BIODIVERSITY ASSESSMENT REPORT

SMALL SCALE SOLAR – GLEN INNES

409 GWYDIR HIGHWAY, GLEN INNES NSW

GLEN INNES SEVERN SHIRE LOCAL GOVERNMENT AREA

NOVEMBER 2024

Report prepared by

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Acknowledgement

OzArk acknowledge the traditional custodians of the area on which this assessment took place and pay respect to their beliefs, cultural heritage and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the Elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

EXECUTIVE SUMMARY

OzArk Environment & Heritage (OzArk) has been engaged by Chris Smith & Associates, who are acting on behalf of Green Gold Energy (the proponent), to complete a Biodiversity Assessment Report (BAR) concerning the development of a solar farm at 409 Gwydir Highway, Glen Innes (the project). The project is within the Glen Innes Severn Shire Local Government Area (LGA).

An initial field survey was conducted by Senior Ecologist Dr David Orchard on the 7th of May 2024. Following a footprint revision in October 2024 (to allow for the necessary buffer around watercourses), the new footprint was surveyed by Dr David Orchard on the 7th of November 2024.

The subject site, 14.58 hectares (ha) in size, is dominated by exotic pasture. The only exceptions are an area of native grassland in the western section of the subject site (Plant Community Type [PCT] 3351) and small areas of native vegetation on drainage channels and depressions (PCT 3981), totalling 0.75 ha of native vegetation.

A BAR is appropriate for this development, rather than a Biodiversity Development Assessment Report (BDAR), as the clearing threshold for the subject site (1 ha) will not be exceeded, the proposal does not impact a mapped area of biodiversity value on the state-wide Biodiversity Values Map, and no listed threatened entities will be significantly impacted. As such, entry into the NSW Biodiversity Offsets Scheme (BOS) is not triggered.

PCT 3981 is associated with two Threatened Ecological Communities (TECs):

- *Biodiversity Conservation Act* 2016 (BC Act)-listed, Endangered Ecological Community (EEC): *Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion*, and
- *Environment Protection & Biodiversity Conservation Act* 1999 (EPBC Act)-listed EEC: *Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)*.

These listings protect a distinctive community of often large wetlands that are not connected to the floodplains of rivers or streams (e.g. Billy Bung, Little Llangothlin, and Mother of Ducks Lagoon). This description does not apply to the small, sparse floodplain or drainage line wetlands that occur within the site. As such, the proposal would not impact any TECs.

Two habitat trees (containing hollows) were recorded within the subject site. However, both trees are Weeping Willow (*Salix babylonica*), a High Threat Exotic (HTE) species as per the Biodiversity Assessment Method 2020 (BAM). As such, these habitat trees are likely of little value to native fauna. No other habitat features were recorded within the subject site.

Three unnamed, 1st Strahler order, minor, non-perennial watercourses occur within the subject site. These watercourses were found to be drainage channels and depressions. No watercourses

within the subject site contain Key Fish Habitat (KFH), as recognised by the Department of Primary Industries – Fisheries (DPI), or Protected Riparian Land (PRL), as per the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW). Furthermore, the subject site is not part of any endangered aquatic ecological community.

Furracabad Creek, which occurs directly adjacent to the subject site does contain both KFH and PRL. However, no threatened aquatic species are mapped within the study area. As such, no tests of significance were carried out under the *Fisheries Management Act* 1994 (FM Act).

As the proposal will involve dredging and/or reclamation in mapped waterways, a permit may be required in accordance with Section 201 under Part 7 of the FM Act. A permit under Part 7 of the FM Act is also required for activities that could potentially obstruct the 'free passage of fish'. The watercourses within the subject site are drainage channels and depressions, and do not contain KFH or the mapped distribution of any threatened fish. Therefore, the proposal is unlikely to negatively impact fish passage. However, it is recommended that the proponent contact their nearest regional NSW DPI staff to discuss the permit requirements for this proposal under the FM Act.

Fifteen threatened or migratory fauna species or populations and three threatened flora species, listed under the BC Act and/or the EPBC Act, were considered to have a moderate or greater probability of occurrence at the subject site. However, no listed species or populations were encountered during the field survey. Subject to implementation of the mitigation measures proposed, it has been concluded that no significant biodiversity impacts are likely, including to any threatened or migratory species, population or ecological community, or their habitats. As such, the proposal does not require referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water in respect of these matters or trigger the need for a Species Impact Statement or a BDAR.

This assessment covers the current form of the proposal. Any change to the scope of work may require re-assessment. If entry into the NSW BOS is triggered by a changed footprint impacting additional native vegetation, then additional field work and reporting completed according to the Biodiversity Assessment Method 2020 (BAM) may be required.

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ABBREVIATIONS

Term	Description
^{0}C	Degrees Celsius
AOBV	Areas of Outstanding Biodiversity Value
ASL	Above Sea Level
BAM	Biodiversity Assessment Method 2020
BAR	Biodiversity Assessment Report
BDAR	Biodiversity Development Assessment Report
BC Act	NSW *Biodiversity Conservation Act 2016*
BOS	NSW Biodiversity Offsets Scheme
CAMBA	China-Australia Migratory Bird Agreement
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
DCCEEW Cth.	Commonwealth Department of Climate Change, Energy the Environment and Water
DPE	Department of Planning and Environment
DPI	NSW Department of Primary Industries
DPE	NSW Department of Planning, Industry and Environment
EEC	Endangered ecological community
EIS	Environmental Impact Statement
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
ESCP	Erosion and Sediment Control Plan
FM Act	NSW *Fisheries Management Act 1994*
GDEs	Groundwater dependent ecosystems
GPS	Global Positioning System
ha	Hectare
HTE	High Threat Exotic
IBRA	Interim Biogeographic Regionalisation of Australia. Each region is a land area made up of a group of interacting ecosystems repeated in similar form across the landscape.
JAMBA	Japan-Australia Migratory Bird Agreement
KFH	Key Fish Habitat
KTP	Key Threatening Process
LEP	Local Environmental Plan
LGA	Local Government Area
mm/cm/m/m^2/km	Millimetre/centimetre/metre/square metre/kilometre
MNES	Matters of National Environmental Significance
NPW Act	NSW *National Parks and Wildlife Act 1974*
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy the Environment and Water
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type

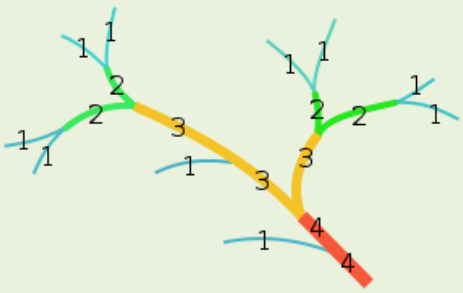
Term	Description
PMST	Protected Matters Search Tool
PW	Priority Weed
RAMSAR	Convention on Wetlands of International Importance
REF	Review of Environmental Factors
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
TECs	Threatened Ecological Communities
TSPD	Threatened Species Profile Database
VIS	Vegetation information system
WoNS	Weeds of National Significance

GLOSSARY OF TERMS

Term	Description

Areas of outstanding biodiversity	An area of outstanding biodiversity value is:
	• an area important at a State, national or global scale, and
	• an area that makes a significant contribution to the persistence of at least one of the following:
	  ○ multiple species or at least one threatened species or ecological community
	  ○ irreplaceable biological distinctiveness
	  ○ ecological processes or ecological integrity
	  ○ outstanding ecological value for education or scientific research.
	The declaration of an area may relate, but is not limited, to protecting threatened species or ecological communities, connectivity, climate refuges and migratory species (BC Act).

Cumulative impact	The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Refer to Clause 171(2) of the EP&A Regulation 2021 for cumulative impact assessment requirements.
Direct impacts	Are those that directly affect the habitat of species and ecological communities and of individuals using the study area. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat (OEH 2018).
Habitat	The area occupied or used, including areas periodically or occasionally occupied or used, by any threatened species or ecological community and includes all the different aspects (both biotic and abiotic) used by species during the different stages of their life cycle (OEH 2018).
Important population	Is a population that is necessary for a species long-term survival and recovery; this may include populations identified as such in recovery plans, and/or that are: • key source populations either for breeding or dispersal • populations that are necessary for maintaining genetic diversity, and/or • populations that are near the limit of the species range (DE 2013).
Indirect impact	Occur when project-related activities affect species or ecological communities in a manner other than direct loss within the subject site. Indirect impacts may sterilise or reduce the habitability of adjacent or connected habitats. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, reduction in viability of adjacent habitat due to edge effects, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, noise, light spill, fertiliser drift, or increased human activity within or directly adjacent to sensitive habitat areas (OEH 2018).
Invasive species	Is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources, or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.
Local occurrence (EEC)	The ecological community present within the study area. However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of the ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.
Local population (in regard to a threatened or migratory species)	A local population of a threatened plant species comprises those individuals occurring in a defined area or a cluster of individuals extends into habitat adjoining and contiguous with the study area where the individuals could reasonably be expected to cross-pollinate.

	A local population of fauna species comprises those individuals known or likely to occur in a defined area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area. The local population of migratory or nomadic fauna species comprises those individuals likely to occur in the study area from time to time (DECC 2007).
Low condition (vegetation)	Either: a) woody native vegetation with native over-storey percent foliage cover less than 50% of the lower value of the over-story percent foliage cover benchmark for that vegetation type, and where either: • less than 50% of ground cover vegetation is indigenous species, or • greater than 90% of ground cover vegetation is cleared or b) native grassland, wetland or herb field where either: • less than 50% of ground cover vegetation is indigenous species, or • more than 90% of ground cover vegetation is cleared. Note: The percentages for the ground cover calculations must be made in a season when the proportion of native ground cover vegetated compared to non-native ground cover vegetation is likely to be at its maximum.
Moderate to good condition (vegetation)	If native vegetation is not in low condition (above), it is in moderate to good condition.
Mitigation	Action to reduce the severity of an impact.
Mitigation measure	Any measure that prevents, reduce or controls adverse environmental effects of a proposal.
NSW (Mitchell) landscape	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000 (OEH 2018).
Proposal	Is considered to include 'all activities likely to be undertaken within the subject site to achieve the objective of the proposed development' (DECC 2007).
Risk of extinction	The likelihood that the local population will become extinct either in the short-term or in the long-term as a result of direct or indirect impacts on the viability of that population.
Search area	Is considered to 'include the lands that surround the subject site for a distance of 10 km' (DECC 2007). The search area has been used to search information sources to establish the landscape context of the subject site.
Significant impact	A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity.
Strahler stream order	Strahler stream orders are used to define stream size based on a hierarchy of tributaries, based on the diagram below. 
Study area	Means the subject site and any additional areas which are likely to be affected by the proposal, either directly or indirectly. The study area should extend as far as is necessary to take all potential impacts into account (OEH 2018). In this instance, the study area extends 1,500 m from the site.
Subject site	Means the area directly affected by the proposal. The subject site includes the footprint of the proposal and any ancillary works, facilities, accesses or hazard reduction zones that support the construction or operation of the development or activity (OEH 2018).
Target species	A species that is the focus of a study or intended beneficiary of a conservation action or connectivity measure.

1 INTRODUCTION

1.1 PROPOSAL OVERVIEW

OzArk Environment & Heritage (OzArk) has been engaged by Chris Smith & Associates (the client), who are acting on behalf of Green Gold Energy (the proponent), to complete a Biodiversity Assessment Report (BAR), concerning the development of the Glen Innes Solar Farm (409 Gwydir Highway, Glen Innes), within the Glen Innes Severn Shire Council Local Government Area (LGA), New South Wales (**Figure 1-1**).

This biodiversity assessment has been undertaken in accordance with Part 4 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act). For this proposal, Green Gold Energy is the proponent and Glenn Innes Severn Shire Council is the determining authority (EP&A Act s.5.1). The biodiversity assessment has been prepared in accordance with Clause 171 of the *EP&A Regulation* (2021).

In the case of this development, a BAR is appropriate, rather than a Biodiversity Development Assessment Report (BDAR), as entry into the NSW Biodiversity Offsets Scheme (BOS) is not triggered. For reference, entry into the BOS is triggered when one or more of the following conditions is met:

- The proposal exceeds the clearing threshold for the relevant lot.
- The proposal will impact a mapped area of biodiversity value on the state-wide Biodiversity Values Map.
- The proposal will result in a significant impact to one or more listed threatened entities.

