocation of Grey-headed Flying Foxes	2006/2985	Controlled Action	Completed	In buffer area only
Not controlled action				
220 Lot Residential Subdivision and Development	2009/4705	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Bioregional Assessments			[Resource Information]
SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

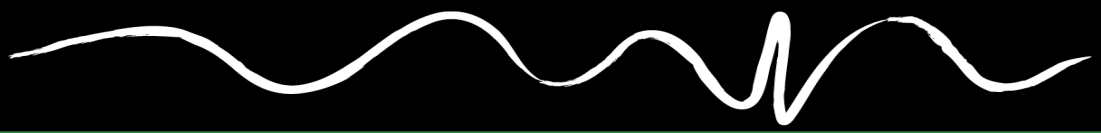
Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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



Appendix C

Quadrat Groundcover Field Assessment Results

Assessing Native Groundcover

Quadrat Field Assessment Method Field Sheet

Date:	21/08/2024
Assessor:	VJS, GJM, HL
Project #:	4664

Start time:	8.54am
End time:	

Field notes:	

Summary Data

Average overall cover
95.24

Average native cover
4.74

Average native groundcover as a proportion of total groundcover (see note below)

5

Impact area (ha)

Impact area adjusted for % native groundcover present (ha)	0.00
--	------

% Native Cover Rules - When to Include Grasslands in BOS Clear

Where there is greater than 75% native vegetation in the ground cover then treat the vegetation as 100% native and assess the area to be cleared accordingly

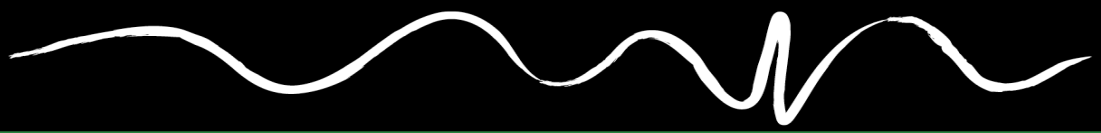
Where the proportion of exotic to native vegetation in the ground cover is between 15-75% - the calculation of native vegetation extent is adjusted by multiplying the proportion (%) of native cover by the total area to be cleared

Where there is less than 15% native ground cover all vegetation can be considered exotic and the area clearing threshold will not be exceeded.

	Field Data														Summary Data			
	Q#	Overall	Native	Q#	Overall	Native	Q#	Overall	Native	Q#	Overall	Native	Q#	Overall	Native	Overall	Native	
Patch 1	Q1	98	0	Q2	95	0	Q3	98	1	Q4	95	0	Q5	99	0	Patch 1 # Plots:	10	10
	Q6	98	2	Q7	95	0	Q8	98	0	Q9	98	0	Q10	98	0	Patch 1 Average:	97.2	0.3
Patch 2	Q1	98	0	Q2	98	0	Q3	95	10	Q4	95	8	Q5	98	3	Patch 2 # Plots:	10	10
	Q6	98	10	Q7	85	50	Q8	80	40	Q9	98	1	Q10	95	10	Patch 2 Average:	94	13.2
Patch 3	Q1	98	10	Q2	98	5	Q3	98	2	Q4	98	20	Q5	98	3	Patch 3 # Plots:	10	10
	Q6	99	3	Q7	96	2	Q8	96	1	Q9	85	8	Q10	98	1	Patch 3 Average:	96.4	5.5
Patch 4	Q1	99	1	Q2	99	1	Q3	95	1	Q4	70	0	Q5	70	0	Patch 4 # Plots:	10	10
	Q6	95	1	Q7	98	0	Q8	99	0	Q9	95	5	Q10	90	0	Patch 4 Average:	91	0.9
Patch 5	Q1	99	5	Q2	98	4	Q3	90	2	Q4	100	5	Q5	99	5	Patch 5 # Plots:	10	10
	Q6	95	2	Q7	98	1	Q8	99	5	Q9	99	2	Q10	99	7	Patch 5 Average:	97.6	3.8

[illegible]