The minimum lot size of the subject site is 40 hectares (ha). Under the Biodiversity Assessment Method (DPIE, 2020b), the clearing threshold for entry into the BOS for a property with a minimum lot size of 40 ha to less than 1000 ha is 1 ha (**Table 1-1**). As this proposal would clear up to 0.75 ha of native vegetation, it will not exceed the clearing threshold (**Section 5.1**). The proposal does not impact an area mapped on the Biodiversity Values Map (**Appendix A**) and will not result in a significant impact to one or more listed threatened entities (**Section 6.4**). Therefore, this proposal will not trigger a requirement to offset or to prepare a BDAR.

Table 1-1. Minimum lot size and allowable clearing threshold under the BAM 2020 (DPIE, 2020b).

Minimum Lot Size	Clearing Threshold
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.50 ha or more
40 ha to less than 1000 ha	**1 ha or more**
1000 ha or more	2 ha or more

1.2 PROPOSAL LOCATION AND CONTEXT

1.2.1 Regional Context

The regional context of the proposal is explored in **Table 1-2** and depicted in **Figure 1-1**.

Table 1-2. Regional context for the proposal.

Criteria	Value
Interim Biogeographic Regionalisation for Australia (IBRA Bioregion)	• New England Tablelands
Interim Biogeographic Regionalisation for Australia Sub-region (IBRA Sub-Region)	• Glenn Innes-Guyra Basalts (subject site) • Deepwater Downs (search area)
State	• New South Wales
Local Government Area	• Glenn Innes Severn Shire Council
Nearest town	• Glen Innes
Nearest park, state forest or reserve	• Fladbury State Conservation Area (~19 km North)
Mitchell Landscapes	• Inverell Plateau Granites (subject site) • Glen Innes-Guyra Basalts (study area)
Nearest waterway (Name, Type)	• 3 x Unnamed, 1st Strahler order, minor, non-perennial watercourses (subject site) • 9 x Unnamed, 1st Strahler order, minor, non-perennial watercourses (study area) • 2 x Unnamed, 2nd Strahler order, minor, non-perennial watercourses (study area) • 1 x Named (Furracabad Creek), 4th Strahler order, minor, perennial watercourse (study area)
Surrounding land use	• Grazing native vegetation (subject site) • Marsh/wetland (subject site) • Grazing modified pastures (study area) • Residential and farm infrastructure (study area) • Sown, improved perennial pastures (study area) • Cropping (study area) • Utilities (study area) • Services (study area) • River and Drainage System (study area)
Surrounding land zone	• RU1 – Primary Production (subject site) • E3 – Environmental Management (subject site) • RE1 - Public Recreation (study area) • IN1 – general Industrial (study area) • R1 – General Residential (study area) • SP1 – Special Activities (study area)

1.2.2 Subject site, Study Area, and Search Area

This report uses the following terms to describe and contextualise the development location:

10 km search area	the area within a 10 km radius of the subject site (**Figure 1-1**). This 10 km buffer has been used to search information sources to establish the landscape context of the subject site.
Study area	the area within a 1,500 m radius of the subject site. Native vegetation has been mapped within this 1,500 m buffer to provide some context regarding the connectivity and cover of native vegetation in the area affected by the proposal, and to inform the impact assessment of the proposal (**Figure 1-1**).
Subject site	the footprint of the proposal and the area directly affected by the development activities (**Figure 1-2**).

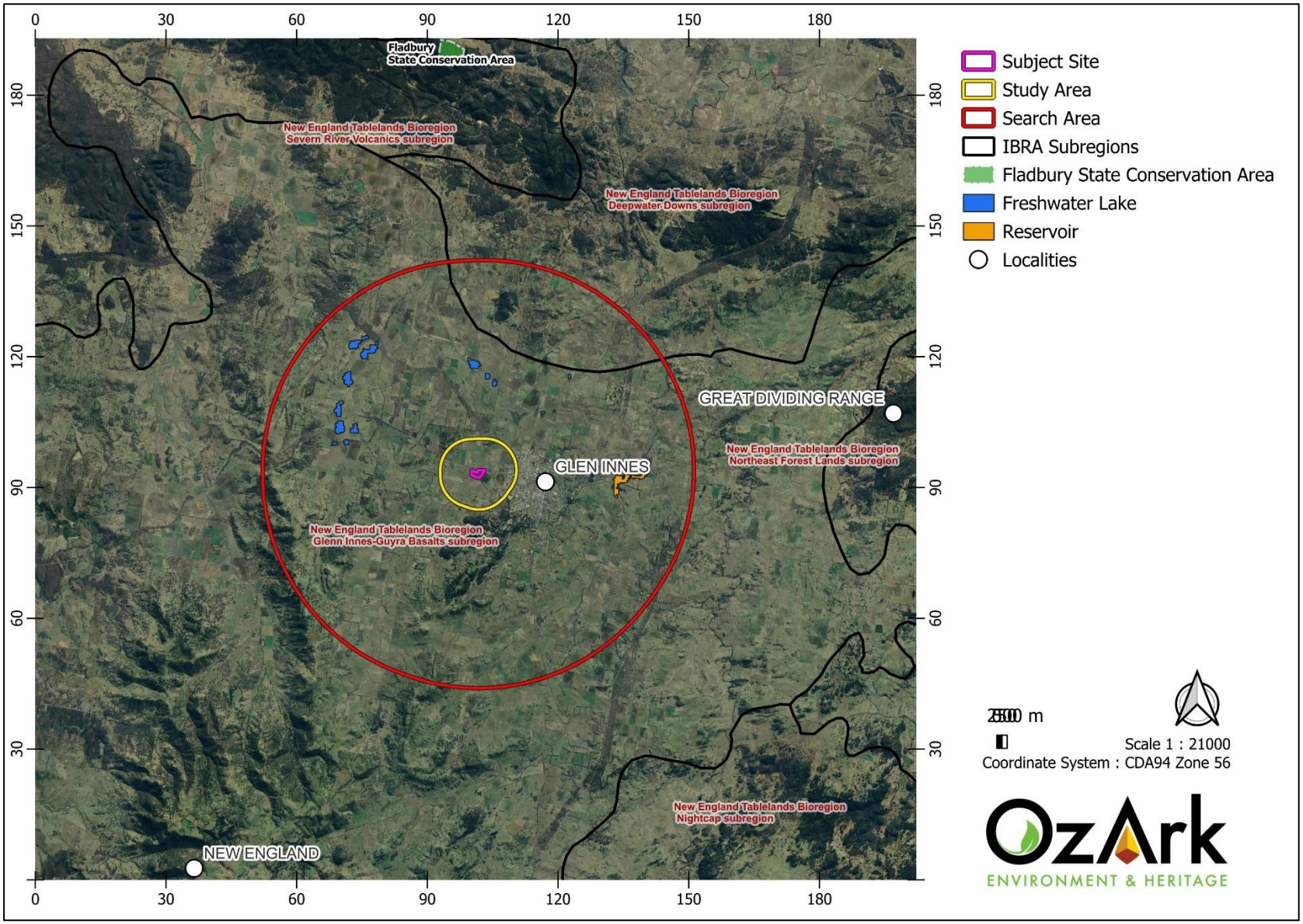


Figure 1-1. Regional context of the subject site specific to the proposal.

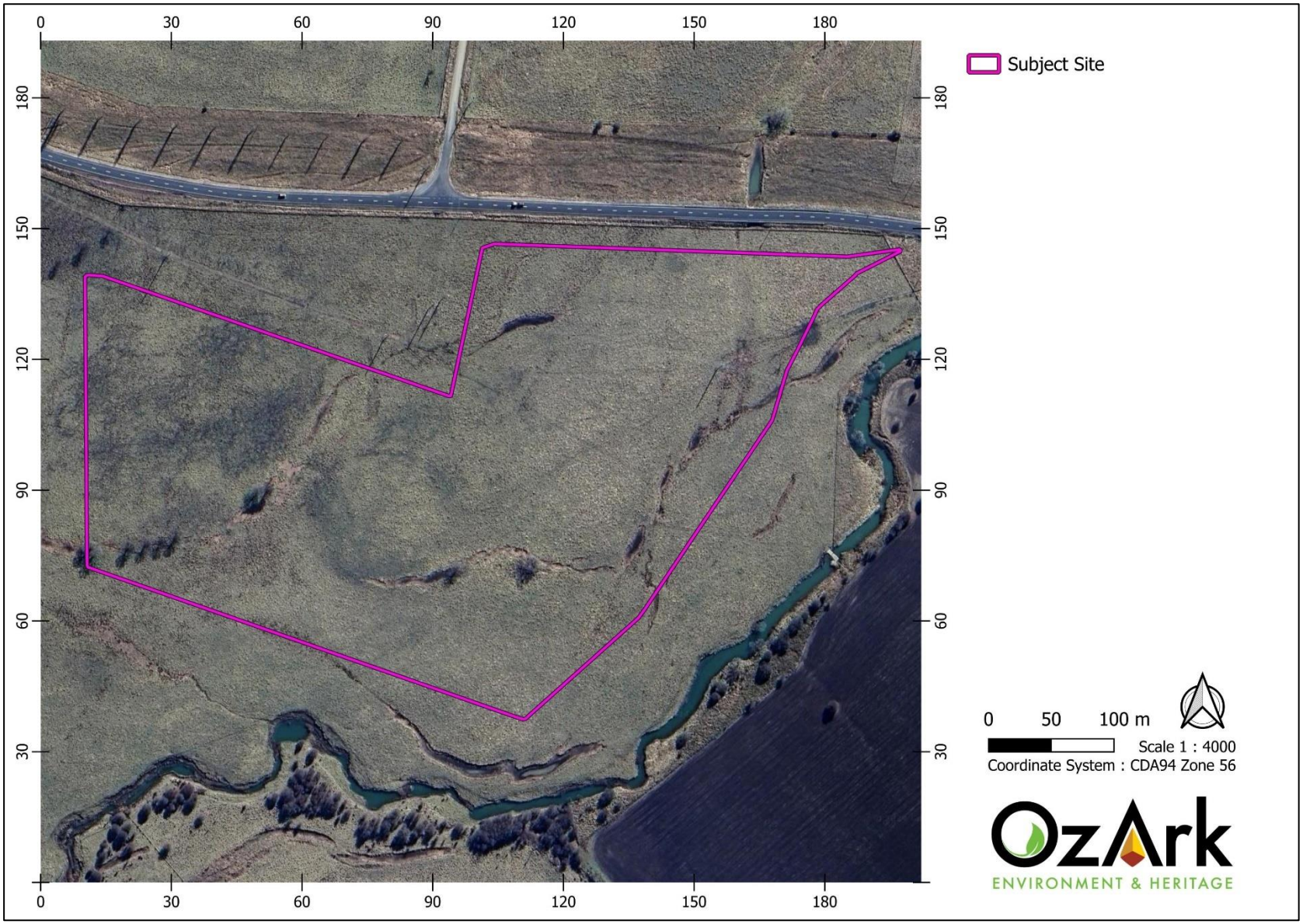


Figure 1-2. Subject site.

2 STATUTORY AND PLANNING CONTEXT

2.1 COMMONWEALTH LEGISLATION

2.1.1 *Environment Protection & Biodiversity Conservation Act* 1999 (EPBC Act)

Objects of the EPBC Act relevant to this proposal include:

- *to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and*
- *to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and*
- *to promote the conservation of biodiversity.*

There are nine Matters of National Environmental Significance (MNES) to which the EPBC Act applies, three of which would potentially be relevant to this proposal:

1) wetlands of international importance (also called 'Ramsar' wetlands)
2) nationally threatened species and ecological communities
3) migratory species, comprising those listed under the:
    - Bonn Convention
    - Japan-Australia Migratory Bird Agreement (JAMBA)
    - China-Australia Migratory Bird Agreement (CAMBA)
    - Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)

The Significant Impact Guidelines (DoE 2013) prepared under the EPBC Act are used to determine whether a proposed development or activity will have, or is likely to have, a significant impact on MNES, and therefore requires referral to the Australian Government Minister for the Environment (Minister).

To assist with nationally listed matters assessments, the Matters of National Environmental Significance: Significant impact guidelines 1.1. Environment Protection and Biodiversity Conservation Act 1999 (DoE 2013) are followed.

Matters which fall under this legislation are addressed in **Section 5.2, 5.3, 5.7** and **Appendix E**.

2.2 STATE LEGISLATION

2.2.1 *Environmental Planning and Assessment Act* 1979 (EP&A Act)

The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of proposals.

Part 4 of the EP&A Act requires the proponent to examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity. Where found, the assessment criteria under Part 7 Section 7.3 of the BC Act (the 'Assessment of Significance') will be drawn upon to determine whether there would be a significant effect on these species and hence whether a Species Impact Statement ([SIS] or BDAR should the proponent elect that option) is required.

2.2.2 *Biodiversity Conservation Act* 2016 (BC Act)

The BC Act relates to the terrestrial environment and includes threatened species, ecological communities, key threatening processes and other protected animals and plants.

Section 7.3 of the BC Act contains a five-part test of significance for determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

Where a significant impact is likely to occur, the proponent must either opt into the BOS and prepare a BDAR or prepare a SIS for each significantly impacted BC listed entity. BC Act listed species and communities are addressed in **Sections 5.2** and **5.3** and **Appendices C** and **D**.

2.2.3 *Biodiversity Conservation Regulation* 2017 (BCR)

The BCR defines the triggers and entry thresholds for the BOS. It also provides the rules for meeting offset obligations, triggers for authorities to refuse development applications and compliance provisions.

2.2.4 *Biosecurity Act* 2015

The Biosecurity Act aims to manage biosecurity risks from animal and plant pests and diseases, weeds, and contaminants in NSW. The Biosecurity Act imposes a general biosecurity duty to ensure that, so far as is reasonably practicable, any biosecurity risk is prevented, eliminated, or minimised. The proponent is required to manage the presence of weeds in the study area (**Section 6.2.2**, **Section 7.2, Appendix F**).

2.2.5 *Local Land Services Act* 2013

The objects of the Act include 'to ensure the proper management of natural resources in the social, economic, and environmental interests of the State, consistently with the principles of ecologically sustainable development. The Act regulates the clearing of native vegetation on rural land.

2.2.6 *Fisheries Management Act* 1994

Part 7A of the FM Act along with schedules within the act, list threatened aquatic and marine species, populations and ecological communities and key threatening processes which must be considered as part of obligations under Section 5.5 of the EP&A Act.

Section 201 of the FM Act states that a person (other than a public or local government authority) must not carry out dredging work or reclamation work except under the authority of a permit issued by the Minister. Dredging work means any work that involves excavating water land. Reclamation work means any work that involves depositing any material on water land.

Under section 198A of the FM Act:

"water land" means land submerged by water:

(a) whether permanently or intermittently, or

(b) whether forming an artificial or natural body of water,

and includes wetlands and any other land prescribed by the regulations as water land to which this Division applies.

Refer to **Section 4.4** for consideration of issues relating to watercourses and the FM Act.

2.2.7 Water Management Act 2000 (WM Act)

The WM Act aims to provide for the 'sustainable and integrated management of the water sources of the state for the benefit of both present and future generations.'

The WM Act provides for the granting of various licenses and approvals, including for the use of water and water supply work. Additionally, the WM Act identifies provisions relating to 'controlled activities' carried out on 'waterfront land' (within 40 m of a river bank, lake shore, or estuary's high water mark). Controlled activities include:

- erecting a building,
- carrying out works,
- removing material (e.g., plants and rocks),
- depositing material (e.g., gravel and fill),
- any activity which affects the quantity or flow of water in a water source.

Examples of controlled activities include:

- construction of watercourse crossings (e.g., bridges, bed level crossings),

- laying pipes and cables,
- sand and gravel extraction.

For private developments, approval (via a 'controlled activity' approval) is required from DPE under the WM Act if it is on 'waterfront land'.

2.2.8 Local Environment Plans

A Local Environmental Plan (LEP) is a legal document prepared by Council and approved by the State Government to regulate land use and development. LEPs guide planning decisions for local governments. The plan allows Council to regulate the ways in which all land both private and public may be used and protected through zoning and development controls.

The particular aims of the Glenn Innes Severn LEP 2012 are as follows:

(aa) to protect and promote the use and development of land for arts and cultural activity, including music and other performance arts,

(a) to encourage the proper management, development and conservation of natural and human resources in Glen Innes Severn by protecting, enhancing and conserving the following—

(i) land of significance to agricultural production,

(ii) timber, minerals, soil, water and other natural resources,

(iii) areas of significance for nature conservation,

(iv) areas of high scenic or recreational value,

(v) landscapes, places and buildings of archaeological or heritage significance, including aboriginal relics and places,

(vi) communities and settlements,

(b) to facilitate growth and development that—

(i) minimises the cost to the community of fragmented and isolated development of rural land, and

(ii) facilitates the efficient and effective delivery of amenities and services, and

(iii) facilitates stimulation of demand for a range of residential, enterprise and employment opportunities and promotes agricultural diversity, and

(iv) maximises the efficient use of existing infrastructure.

This LEP has not identified any areas of terrestrial biodiversity sensitivity within the Glenn Innes Severn Shire Council LGA.

2.2.9 State Environmental Planning Policies under the *EP&A Act* 1979

2.2.9.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The Transport and Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across the state, including hospitals, schools, energy, water, transport and telecommunications. It permits development with consent for electricity-generating facilities including solar power stations. Solar energy systems may only be developed without consent if they are ancillary to an existing infrastructure establishment or an educational establishment within the meaning of *State Environmental Planning Policy (Educational Establishments and Child Care Facilities)* 2017.

2.2.9.2 State Environmental Planning Policy (Biodiversity and Conservation) 2021

The *State Environmental Planning Policy (Biodiversity and Conservation)* 2021 (SEPPBC 2021) consolidates, transfers and repeals provisions of 11 SEPPs, the following of which are relevant to the current assessment:

- Former SEPP (Koala Habitat Protection) 2020
- Former SEPP (Koala Habitat Protection) 2021

These individual SEPPs are no longer current; however, their provisions are incorporated into the SEPPBC 2021. Through the principles contained in these amalgamated SEPPs, the SEPPBC 2021 aims to encourage the 'proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline'.

The Glen Innes Severn LGA is listed in Schedule 2 of the SEPPBC 2021; consequently, the provisions of Chapter 3 of the SEPPBC 2021 apply to rural land within the LGA, and the provisions of Chapter 4 apply to the remaining land. The majority of the subject site is zoned RU1 – Primary Production. Chapter 3 of the SEPPBC 2021 applies to this area. A remaining small area in the northeast of the subject site is zoned E3 - Environmental Management. Chapter 4 of the SEPPBC 2021 applies to this area.

Assessment of the land zoned RU1 according to the provisions of Chapter 3 of the SEPPBC 2021 determined that the site does not constitute potential Koala habitat as it lacks any Koala feed trees. No further consideration is required for this area.

Assessment of the land zoned E3 according to the provisions of Chapter 4 of the SEPPBC 2021 determined that there is a requirement to consider whether impacts to the Koala are likely to result from the proposed activities. Under Section 4.9 of the SEPP, a council may grant consent to a development if it is satisfied that a proposal is likely to have "low or no impact on koalas or koala habitat." In the present case, the extent of the proposed impact on E3 zoned land is minimal (0.07 ha), and Koala feed trees within the proposed impact area are absent.

Furthermore, of the six Koala records within the 10 km search area, none are located within the 1.5 km study area. The closest record (from 2013) occurs approximately 2.4 km from the subject site. As such, it is considered in this case that there is little risk of any impact to the Koala. In light of this, a Koala Assessment Report is not required.

The proposal's potential impacts to Koalas have been further considered in this BAR under the BC and EPBC Acts (see **Appendices C-E**).

3 METHODS

The ecological assessment was carried out in three stages:

1. Desktop searches and review of ecological databases and information to identify threatened species, populations or ecological communities listed in the BC, FM, and/or EPBC Acts that have the potential to occur in the study area.

2. Field survey of the subject site for the purposes of:

    - Determining the extent of the proposed impact.
    - Collating lists of those plants present these being used to assist with the identification of the site's vegetation communities.
    - Determining habitat availability for fauna species recorded or expected to occur.
    - Documenting the nature and extent of any protected matter, such as a threatened species or community or a significant habitat feature.

3. Preparation of a written BAR that describes the impacts of the proposed activity on native vegetation and threatened species, populations, and ecological communities, and provides recommendations to avoid, minimise and mitigate these impacts.

3.1 PERSONNEL

OzArk operates under NSW Department of Planning, Industry and Environment (DPIE) Scientific Research 101908, NSW Department of Primary Industries (DPI) Accreditation as an Animal Research Establishment (accreditation number 53103), and the Secretary's Animal Care and Ethics Committee Animal Research Authority RVF21/954.

An initial field survey was completed by Senior Ecologist Dr David Orchard on the 7th of May 2024. Following a footprint revision in October 2024 (to allow for the necessary buffer around watercourses), the new footprint was surveyed by Dr Orchard on the 7th of November 2024.

Reporting components were completed by Paris Hughes and Lucca Brozler, with quality control provided by Senior Ecologist Dr Crystal Graham. Key details of personnel involved are available in **Table 3-1**.

Table 3-1 Summary of OzArk personnel qualifications.

Name	Position	CV Details
Dr Crystal Graham	Senior Ecologist	• BAM-accredited Assessor #BAAS22024 • Postdoctoral Fellow – Smithsonian Tropical Research Institute • Doctor of Philosophy (Biology) – University of Sydney • Honours in Biology – University of Sydney • Bachelor of Advanced Science – University of Sydney • 4WD Training • First Aid Training • WH&S Induction Training for Construction Work • Worker at Heights Training
Dr David Orchard	Senior Ecologist	• Accredited BAM assessor – Accreditation # BAAS21028 • Doctor of Philosophy – Charles Sturt University • Graduate Diploma in Science (Botany) – University of New England • Bachelor of Arts – Australian National University • 4WD Training • First aid training • WH&S Induction Training for Construction Work
Paris Hughes	Ecologist	• Honours (Animal Behaviour) – Flinders University • Bachelor of Science (Biodiversity and Conservation) – Flinders University • First Aid Training • WH&S Induction Training for Construction Work • Worker at Heights Training • Worker in Confined Spaces • Rail Industry Worker Card
Lucca Brozler	Ecologist	• Masters in Conservation Biology – The University of Queensland • Bachelor of Biological Science – The University of Queensland • WH&S Induction Training for Construction Work

3.2 BACKGROUND RESEARCH

Preliminary assessments drew on local experience, previous reporting and information held on government databases and archives. Results of database searches were used to assist in identifying distributions, suitable habitats and known records of threatened species to increase the effectiveness of field investigations. Information sources reviewed included the following:

- NSW Government Web Map Service (WMS) layers for NSW Imagery (compiled imagery, NSW Property, NSW Base Map and NSW Topographic Map) (https://www.spatial.nsw.gov.au/).
- EPBC Protected Matters Search Tool (https://www.environment.gov.au/epbc/protected-matters-search-tool)
- NSW State Vegetation Type Map C1.1.M1.1 (https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map)
- NSW DPI threatened fish indicative distribution maps (www.dpi.nsw.gov.au/fishing/species-protection/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps)

- NSW BioNet Wildlife Atlas Vegetation classification (https://www.environment.nsw.gov.au/research/Visclassification.htm)
- NSW BioNet Threatened Biodiversity Data Collection (www.bionet.nsw.gov.au/)
- NSW BioNet Atlas (www.bionet.nsw.gov.au/)
- Register of Declared Areas of Outstanding Biodiversity Value (www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/critical-habitats)
- PlantNET, NSW Flora Online (www.plantnet.rbgsyd.nsw.gov.au/)
- NSW Department of Planning and Environment *Biodiversity Values Map* (https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap)
- Vulnerable Lands – Steep or Highly Erodible, Protected Riparian and Special Category land Mapping (https://datasets.seed.nsw.gov.au/dataset/vulnerable-land-protected-riparian73a9e)
- Acid Sulfate Soils Risk mapping (https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c)
- Directory of Important Wetlands of Australia (DIWA) (https://www.environment.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands)
- NSW wetlands mapping (https://datasets.seed.nsw.gov.au/dataset/nsw-wetlands047c7)

Database searches were undertaken before the field assessment to determine the predicted species and those previously recorded within 10 km of the subject site. The results of these searches led to the identification of key species for field survey effort and targeted searches. Results of the database searches are provided in **Appendix A.** A series of other background searches were performed to comply with legal standards (please refer to **Table 3-2**).