		Quadrat Location	
		along 0-50 m	across 0-10 m
Patch 1	Q1	2	2
	Q2	3	10
	Q3	4	5
	Q4	8	9
	Q5	12	1
	Q6	17	6
	Q7	28	5
	Q8	34	1
	Q9	39	7
	Q10	46	9
Patch 2	Q1	9	8
	Q2	30	10
	Q3	31	8
	Q4	34	8
	Q5	34	4
	Q6	41	6
	Q7	44	7
	Q8	47	5
	Q9	49	9
	Q10	50	7
Patch 3	Q1	0	7
	Q2	4	0
	Q3	13	1
	Q4	20	0
	Q5	38	3
	Q6	47	5
	Q7	48	8
	Q8	48	6
	Q9	49	0
	Q10	50	2
Patch 4	Q1	1	1
	Q2	7	2
	Q3	12	9
	Q4	16	10
	Q5	17	3
	Q6	33	10
	Q7	36	6
	Q8	37	3
	Q9	47	6
	Q10	49	3
Patch 5	Q1	2	1
	Q2	7	6
	Q3	9	3
	Q4	12	0
	Q5	13	8
	Q6	13	5
	Q7	24	6
	Q8	25	1
	Q9	30	1
	Q10	33	1



Appendix D

Threatened Flora Potential Occurrence Assessments

Potential of Occurrence and Habitat Assessment

A potential occurrence assessment was completed to assess the likelihood of occurrence of each threatened species or population identified within the site. All threatened biodiversity identified in the 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

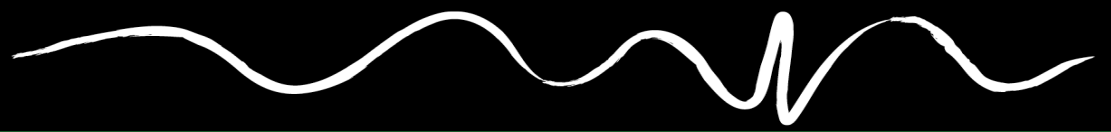
For this proposed activity, the likelihood of occurrence of threatened and migratory species and populations was determined based on the criteria shown in **Table D 1**.

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

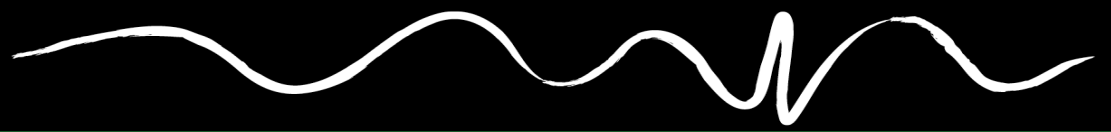
Potential of Occurrence	Criteria
Known	The species was observed in the site either during the current survey or during another survey less than one year prior.
High	<p>A species has a high likelihood of occurrence if:</p> <ul style="list-style-type: none">the site contains or forms part of a large area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

Table D 2 Threatened flora potential of occurrence assessment


Scientific Name	Common Name	BC Act	EPBC Act	Habitat	Potential Occurrence
<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.	High/ Known. Numerous records occurring to the north of the site. Recorded in two areas in southern portion of the site.
<i>Clematis fawcettii</i>	Northern Clematis	V	V	Drier rainforest, usually near streams.	Low. Appropriate habitat but predominantly historical records around Lismore.
<i>Coatesia paniculata</i>	Axe-breaker	E	-	In NSW known distribution is restricted to the north-east in the Tweed, Lismore and Wardell areas. Found in dry subtropical rainforest and vine scrub, often along rivers.	Low. Appropriate habitat but predominantly historical records around Lismore.
<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. Appropriate habitat but predominantly historical records around Lismore.
<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. Habitat on the site likely to be too degraded for this species.



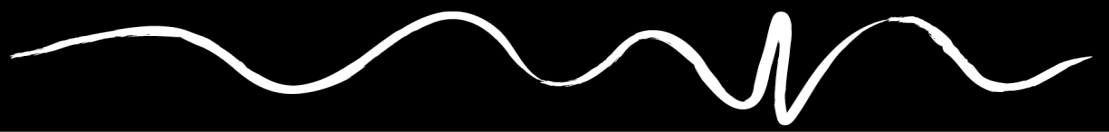
Scientific Name	Common Name	BC Act	EPBC Act	Habitat	Potential Occurrence
<i>Desmodium acanthocladum</i>	Thorny Pea	V	V	Fringes of riverine subtropical and dry rainforest on basalt-derived soils at low elevations.	High/ Known. Numerous records to the north and west of the site. Recorded in north-western corner of the site.
<i>Doryanthes palmeri</i>	Giant Spear Lily	V	-	Grows in a narrow band of vegetation along the cliff-tops and on steep cliff-faces or rocky ledges in montane heath next to subtropical rainforest, warm temperate rainforest or wet eucalypt forest. Occurs on exposed rocky outcrops on infertile soils or on bare rock, in far north-east NSW and south-east Queensland.	None. suitable habitat is absent from the site.
<i>Endiandra hayesii</i>	Rusty Rose Walnut	V	V	Sheltered moist gullies in subtropical and warm temperate rainforest on alluvium or basalt.	Low. Habitat likely to be too degraded on the site.
<i>Floydia praealta</i>	Ball Nut	V	V	Riverine and subtropical rainforest, usually soils derived from basalt.	Low. Habitat likely to be too degraded on the site.
<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.	Moderate. Appropriate habitat and numerous records around Lismore.