Table 3-2. Presence and/or proximity of environmental considerations.

Environmental Considerations	In the study area?
Land identified on the Biodiversity Values Map under the NSW *BC Act 2016*	Yes (Furracabad Creek, adjacent to the subject site)
Area of Outstanding Biodiversity Value (AOBV) under the NSW *BC Act 2016*	No
Critical habitat nationally?	No
An area reserved or dedicated under the *National Parks and Wildlife Act 1974*?	No
Is the proposal located within land reserved or dedicated within the meaning of the *Crown Lands Act 1989* for preservation of other environmental protection purposes?	No
A World Heritage Area?	No

Environmental Protection Zones in environmental planning instruments?	Yes (E3)
Lands protected under *SEPP (Biodiversity and Conservation) 2021*?	Yes (see **Section 2.2.8**)
Land identified as wilderness under the *Wilderness Act 1987* or declared as wilder-ness under the *National Parks and Wildlife Act 1974*?	No
Aquatic reserves dedicated under the *Fisheries Management Act 1994*?	No
Aquatic Threatened Ecological Community?	No
Wetland areas dedicated under the Ramsar Wetlands Convention?	No
Land subject to a conservation agreement under the *National Parks and Wildlife Act 1974*?	No
Land identified as State Forest under the *Forestry Act 1916*?	No
Acid sulphate area?	No
Protected riparian habitat?	Yes (Furracabad Creek, adjacent to the subject site)
Mapped Key Fish Habitat?	Yes (Furracabad Creek, adjacent to the subject site)

3.3 HABITAT ASSESSMENT

The results of the desktop review and the field assessment were collated and reviewed in the context of local ecological knowledge to determine the likelihood of occurrence of threatened species and ecological communities, and potential impacts of the proposal (**Appendix C**). For instance, some threatened species may be predicted to occur locally but, on assessment of the site, key habitat elements or conditions are not present, in which case the species is assessed as not being present or impacted.

The likelihood of occurrence of threatened species, populations or ecological communities was categorised as follows:

- 'Present' – the species was observed or has been previously recorded on the site.
- 'High' – a medium to high probability that a species uses the site, based on nearby records and suitable habitat being present.
- 'Moderate' – suitable habitat for a species occurs on the site, but the species has not been observed or previously recorded at the site.
- 'Low' – a very low likelihood that the species uses the site, based on lack of the preferred type and size of habitat.
- 'Absent' – habitat on-site and in the vicinity is unsuitable for the species.

The species known or considered to have a moderate-high likelihood of occurring at the subject site were then considered as to whether the extent and type of development would be likely to impact on them.

Tests of significance were then completed for these species and ecological communities in accordance with the BC/FM Acts (**Appendix D**) and/or the assessment of significance under the EPBC Act (**Appendix E**), and the relevant guidelines for these assessments.

3.4 FIELD SURVEY

The objectives of the field survey were to:

- Identify native species and vegetation communities present.
- Describe the quality and value of the vegetation and the flora and fauna habitat at the subject site.
- Determine if species, populations or ecological communities listed as threatened under the BC Act or EPBC Act are/may be present.
- Determine the significance of impact to any threatened entities present or likely to be present.

3.4.1 Vegetation surveys

Vegetation communities were assessed across the entire subject site in accordance with the online NSW Master Plant Community Type Classification (NSW DCCEEW, 2024f), which is the current state-wide vegetation classification system for Plant Community Types (PCT). This classification system is used for vegetation mapping, development assessment and site planning purposes. It describes over 1,500 PCTs across the state, and groups the vegetation communities into vegetation Class and Formation / Sub-formation as per Keith (2004).

In this study PCTs were identified based on the following inputs:

- NSW State Vegetation Type Map: C1.1.M1.1 (DPE, 2022c), which provides predictive mapping of PCTs in and around the subject site. This mapping is indicative only. It is not necessarily accurate at a fine scale for the purposes of the current study.
- Professional ecological knowledge about locally occurring vegetation types and landscape, soil, and topographic patterns, including transitions from one community to another and potential for intergrades between plant communities.
- Field survey results confirming the flora species present, vegetation structure, landscape position and soil type at the subject site and the extent and condition of native vegetation.

- The BioNet Vegetation Classification database was used to identify the candidate vegetation communities likely to be present based on the site conditions (flora species present, vegetation structure, bioregion, and landscape position and soil type) and the relevant published PCT descriptions.

If any of the PCTs were identified as having potential to be part of a Threatened Ecological Community (TEC), the relevant identification guidelines (NSW Scientific Committee listing criteria and Commonwealth identification guides) were consulted to determine the status of the vegetation community present on the subject site. These guidelines provide the identification criteria used to positively identify the community as being part of the TEC. The criteria include location, species present, overstorey species, weed cover, number and type of native species including whether certain 'important' native species are present. Plant identification followed nomenclature in the Royal Botanic Gardens PlantNet online database (Royal Botanic Gardens and Domain Trust, 2024).

3.4.2 Fauna surveys

The subject site was incidentally searched for fauna using a meander method while undertaking floristic and habitat surveys. All habitat trees (i.e., hollow-bearing trees or trees containing nests) were GPS tagged. The size, number of hollows and/or type of nest were also recorded for each tree. Potential habitat such as rocks, logs, loose bark, and coarse woody debris was examined for cryptic species. Areas of suitable substrate were searched for animal tracks. Other evidence of fauna presence on the subject site, such as scats, feathers and sloughed skins were also recorded. Any culverts, crevices and structures were examined for nocturnal roosting fauna such as microbats.

Considering the scope of works proposed, combined with the condition of observed fauna habitats, no targeted surveys such as live trapping, nocturnal searches, deployment of bat echolocation detectors and so forth, were carried out.

3.5 LIMITATIONS

This study is based upon the species data available at the time of the study, and the environmental conditions, season, and time constraints imposed by the proposal for the field survey. Specific limitations on this study include the following:

- The field survey was completed over two days (7th May 2024 and 7th November 2024), when certain species may not have been present, visible, or identifiable. Therefore, the species list provided in **Appendix B** should not be considered wholly comprehensive, as a greater diversity of species is likely to make use of the site,
- Fauna trapping, frog surveys and nocturnal spotlighting were not undertaken for the current assessment, and

- Microbat ultrasonic call capture and analysis was not undertaken.

To compensate for these limitations, a ‘precautionary approach’ for species presence has been adopted. If suitable habitat for a particular threatened species is present at the subject site or is known to occur within the wider study area, then the species is assumed to be present, and the impact assessment is completed on that basis.

The above-mentioned constraints were also considered when preparing the recommendations of avoiding, minimising, and mitigating potential impacts.

4 EXISTING ENVIRONMENT

4.1 BIOREGION

The subject site and study area fall within the **Glenn Innes-Guyra Basalts** subregion of the New England Tablelands Bioregion. The search area also crosses into the **Deepwater Downs** subregion of the New England Tablelands Bioregion, as per the Interim Biogeographic Regionalisation of Australia's categorisation (IBRA) (Thackway & Cresswell, 1995). These subregions geology, landforms, soil types and vegetation are described below (see **Table 4-1** and **Table 4-2**).

Table 4-1. Description of the Glenn Innes-Guyra Basalts subregion (NSW NPWS 2003).

Bioregion	New England Tablelands
Geology	Extensive Tertiary basalt flows. Small enclosed areas of granite and fine grained Permian sedimentary rocks. Quaternary sediments in swamps and lagoons.
Landforms	Stepped plateau from 700-1500m. Undulating to low hilly. Swamps and lagoons with evidence of past higher water levels and lunettes. Wide valleys in an evolving drainage system.
Soils	Deep red brown and brown to black, fertile and well structured loams on basalts. Thinner and stony on steep slopes, waterlogged in valley floors. Harsh, yellow texture contrast soils on granites and minor sedimentary rocks.
Vegetation	High areas have woodland of snow gum, black sallee and ribbon gum. Silver-top stringybark, New England peppermint at lower levels on basalt. White box woodland with rough-barked apple, ribbon gum and yellow box in lowest western areas. Narrow-leaved ironbark on sedimentary rocks.

Table 4-2. Description of the Deepwater Downs subregion (NSW NPWS 2003).

Bioregion	New England Tablelands
Geology	Permian diorite, acid volcanics and small areas of shales.
Landforms	Hilly to undulating with broad valleys, elevation 950 m.
Soils	Harsh red and yellow texture contrast soils with thin gritty topsoils.
Vegetation	Woodland of Blakely's red gum, apple box, New England stringybark, narrow-leaved peppermint, New England peppermint, rough-barked apple and bull oak.

4.2 NSW LANDSCAPES

NSW (Mitchell) landscapes were mapped in 2002 to provide a framework for reporting reserve establishment and for determining over-cleared landscapes (Mitchell, 2002). These landscapes broadly describe areas of similar topography, geology, soils, and vegetation. The subject site is represented by the **Inverell Plateau Granites** with the **Glenn Innes – Guyra Basalts** also occurring in the wider study area (see **Figure 4-1**).

Inverell Plateau Granites

Widely distributed and defined undulating plateau with domed peaks on Permian New England granites and granodiorites. Several intrusions have distinctive contact ridges of metamorphosed sedimentary rocks. The area includes Permian acid volcanics and pyroclastics and some undifferentiated Permo-Carboniferous mudstone and lithic sandstone. General elevation 900 to 1500m, local relief 200m. The highest elevations are along the eastern edge above the Great escarpment, most of the plateau lies ate 900 to 1200m. As mapped, this is a large landscape and it might require subdivision on the basis of vegetation. Domed rock outcrop is common with tors. Shallow gritty loam thickens downs lope to red or yellow earthy sand and red, red-yellow and yellow texture-contrast soil on lower slopes and valley floors. Wide valleys may have deep dark clay deposits in swampy streamlines. The vegetation varies with topography, soil, drainage and temperature. In dry areas open forest of; silvertop stringybark (*Eucalyptus laevopinea*), broad-leaved stringybark (*Eucalyptus caliginosa*), Blakely's red gum (*Eucalyptus blakelyii*), narrow-leaved peppermint (*Eucalyptus radiata*), yellow box (*Eucalyptus melliodora*), apple box (*Eucalyptus bridgesiana*), red ironbark (*Eucalyptus sideroxylon*), Caley's ironbark (*Eucalyptus caleyi*), rough-barked apple (*Angophora floribunda*) and black cypress pine (*Callitris endlicheri*). In moist areas open forest of; New England peppermint (*Eucalyptus cinerea*), manna gum (*Eucalyptus viminalis*), mountain gum (*Eucalyptus dalrympleana*), New England blackbutt (*Eucalyptus andrewsii* ssp*. campanulata*), diehard stringybark (*Eucalyptus cameronii*), Deane's gum (*Eucalyptus deanei*), messmate (*Eucalyptus obliqua*), privet-leaved stringybark (*Eucalyptus ligustrina*), Youman's stringybark (*Eucalyptus youmanii*), swamp gum (*Eucalyptus camphora*), Gibraltar rock blackbutt (*Eucalyptus pyrocarpa*), tumbledown red gum (*Eucalyptus dealbata*) and orange gum (*Eucalyptus prava*) sometimes with closed forest species in the understorey especially in the eastern parts of the landscape.

In cold areas snow gum (*Eucalyptus pauciflora*), black sallee (*Eucalyptus stellulata*) woodlands are the norm with manna gum and mountain gum along some streams.

Most granite peaks have specialised joint crevice heath communities typically with about 100 plant genera and almost always containing local endemic species. In this landscape the following communities are recognised; Gonocarpus teucriodes - Isotoma axillaris herbfield with black cypress pine, orange gum, tumbledown red gum, Caley's ironbark, and western New England blackbutt. Babingtonia densifolia - Homoranthus prolixus shrubland with black cypress pine, orange gum, tumbledown red gum, and Acacia neriifolia. New England tea tree - Brachyloma saxicola heath on the escarpment of the Gibraltar Range with New England mallee ash (*Eucalyptus approximans*), diehard stringybark, apple box, forest oak (*Allocasuarina torulosa*), black cypress pine and orange gum.

Glenn Innes – Guyra Basalts

Undulating to stepped hilly plateau with broad ridges, wide shallow valleys and high rounded peaks on Tertiary basalt, general elevation 700 to 1510m, local relief 300m, average level of the landscape 1300m. Brown structured stony loam and clay loam, on slopes, occasional red structured loam with gradational profiles and deep dark self-mulching sticky clay on the valley floors. Open woodland with snow gum (*Eucalyptus pauciflora*), black sallee (*Eucalyptus stellulata*), manna gum (*Eucalyptus viminalis*), silvertop stringybark (*Eucalyptus laevopinea*), and New England peppermint (*Eucalyptus cinerea*) in higher areas grading to woodland of white box (*Eucalyptus albens*), yellow box (*Eucalyptus melliodora*), roughbarked apple (*Angophora floribunda*) with manna gum (*Eucalyptus viminalis*) along streams in lower areas. Extensive grassy understorey.

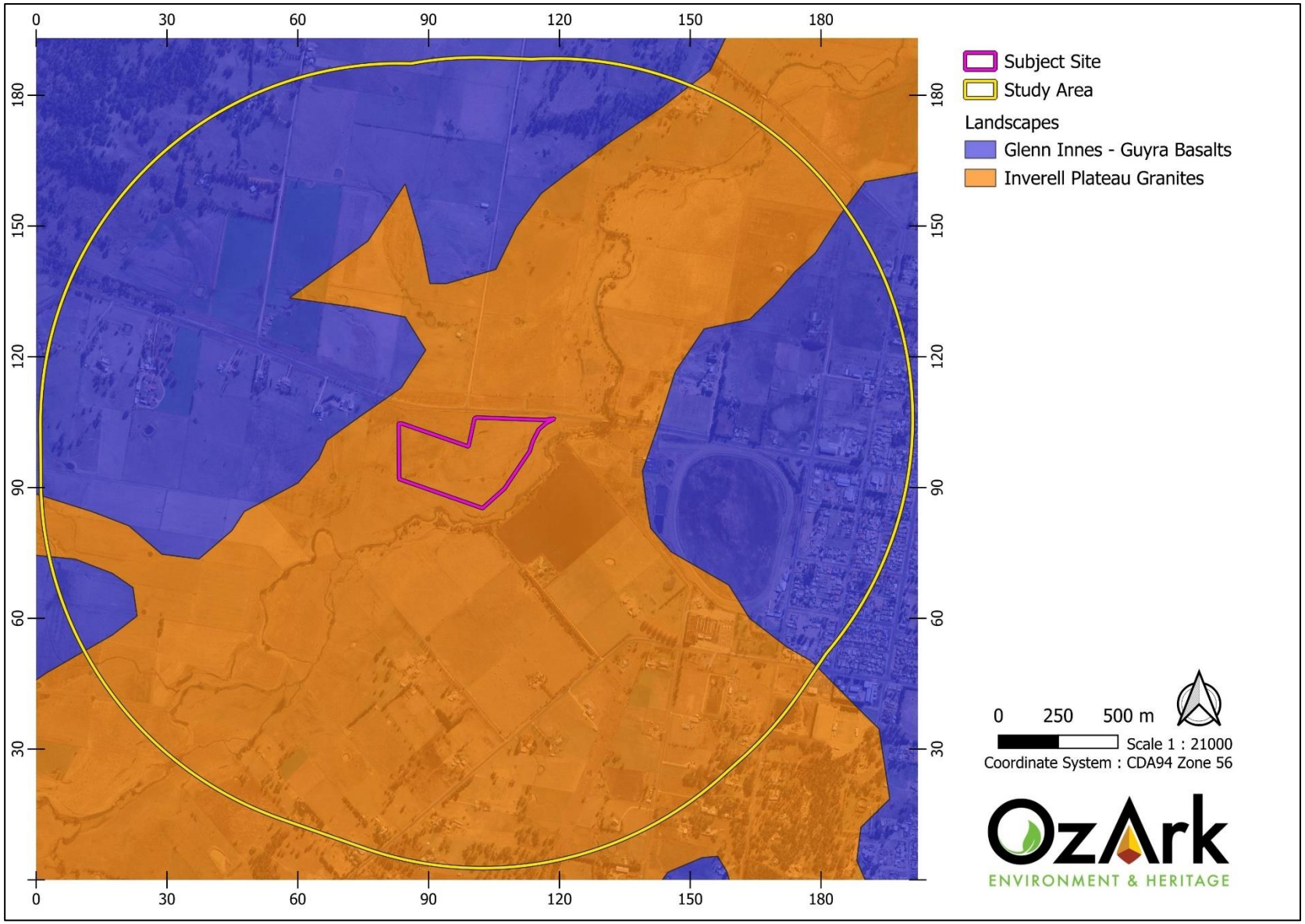


Figure 4-1. NSW Landscapes of the study area (Mitchell, 2002).

4.3 CLIMATE

The closest operating weather station to the subject site is at the Glen Innes Airport Weather Station (ID 056243), located approximately 6.5 km to the north. Records at this station began in 1996.

This area experiences mild summers, with the highest mean maximum temperature of 26.7ºC experienced in January. Mild minimum temperatures are experienced during this summer period (January 13.1ºC). Winters are cold, with temperatures in the coolest month (July) ranging from a minimum of -1.0ºC to a mean maximum of 13.4ºC (Bureau of Meteorology, 2024; **Figure 4-2**).

An average of 892.3 mm of rainfall is recorded annually, with November recording the highest mean of 117.7mm, followed by December (108.2mm) and January (99.1mm). BOM statistics show that the study area experiences generally wetter summer months and drier winter months (BOM, 2024; **Figure 4-2**).

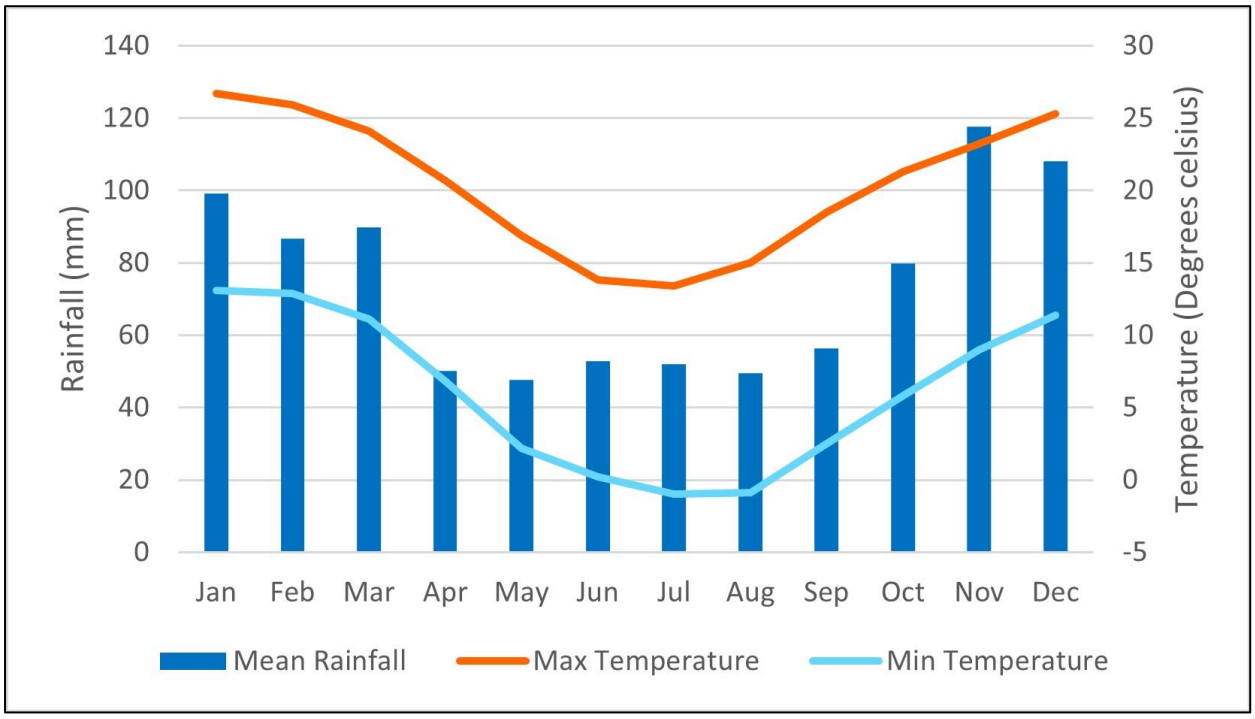


Figure 4-2. Climate statistics for the Glen Innes Airport weather station (ID 056243), showing mean monthly rainfall and minimum/maximum temperatures (BOM 2024).

4.4 WATERCOURSES

Three unnamed, 1st Strahler order, minor, non-perennial watercourses occur within the subject site (**Figure 4-3**).

A further 12 watercourses also occur within the wider study area:

- 9 x Unnamed, 1st Strahler order minor, non-perennial watercourses,
- 2 x Unnamed 2nd Strahler order, minor, non-perennial watercourses, and
- Furracabad Creek, a 4th Strahler order, minor, perennial watercourse.

The Strahler 1st order watercourses within the subject site were found to be drainage channels and depressions. No watercourses within the subject site contain Key Fish Habitat (KFH), as recognised by the Department of Primary Industries – Fisheries (DPI), or Protected Riparian Land (PRL), as per the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW). However, Furracabad Creek (approximately 60 m from the subject site) does contains both KFH and PRL.

No threatened aquatic species are mapped within the study area. As such, no tests of significance were carried out under the FM Act. Furthermore, the subject site is not part of any endangered aquatic ecological community.

As the proposal will involve dredging and/or reclamation in mapped waterways, a permit may be required in accordance with Section 201 under Part 7 of the FM Act. A permit under Part 7 of the FM Act is also required for activities that could potentially obstruct the 'free passage of fish'. The watercourses within the subject site are drainage channels and depressions, and do not contain KFH or the mapped distribution of any threatened fish. Therefore, the proposal is unlikely to negatively impact fish passage. However, it is recommended that the proponent contact their nearest regional NSW DPI staff to discuss the permit requirements for this proposal under the FM Act.