Scientific Name	Common Name	BC Act	EPBC Act	Habitat	Potential Occurrence
<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	V	V	Subtropical rainforest, moist eucalypt forest and Brush Box forest.	Low. Habitat likely to be too degraded on the site.
<i>Lepiderema pulchella</i>	Fine-leaved Tuckeroo	V	-	Infertile metasediments, fertile basalts and backswamp alluvium in the Tweed Valley within lowland subtropical rainforest.	Low. Habitat likely to be too degraded on the site.
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V	V	Subtropical rainforest usually near the coast.	Moderate. Could occur as a planted specimen at the site.
<i>Myrsine richmondensis</i>	Ripple-leaf Muttonwood	E	E	Subtropical and dry rainforest and swamp forest on creek flats and slopes on basalt derived soil.	Low. Habitat likely to be too degraded on the site and local records from Boatharbour Nature Reserve only.
<i>Oberonia complanata</i>	Yellow-flowered King of the Fairies	E	-	Grows on trees and rocks in littoral rainforest, subtropical rainforest, dry rainforest, wet or dry eucalypt forests, dunes (including stabilised sands), stream-side areas, swampy forests and mangroves.	Low. Habitat likely to be too degraded on the site.
<i>Ochrosia moorei</i>	Southern Ochrosia	E	E	Riverine and lowland subtropical rainforest.	Low. Habitat likely to be too degraded on the site and scarce recent records in vicinity of the site.
<i>Owenia cepiodora</i>	Onion Cedar	V	V	Subtropical and dry rainforest. In NSW, from Bangalow to the Macpherson Range.	Low. The site is south of species known distribution.

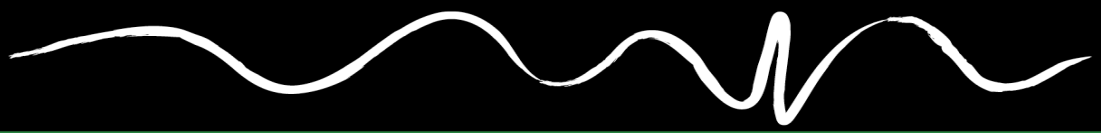


Scientific Name	Common Name	BC Act	EPBC Act	Habitat	Potential Occurrence
<i>Plectranthus nitidus</i>	Nightcap Plectrathus	E	E	Rocky cliff faces and boulders, creek banks in shelter of adjacent rainforest.	Low. Habitat likely to be too degraded on the site.
<i>Randia moorei</i>	Spiny Gardenia	E	E	Subtropical, riverine, littoral and dry rainforest, with Hoop Pine and Brush Box canopy.	Low. Habitat likely to be too degraded on the site.
<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. Habitat likely degraded on the site and scarce local records.
<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. Habitat likely degraded on the site and scarce local records.
<i>Rhynchosia acuminatissima</i>	Pointed Trefoil	V	-	In or near dry rainforest dominated by Hoop Pine (<i>Araucaria cunninghamii</i>). Other associated species include Brush Box (<i>Lophostemon confertus</i>), Grey Ironbark (<i>Eucalyptus siderophloia</i>), Rough-leaved Elm (<i>Aphananthe philippinensis</i>) and Native Holly (<i>Alchornea ilicifolia</i>).	Low. Habitat likely degraded on the site and scarce local records.
<i>Sarcochilus dilatatus</i>	Brown Butterfly Orchid	E	-	Grows on trees in littoral rainforest, subtropical rainforest, dry rainforest and streamside	Low. Habitat likely degraded on the site and scarce local records.



Scientific Name	Common Name	BC Act	EPBC Act	Habitat	Potential Occurrence
				forests, mainly at low to medium (up to 500m) altitudes.	
<i>Senna acclinis</i>	Rainforest Cassia	E	-	Edges of subtropical and dry rainforest.	Low. Habitat likely degraded on the site and scarce local records.
<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V	V	Riverine and subtropical rainforest on rich alluvial or basaltic soils.	Low. Habitat likely degraded on the site and scarce local records.
<i>Thesium australe</i>	Austral Toadflax	V	V	Grassland or grassy eucalypt woodland where <i>Themeda australis</i> is predominant, on grassy headlands.	Low. Unlikely to be suitable habitat on the site.
<i>Tinospora smilacina</i>	Tinospora Vine	E	-	Dry rainforest and along the boundaries of dry rainforest and dry eucalypt forest.	Low. Habitat likely degraded on the site and scarce local records.
<i>Tinospora tinoporoides</i>	Arrow-head Vine	V	-	Wetter subtropical rainforest, including littoral rainforest, on fertile, basalt-derived soils.	High/ Known. Numerous records to the north and west of the site. Recorded in north-western corner of the site.
<i>Triflorensia cameronii</i>	Cameron's Tarenna	E	-	Understorey of dry rainforest, on rocky basalt-derived soils.	Low. Habitat likely degraded on the site and scarce local records.

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



Appendix E

Threatened Fauna Potential Occurrence Assessments

Threatened Fauna Potential Occurrence Assessment

For this proposed activity, the likelihood of occurrence of threatened and migratory species and populations was determined based on the criteria shown in **Table E 1**.


Table E 1 Potential of occurrence criteria for threatened species and populations of fauna

Potential of Occurrence	Criteria
Known	The species was observed in the site either during the current survey or during another survey less than one year prior.
High	A species has a high likelihood of occurrence if: <ul style="list-style-type: none">the site contains or forms part of a large area of high-quality suitable habitatimportant habitat elements (i.e. for breeding or important life cycle periods such as winter foraging periods) are abundant within the sitethe species has been recorded recently in similar habitat in the localitythe site is likely to support resident populations or to contain habitat that is visited by the species during regular seasonal movements or migration.
Moderate	A species has a moderate likelihood of occurrence if: <ul style="list-style-type: none">the site contains or forms part of a small area of high-quality suitable habitatthe site contains or forms part of a large area of marginal habitatimportant habitat elements (i.e. for breeding or important life cycle periods such as winter foraging periods) are sparse or absent within the site
Low	A species has a low likelihood of occurrence if: <ul style="list-style-type: none">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)the site is unlikely to support resident populations or to contain habitat that is visited by the species during regular seasonal movements or migration.the species is considered to be a rare vagrant, likely only to visit the site very rarely; e.g. during juvenile dispersal or exceptional climatic conditions (e.g. extreme drought conditions in typical habitat of inland birds).
None	Suitable habitat is absent from the site.


Table E 2 Threatened fauna potential of occurrence assessment*

*Migratory /pelagic marine species identified in the search results are not assessed as no habitat occurs at the site


Scientific Name	Common Name	Status		Habitat Requirement	Potential of Occurrence
		BC Act	EPBC Act		
Insecta					
<i>Nurus brevis</i>	Shorter Rainforest Ground-beetle	E	-	Low elevation rainforest, predominantly drier rainforests.	Low – habitat appears too degraded and no records in proximity to the site.
Avifauna					
<i>Amauornis 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 – marginal habitat present associated with degraded creek line.
<i>Anseranas semipalmata</i>	Magpie Goose	V	-	Shallow wetlands (<1 m deep), large swamps and dams with dense growth of rushes or sedge.	Low – possible vagrant at the site on occasion.
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	V	V	She oaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	Low – minimal foraging habitat likely at the 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.	High – records to the immediate north-west of the site.
<i>Circus assimilis</i>	Spotted Harrier	V	-	Grassy open woodland, inland riparian woodland, grassland and shrub steppe. Most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands.	Low – possible vagrant at the site on occasion.
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-	Inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches.	Low – minimal foraging habitat likely at the site.




Scientific Name	Common Name	Status		Habitat Requirement	Potential of Occurrence
		BC Act	EPBC Act		
				mallee and Acacia woodland. Inhabits most of mainland Australia except the treeless deserts and open grasslands.	
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	Low – possible vagrant at the site on occasion.
<i>Falco subniger</i>	Black Falcon	V	-	Widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. In NSW there is assumed to be a single population that is continuous with a broader continental population	Low – marginal foraging habitat likely at the site.
<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 – minimal foraging habitat likely at the site.
<i>Haematopus fuliginosus</i>	Sooty Oystercatcher	V	-	Intertidal rocky and coral reefs, mostly ocean shores.	None – no suitable habitat on the site.
<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.	Low – could utilise the site for foraging on occasion as part of broader foraging areas.
<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.	Low – could utilise the site for foraging on occasion as part of broader foraging areas.