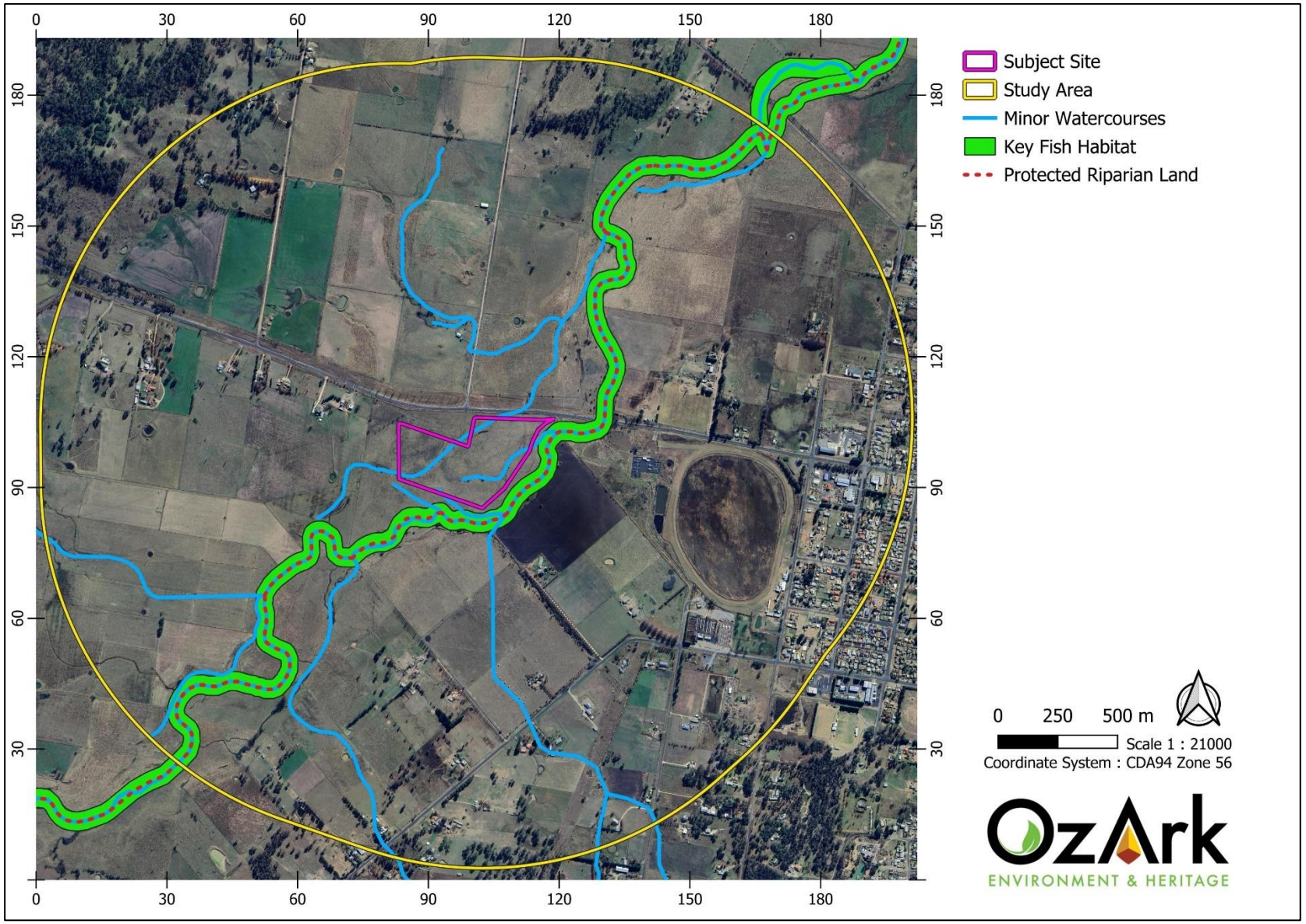


Figure 4-3. Watercourses within the study area.

4.5 GROUNDWATER DEPENDENT ECOSYSTEMS

Groundwater plays an important ecological role in directly and indirectly supporting terrestrial and aquatic ecosystems. Groundwater sustains terrestrial and aquatic ecosystems by supporting vegetation and providing discharge to channels, lacustrine and palustrine wetlands, and both the estuarine and marine environment. Aquifer ecosystems are inherently groundwater dependent (Serov, 2012).

The probable vegetation GDE mapping for the Border Rivers / Gwydir region (NSW DCCEEW 2022) identified areas of high potential GDEs nearby the subject site, associated with Furracabad Creek (Figure 4-4). No potential GDEs occur directly within the subject site. As such, provided that the mitigation measures outlined in **Section 7** are adhered to, the potential for adverse interaction to GDEs is considered to be low and no significant impacts are expected to result from this proposal.

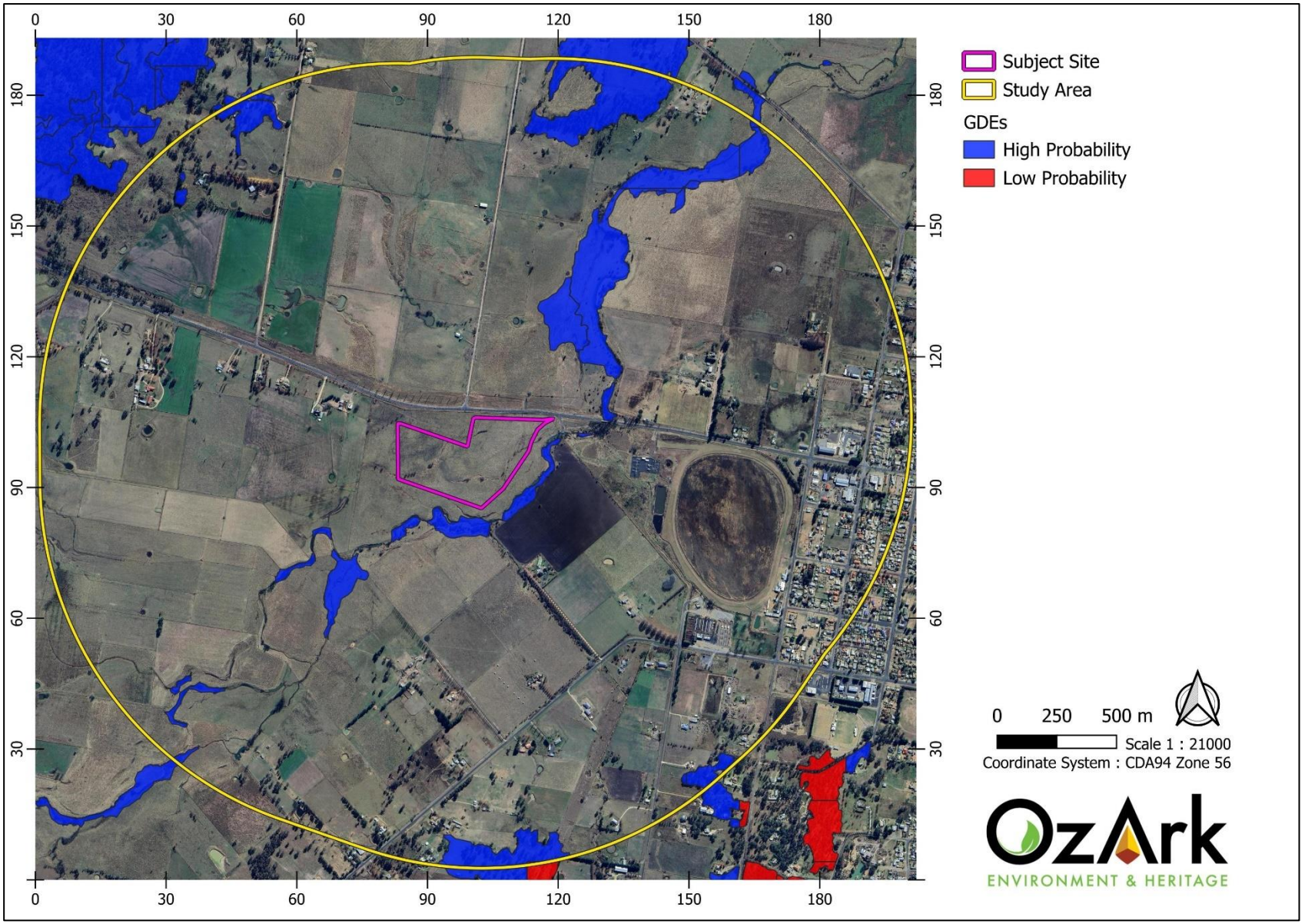


Figure 4-4. Groundwater Dependent Ecosystems within the study area.

5 RESULTS

5.1 PLANT COMMUNITY TYPES

Computer modelling, through the application of the NSW State Vegetation Type Map: C1.1.M1.1, anticipated four Plant Community Types (PCTs) to be present within the study area:

- PCT 3339 - Guyra Basalt Snow Gum Woodland,
- PCT 3344 - New England Ribbon Gum Grassy Forest,
- PCT 3351 - Armidale Creekflat Snow Gum Woodland-Scrub, and
- PCT 3359 - New England Hills Stringybark-Box Woodland.

One of these PCTs (3351) was observed during the field survey, occurring as a derived native grassland. As such, this PCT has been assigned 3351_Derived. Furthermore, a few small areas of native vegetation on drainage channels and depressions were observed in the eastern and northern section of the subject site. These drainage channels and depressions have been assigned to PCT 3981_Poor due to the degree of non-native vegetation within this PCT.

The mapped distribution of these PCTs is provided in **Figure 5-1**, the areas available in

PCT ID	PCT Name	Area within Subject Site (ha)
3351_Derived	Armidale Creekflat Snow Gum Woodland-Scrub	0.46
3981_Poor	Tableland Semi-permanent Shallow Wetlands	0.29
Total native vegetation		0.75
Non-native vegetation and bare ground		13.83
Total		**14.58**

, and a representative photograph accessible in **Appendix B**.

Table 5-1. Plant Community Types (PCTs) within the subject site.

PCT ID	PCT Name	Area within Subject Site (ha)
3351_Derived	Armidale Creekflat Snow Gum Woodland-Scrub	0.46
3981_Poor	Tableland Semi-permanent Shallow Wetlands	0.29
Total native vegetation		0.75
Non-native vegetation and bare ground		13.83
Total		**14.58**

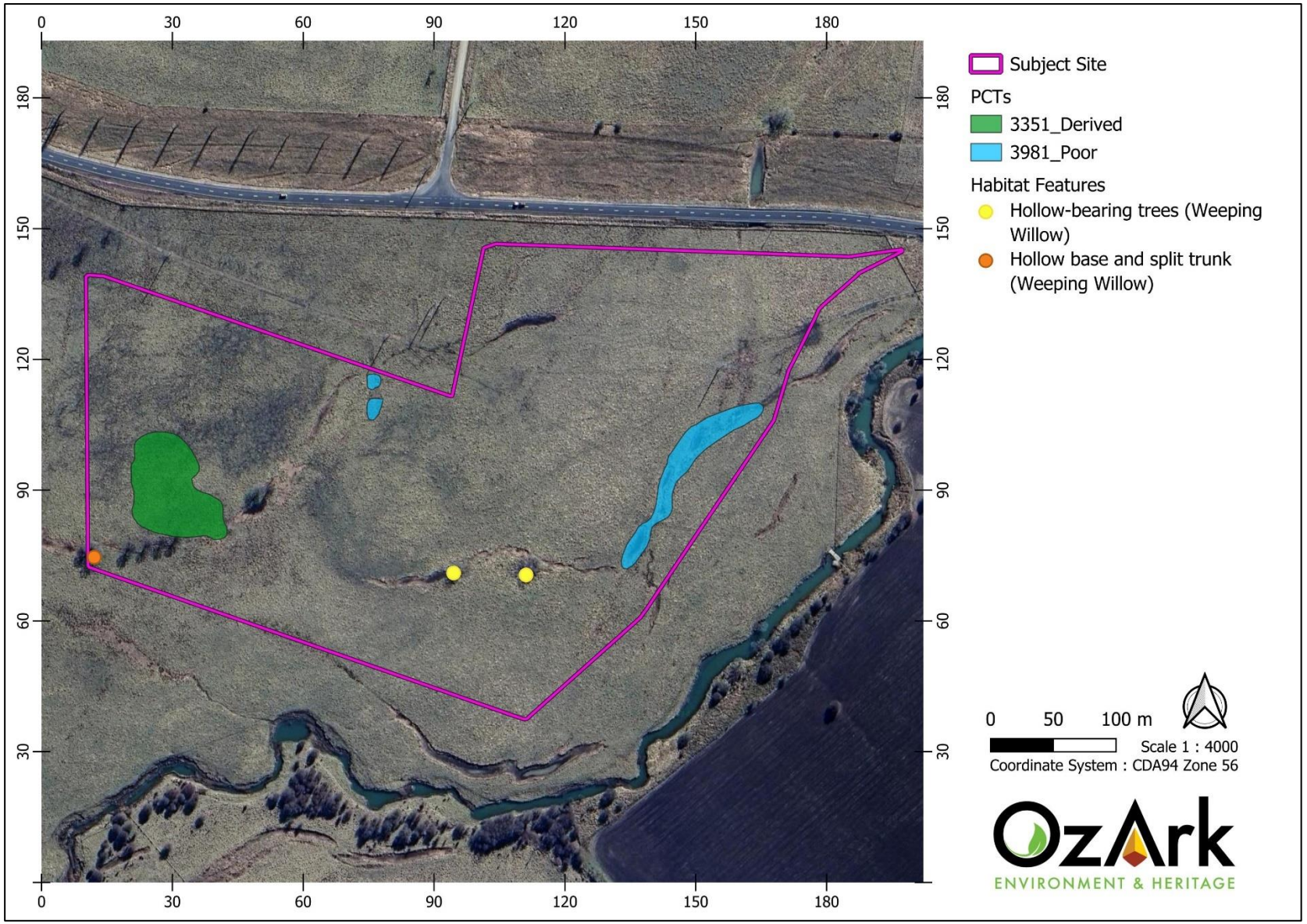


Figure 5-1. Confirmed Plant Community Types and habitat trees within the subject site.