Scientific Name	Common Name	Status		Habitat Requirement	Potential of Occurrence
		BC Act	EPBC Act		
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-	Among vegetation floating on slow-moving rivers and permanent lagoons, swamps, lakes and dams.	Low – marginal habitat likely to be present at the 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 – very marginal habitat associated with degraded creek line.
<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.	Low – habitat is likely to be too degraded and isolated
<i>Oxyura australis</i>	Blue-billed Duck	V	-	Deep water in large permanent wetlands and swamps with dense aquatic vegetation.	Low – habitat is likely to be too degraded and isolated
<i>Pandion cristatus</i>	Eastern Osprey	V	-	Littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. Typically occur in coastal areas but occasionally travel inland along major rivers. Wetland habitats include inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes.	Low – marginal foraging habitat likely at the site.
<i>Podargus ocellatus</i>	Marbled Frogmouth	V	-	Subtropical rainforest spending most time in deep, wet sheltered gullies.	Low- habitat on site is likely to be too degraded.
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler	V	-	Open woodlands dominated by mature eucalypts, with regenerating trees, tall shrubs, and an intact ground cover of grass and forbs.	Low – scarce recent records of this species in the Lismore locality.
<i>Ptilinopus magnificus</i>	Wompoo Fruit-dove	V	-	Rainforests, low-elevation moist eucalypt forest, and Brush Box forests.	Moderate – may utilise the western portion of the site on occasion.



Scientific Name	Common Name	Status		Habitat Requirement	Potential of Occurrence
		BC Act	EPBC Act		
<i>Ptilinopus regina</i>	Rose-crowned Fruit-dove	V	-	Subtropical and dry rainforest, moist eucalypt forest and swamp forest.	High – likely to utilise the western portion of the site on occasion.
<i>Ptilinopus superbus</i>	Superb Fruit-dove	V	-	Subtropical and dry rainforest, moist eucalypt forest and swamp forest.	Moderate – may utilise the western portion of the site on occasion.
<i>Stictonetta naevosa</i>	Freckled Duck	V	-	Permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. In drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	Low – very marginal habitat associated with degraded creek line.
<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.	Low – very low-quality habitat likely at the site
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	Dry eucalypt forest and woodlands from sea level to 1100m asl. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	Low – habitat is likely to be too degraded and isolated.
<i>Tyto tenebricosa</i>	Sooty Owl	V	-	Dry, subtropical and warm temperate rainforests and wet eucalypt forests. Nest in large tree hollows.	Low – habitat is likely to be too degraded and isolated. No recent local records of the species in locality.
Mammals					
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-	Moist and dry eucalypt forest and rainforest, particularly at high elevations.	Moderate – may utilise the site as part of broader foraging areas.
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V	-	Occurs in dry sclerophyll forest and woodland east of the Great Dividing Range. Roosts in tree hollows.	Moderate – may utilise the site as part of broader foraging areas.



Scientific Name	Common Name	Status		Habitat Requirement	Potential of Occurrence
		BC Act	EPBC Act		
<i>Miniopterus australis</i>	Little Bent-winged Bat	V	-	Moist eucalypt forest, rainforest and dense coastal scrub.	Moderate – may utilise the site as part of broader foraging areas.
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V	-	Forest or woodland, roost in caves, old mines and stormwater channels.	Moderate – may utilise the site as part of broader foraging areas.
<i>Myotis macropus</i>	Southern Myotis	V	-	Bodies of water, rainforest streams, large lakes, reservoirs.	Moderate – may utilise the site as part of broader foraging areas.
<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 – may utilise the site as part of broader foraging areas.
<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 – minimal eucalypt forest habitat on the site.
<i>Phascolarctos cinereus</i>	Koala	V	E	Appropriate food trees in forests and woodlands, and treed urban areas.	High – areas of mapped Primary Koala habitat occur on the site.
<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.	High – would forage opportunistically within vegetation occurring at the site.
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	Woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	Moderate – may utilise the site as part of broader foraging areas
Reptiles					
<i>Cacophis harriettae</i>	White-crowned Snake	V	-	Low to mid-elevation dry eucalypt forest and woodland with well-developed litter layer.	Moderate – degraded habitat on the site but has been recorded previously in disturbed habitats.

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