5.2 THREATENED ECOLOGICAL COMMUNITIES

PCT 3351 is not associated with any Threatened Ecological Communities (TECs).

PCT 3981 is associated with two TECs:

- *Biodiversity Conservation Act* 2016 (BC Act)-listed, Endangered Ecological Community (EEC): *Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion*, and
- *Environment Protection & Biodiversity Conservation Act* 1999 (EPBC Act)-listed EEC: *Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)*.

These listings protect a distinctive community of often large wetlands that are not connected to the floodplains of rivers or streams (e.g. Billy Bung, Little Llangothlin, and Mother of Ducks Lagoon). This description does not apply to the small, sparse floodplain or drainage line wetlands that occur within the site. As such, the proposal would not impact any TECs.

5.3 THREATENED SPECIES AND POPULATIONS

A review of the Threatened Species Profiles database found 90 threatened or migratory flora and fauna species or populations listed under the BC and/or EPBC Acts that are known or predicted to occur within the Glenn Innes-Guyra Basalts and Deepwater Downs subregions of the New England Tablelands Bioregion. Based on the proximity of past records, habitat requirements, and the results of the field survey, 22 listed species or populations were assessed as having a moderate-to-high likelihood of occurrence (**Appendix C**). These species and populations are listed below in **Table 5-2**.

Table 5-2. BC and EPBC Act-listed threatened and migratory species or populations with the potential to be impacted by the proposal.

Scientific Name	Common Name	*NSW status	+Comm. Status	Records from within the search area
Adelotus brevis	Tusked Frog population in the Nandewar and New England Tableland Bioregions	E2,P		0
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V,P		0
Calidris melanotos	Pectoral Sandpiper	P	J,K	1
Circus assimilis	Spotted Harrier	V,P		0
Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		1
Falco subniger	Black Falcon	V,P		0
Gallinago hardwickii	Latham's Snipe	P	J,K	2
Grus rubicunda	Brolga	V,P		0
Hirundapus caudacutus	White-throated Needletail	P	V,C,J,K	0
Irediparra gallinacea	Comb-crested Jacana	V,P		0

Scientific Name	Common Name	*NSW status	+Comm. Status	Records from within the search area
Ninox connivens	Barking Owl	V,P,3		0
Petroica boodang	Scarlet Robin	V,P		0
Petroica phoenicea	Flame Robin	V,P	M	0
Rostratula australis	Australian Painted Snipe	E1,P	E	0
Stagonopleura guttata	Diamond Firetail	V,P	V	0
Tyto novaehollandiae	Masked Owl	V,P,3		0
Aldrovanda vesiculosa	Waterwheel Plant	E1		0
Dichanthium setosum	Bluegrass	V	V	6
Thesium australe	Austral Toadflax	V	V	16
Cercartetus nanus	Eastern Pygmy-possum	V,P		0
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V,P		1
Myotis macropus	Southern Myotis	V,P		0

***NSW Status:** P=Protected, V=Vulnerable, E1=Endangered, E2=Endangered Population.
+ Comm. Status: M=Marine, C=CAMBA, J=JAMBA, K=ROKAMBA, E=Endangered, V=Vulnerable

5.4 AQUATIC ECOLOGICAL COMMUNITIES

Endangered aquatic ecological communities are determined by the NSW Fisheries Scientific Committee and are listed under the FM Act as aquatic systems that have undergone a very large reduction in ecological function, geographic distribution, or genetic diversity, and continue to be affected by a threatening process (NSW Department of Primary Industries, 2016). There are no threatened aquatic communities mapped to the search area.

5.5 HABITAT TREES AND FEATURES

Two habitat trees (containing hollows) were recorded within the subject site (Figure 5-1). However, both trees are Weeping Willow (*Salix babylonica*), a High Threat Exotic (HTE) species as per the Biodiversity Assessment Method 2020 (BAM). As such, these habitat trees are likely of little value to native fauna. No other habitat features were recorded within the subject site.

5.6 WILDLIFE CONNECTIVITY CORRIDORS

A few small, isolated areas of native grassland and wetland vegetation (totalling 0.75 ha) occur within the subject site. The remaining area is dominated by non-native vegetation (exotic pasture species). As such, the subject site holds very low connectivity value.

5.7 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Under the environmental assessment provisions of the EPBC Act, Matters of National Environmental Significance (MNES) and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian

Government DCCEEW. The EPBC Act protected matters search has identified three TECs, 36 threatened species, 8 migratory species, and 18 marine species that could possibly occur in the study area (**Appendix A**). Although three Wetlands of International Importance (Ramsar) are distantly connected to the development area by way of watercourses, these are all several hundred kilometres from the subject site and will not be impacted by the proposal.

A summary of MNES and whether the proposal is likely to impact them is provided in **Table 5-3**.

Table 5-3. Impacts to Matters of National Environmental Significance and Commonwealth land.

Consideration	Potential impact?
Any impact on a listed threatened species or communities?	Yes (non-significant, **Appendix E**)
Any impacts on listed migratory species?	Yes (non-significant, **Appendix E**)
Any impacts on a Ramsar wetland of international importance?	No
Any impacts on a Commonwealth marine environment?	No
Any impacts on a World Heritage property?	No
Any impacts on a National Heritage place?	No
Any impacts on the Great Barrier Reef Marine Park?	No
Does the proposal involve a nuclear action (including uranium mining)?	No
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	No
Additionally, any impact (direct or indirect) on Commonwealth land?	No

6 IMPACT ASSESSMENT

6.1 CONSTRUCTION IMPACTS

6.1.1 Impacts to native vegetation and threatened ecological communities

The subject site, 14.58 ha in size, largely consisted of non-native vegetation and bare earth (13.83 ha). The remaining 0.75 ha consisted of native vegetation, represented by PCT 3351 (0.46 ha) and 3981 (0.29 ha).

PCT 3351 is not associated with any TECs.

No area of PCT 3981 within the subject site was considered an example of the BC Act-listed EEC, *Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion,* or EPBC Act-listed EEC, *Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)*. These listings protect a distinctive community of often large wetlands that are not connected to the floodplains of rivers or streams (e.g. Billy Bung, Little Llangothlin, and Mother of Ducks Lagoon). This description does not apply to the small, sparse floodplain or drainage line wetlands that occur within the site. As such, the proposal would not impact any TECs.

The clearing of all native vegetation is recognised as a Key Threatening Process under the BC Act. However, due to the relatively low magnitude of clearing required for this proposal, these impacts are not considered significant under either the BC or EPBC Act (see **Appendices D-E**), although efforts should still be made to reduce the amount of clearing required.

6.1.2 Impact to threatened fauna and associated habitat

Fifteen threatened fauna species or populations listed under the BC and/or EPBC Acts were considered to have a moderate probability of occurring at the subject site. Although no threatened fauna species was encountered during the field survey, targeted surveys (e.g., trapping, spotlighting) were not performed.

Two habitat trees (containing hollows) were recorded within the subject site. However, both trees are Weeping Willow (*Salix babylonica*), a HTE species as per the BAM. As such, these habitat trees are likely of little value to native fauna. No other habitat features were recorded within the subject site.

Given the relative scarcity of habitat features and relatively small amount of native vegetation (0.75 ha) that the proposal intends to remove/modify, relative to the study area, it is highly unlikely that such works would have a significant impact on any threatened fauna species or population (**Appendices D-E**).

6.1.3 Impact to threatened flora

Three threatened flora species, listed under the BC and/or EPBC Acts, were considered to have a moderate, or greater, probability of occurrence at the subject site. Although no threatened flora species were detected during the field survey, targeted surveys were not performed, and the time of year (7th of May 2024 and 7th of November) may not have been conducive to detecting these species. Given the amount of native vegetation (0.75 ha) that the proposal intends to remove/modify, relative to the study area, it is highly unlikely that such works would have a significant impact on any threatened flora species (**Appendices D - E**).

6.1.4 Fauna injury and mortality

During the construction phase of the proposal, the removal of native vegetation could potentially disturb or injure fauna. In addition, fauna may become trapped in or choose to shelter within machinery stored at the subject site overnight. If these animals were to remain inside the machinery, or under the wheels or tracks, they may suffer fatalities once the machinery is in use. However, given the lack of habitat features within the site, the likelihood of this occurrence is considered very low. Nonetheless, mitigation measures designed to reduce injury and mortality of fauna are provided in **Section 7.**

6.2 INDIRECT/OPERATIONAL IMPACTS

6.2.1 Edge effects on adjacent native vegetation and habitat

Considering most of the subject site is dominated by non-native vegetation (exotic pasture species), the proposal would not generate additional habitat edges. However, it could encourage the spread of weeds into the remnant vegetation outside the direct impact footprint of the proposal.

6.2.2 Invasion and spread of weeds

The proliferation of weed and pest species will be an indirect impact of this proposal's activities. The most likely causes of weed dispersal and importation associated with the proposal include earthworks, movement of soil, and attachment of seed (and other propagules) to vehicles and machinery. Mitigation measures designed to limit the spread of weeds are provided in **Section 7**.

The survey identified 26 exotic weed species at the subject site. Of these, eight are regarded as HTEs, as per the BAM. One species – Blackberry (*Rubus fruticosus* species aggregate) – is also considered a Weed of National Significance (WoNS) and a Priority Weed (PW) for the Northern Tablelands. Another species – Sweet Briar (*Rosa rubiginosa*) is listed as a PW but not as a WoNS (**Table 6-1**).

Table 6-1. Significant weeds encountered at the subject site.

Growth Form	Scientific Name	Common Name	HTE	WoNS	PW
SG	*Rubus fruticosus* species aggregate	Blackberry	Yes	Yes	Yes
SG	*Rosa rubiginosa*	Sweet Briar, Eglantine	Yes	No	Yes
TG	*Salix babylonica*	Weeping Willow	Yes	No	No
FG	*Leucanthemum vulgare*	Ox-Eye Daisy	Yes	No	No
GG	*Paspalum dilatatum*	Paspalum	Yes	No	No
GG	*Eragrostis curvula*	African Lovegrass	Yes	No	No
GG	*Cyperus eragrostis*	Umbrella Sedge	Yes	No	No
GG	*Cenchrus longisetus*	White Foxtail	Yes	No	No

6.2.3 Invasion and spread of pests

The study area is likely already habitat for a range of pest species, such as European rabbits (*Oryctolagus cuniculus*), foxes (*Vulpes vulpes*), cats (*Felis catus)*, feral pigs (*Sus scrofa*) and wild dogs (*Canis lupus*). Mitigation measures designed to limit the spread of pests are provided in **Section 7.**

6.2.4 Invasion and spread of pathogens and disease

Several pathogens known from NSW have the potential to impact on biodiversity due to their movement and infection during construction. Of these, three are listed as a key threatening process under either the EPBC Act and/or BC Act including:

- Dieback caused by *Phytophthora* (Root Rot; EPBC Act and BC Act)
- Infection of frogs by amphibian chytrid fungus causing the disease chytridiomycosis (EPBC Act and BC Act)
- Introduction and establishment of exotic Rust Fungi of the order *Pucciniales* on plants of the family *Myrtaceae* (BC Act).

These pathogens were not observed or tested for in the study area. The most likely causes of pathogen dispersal and importation associated with the proposal include earthworks, movement of soil, and attachment of plant matter to vehicles and machinery. Mitigation measures designed to limit the invasion and spread of pathogens and disease are provided in **Section 7**.

6.2.5 Noise, light and vibration

Given the current levels of noise, light and vibration caused by vehicular activity along the Gwydir Highway (directly north of the subject site), it is unlikely that there would be a significant increase associated with the operational phase of the proposal.

There is, however, the potential for short-term impacts derived from noise and vibration during construction. Although this may promote fauna temporarily avoiding habitats adjacent to the construction areas, the severity of this impact would be low.

6.3 CUMULATIVE IMPACTS

The potential biodiversity impacts of the proposal must be considered as a component of the ongoing and, in some cases, intensifying loss of biodiversity within NSW. This proposal would not act alone in causing impacts to biodiversity. Instead, it represents just one of many sources of biodiversity loss. The incremental effects of multiple sources of impact (past, present and future) are referred to as cumulative impacts. This assessment provides an opportunity to consider the proposal within a strategic context.

Historic vegetation clearing for agriculture and infrastructure have caused significant biodiversity losses in the local area. Ongoing projects in the LGA, such as the Rangoon Wind Farm and the Glen Innes Battery Energy Storage System will continue to reduce remaining biodiversity values into the future. The proposal, by itself, would not significantly impact regional biodiversity, given that it only intends to impact up to 0.75 ha of native vegetation.

6.4 IMPACT SUMMARY

An Assessment of Significance has been conducted for each BC Act and EPBC Act-listed threatened or migratory species and community that is considered to have a moderate-high likelihood of occurring due to the presence of suitable habitat (**Appendices C-E**). Based on these assessments, the proposal is unlikely to have a significant impact on biodiversity, including predicted populations of threatened or migratory species and threatened ecological communities.

7 AVOID, MINIMISE AND MITIGATE IMPACTS

A key part of the proponent's management of biodiversity for this proposal is the application of the 'avoid, minimise, mitigate and offset' hierarchy as follows:

1. Avoid and minimise impacts as the highest priority,

2. Mitigate impacts where avoidance is not feasible or practicable in the circumstance, and

3. Offset where residual, significant unavoidable impacts would occur

7.1 AVOIDANCE AND MINIMISATION

The following impact avoidance and minimisation methods were implemented by Green Gold Energy during the design phase of the proposal:

- The impact footprint was moved to avoid impacts to the riparian corridor of Furracabad Creek, which is mapped on the Biodiversity Values Map.

The following impact avoidance methods are recommended to be implemented:

- To avoid impacts associated with weed introduction and spread, inspect all machinery before entering and exiting the subject site. Machinery must be clean of all mud, soil and vegetation material.

In addition, the following minimisation measures are proposed:

- The construction works and vehicle access to the construction site is to be constrained to the minimum area practical.
- Material stockpiles, equipment and machinery storage and laydown areas will be contained within the subject site footprint.
- The impact footprint will be minimised by restricting access across the site to the defined development footprint, including avoiding unnecessary vehicle and personnel movements across unused land.

7.2 MITIGATION MEASURES

Mitigation measures are to be undertaken during the construction and operational phases, including managing the vegetation clearing process, weed management, and installation of erosion and sediment controls as appropriate. The following mitigation measures are recommended for implementation (see **Table 7-1**).

Table 7-1. Mitigation measures and environmental safeguards.

Aspect	Environmental safeguards	Responsibility	Timing
General	1. Any change in design outside the assessed impact footprint (subject site) will require further ecological survey and assessment. 2. All personnel working on site will be made aware of the environmental sensitivities of the site and safeguards/mitigations to be implemented, e.g., site induction and 'toolbox' style briefings. This includes all native vegetation, threatened ecological communities, and potential/known threatened flora and fauna (see **Table 5-2**).	Proponent	Pre-construction, construction, operation
Clearing of native vegetation (including habitat trees)	3. All construction personnel should be inducted to be aware that any deliberate or accidental damage of a stand of native vegetation outside the subject site has legislative consequences under Part 4 or 5 of the EP&A Act. Evidence of all personnel receiving this induction would be kept on file (signed induction sheets etc.). 4. Before starting work, a physical vegetation clearing boundary at the approved clearing limit is to be demarcated and implemented. The delineation of such a boundary may include the use of temporary fencing, parawebbing, etc. 5. Vegetation would be removed in such a way as to avoid damage to surrounding vegetation. 6. Groundcover disturbance would be kept to a minimum. 7. Any stockpile and compound sites should be located using the following criteria: a. At least 40 m away from the nearest waterway b. In areas of low ecological conservation significance (i.e., previously disturbed land) c. On relatively level ground d. Outside the one in 10-year Average Recurrence Interval (ARI) floodplain 8. Stockpiling materials and equipment and parking vehicles would be avoided within the dripline (extent of foliage cover) of any tree. 9. Where possible, vegetation to be removed would be mulched on-site and re-used to stabilise disturbed areas.	Proponent / contractor	Pre-construction, construction, operation
Accidental death of fauna	10. Where fauna is encountered, the fauna spotter catcher will remove the animal(s) and relocate them nearby, or if necessary, deliver them to a veterinarian or wildlife carer for rehabilitation.	Contractor	Construction
Light	11. Any artificial lighting to be used during construction or operation should follow the Best Practice Lighting Design within the National Light Pollution Guidelines (DoEE 2020).	Proponent, contractor	Construction
Soil Management	12. Install erosion and sediment controls in line with Landcom's Managing Urban Stormwater, Soils & Construction Guidelines (The Blue Book. Landcom 2004). 13. Where practicable, spread mulch made from vegetation cleared on site on areas of bare soil to stabilise, preventing dust and erosion.	Contractor	Pre-construction and construction

	14. Erosion and sedimentation controls are to be checked and maintained on a regular basis. This includes clearing of sediment from behind barriers and after heavy rainfall events. 15. Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised. 16. Stockpile topsoil removed to be redistributed across site at completion of construction. 17. Implement dust suppression activities.		
Introduction and spread of priority weeds and pathogens	18. Construction crew should be briefed on the identification of significant weeds occur on site during inductions (see **Table 6-1**). 19. If declared priority weeds are identified during construction, they will be managed according to the requirements of the *Biosecurity Act 2015.* 20. Construction machinery (bulldozers, excavators, trucks, loaders, and graders) will be cleaned using a high-pressure washer or other suitable device before entering and exiting work sites. 21. Machinery will be inspected by designated personnel following washdown to ensure no soil, mud, or vegetative material remains. Records of inspections to be maintained. 22. All pesticides will be used in accordance with the requirements on the label. Any person carrying out pesticide (including herbicide) application will be trained to do so and have the proper certificate of completion/competency or statement of attainment issued by a registered training organisation. Keep records of any weed control activities that take place.	Contractor	Construction
Disturbance to fallen timber, dead wood, and bush rock	23. If detected, any fallen timber, dead wood, and bush rock encountered would be left *in situ* (where possible) or relocated to a suitable place nearby. 24. Rock would be removed with suitable machinery so as not to damage the underlying rock or result in excessive soil disturbance.	Contractor	Construction
Rehabilitating cleared areas	25. Revegetation of any bare soil with locally occurring native flora species typical of the original habitat types. 26. Stockpiled topsoil to be re-spread over cleared areas.	Proponent, contractor	Construction and post-construction
Exacerbating invasive fauna	27. All food scraps and rubbish are to be appropriately disposed of in sealed receptacles to prevent providing forage habitats for foxes, rats, dogs, and cats.	Contractor	Construction
Increased risk of fire	28. If any “hot works” are to be undertaken, these activities will not take place on days of extreme fire danger (where possible).	Contractor	Construction

8 CONCLUSION

OzArk has been engaged by Chris Smith & Associates to produce this BAR.

An initial field survey was conducted by Senior Ecologist Dr David Orchard on the 7th of May 2024. Following a footprint revision in October 2024 (to allow for the necessary buffer around watercourses), the new footprint was surveyed by Dr Orchard on the 7th of November 2024.

The subject site, 14.58 ha in size, is dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site (PCT 3351) and small areas of native vegetation on drainage channels and depressions (PCT 3981), totalling 0.75 ha of native vegetation.

A BAR is appropriate for this development, rather than a BDAR, as the clearing threshold for the subject site (1 ha) will not be exceeded, the proposal does not impact a mapped area of biodiversity value on the state-wide Biodiversity Values Map, and no listed threatened entities will be significantly impacted. As such, entry into the NSW BOS is not triggered.

PCT 3351 is not associated with any TECs.

PCT 3981 is associated with two TECs:

- BC Act-listed EEC: *Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion*, and
- EPBC Act-listed EEC: *Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)*.

These listings protect a distinctive community of often large wetlands that are not connected to the floodplains of rivers or streams (e.g. Billy Bung, Little Llangothlin, and Mother of Ducks Lagoon). This description does not apply to the small, sparse floodplain or drainage line wetlands that occur within the site. As such, the proposal would not impact any TECs.

Two habitat trees (containing hollows) were recorded within the subject site. However, both trees are Weeping Willow (*Salix babylonica*), a HTE species as per the BAM. As such, these habitat trees are likely of little value to native fauna. No other habitat features were recorded within the subject site.

Three unnamed, 1st Strahler order, minor, non-perennial watercourses occur within the subject site. These watercourses were found to be drainage channels and depressions. No watercourses within the subject site contain KFH, as recognised by the DPI – Fisheries, or PRL, as per the NSW DCCEEW. Furthermore, the subject site is not part of any endangered aquatic ecological community.

Furracabad Creek, which occurs directly adjacent to the subject site does contains both KFH and PRL. However, no threatened aquatic species are mapped within the study area. As such, no tests of significance were carried out under the FM Act.

As the proposal will involve dredging and/or reclamation in mapped waterways, a permit may be required in accordance with Section 201 under Part 7 of the FM Act. However, as no KFH occurs within the impact footprint, it is recommended that the proponent contact their nearest regional NSW DPI staff to discuss whether such a permit is indeed necessary under the FM Act.

Fifteen threatened or migratory fauna species or populations and three threatened flora species, listed under the BC Act and/or the EPBC Act, were considered to have a moderate or greater probability of occurrence at the subject site. However, no listed species or populations were encountered during the field survey. Subject to implementation of the mitigation measures proposed, it has been concluded that no significant biodiversity impacts are likely, including to any threatened or migratory species, population or ecological community, or their habitats. As such, the proposal does not require referral to the DCCEEW in respect of these matters or trigger the need for a SIS or a BDAR.

This assessment covers the current form of the proposal. Any change to the scope of work may require re-assessment. If entry into the NSW BOS is triggered by a changed footprint impacting additional native vegetation, then additional field work and reporting completed according to the BAM may be required.

9 REFERENCES

Australian Government Bureau of Meteorology (2024). Climate Data Online. <http://www.bom.gov.au/climate/data/>

Australian Government Department of Climate Change, Energy, the Environment and Water (2021). Directory of Important Wetlands. https://www.dcceew.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands

Australian Government Department of Climate Change, Energy, the Environment and Water (2024). Protected Matters Search Tool. <https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool>

Australian Government Department of Sustainability, Environment, Water, Population and Communities (2011). Survey Guidelines for Australia's Threatened Mammals. Guidelines for detecting mammals listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999. < https://www.dcceew.gov.au/sites/default/files/documents/survey-guidelines-mammals.pdf>

Australian Government Department of Sustainability, Environment, Water, Population and Communities (2012). Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 (Subregions). Canberra.

Australian Government Department of the Environment (2013). Matters of National Environmental Significance - Significant impact guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999. Commonwealth of Australia. <http://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf>

Australian Government Department of the Environment, Water, Heritage and the Arts (2010). Survey Guidelines for Australia's Threatened Birds. Guidelines for detecting birds listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999.

Australian Virtual Herbarium 2024, https://avh.chah.org.au/

Briggs, J and Leigh, J 1996, Rare or Threatened Australian Plants, CSIRO Publishing, Collingwood, Victoria

Fairfull, S. (2013). Policy and Guidelines for Fish Habitat Conservation and Management. Sydney: NSW Department of Primary Industries.

Keith, D. (2004). Ocean Shores to Desert Dunes: the Vegetation of New South Wales and the ACT. Department of Environment and Conservation NSW.

Mitchell, P. (2002). Descriptions for NSW (Mitchell) Landscapes. NSW Department of Planning and Environment.

Morgan, G., & Terrey, J. (1992). Nature conservation in western New South Wales. Sydney: National Parks Association.

NSW Department of Climate Change, Energy, the Environment and Water (2022). Probable Vegetation Groundwater Dependent Ecosystems - Border Rivers / Gwydir. <datasets.seed.nsw.gov.au/dataset/probable-vegetation-gde-border-rivers-gwydir>

NSW Department of Planning and Environment (2011a). NSW Wetlands. <https://datasets.seed.nsw.gov.au/dataset/nsw-wetlands047c7>

NSW Department of Planning and Environment (2011b). Vulnerable Lands – Steep or Highly Erodible, Protected Riparian and Special Category. <https://datasets.seed.nsw.gov.au/dataset/vulnerable-land-protected-riparian73a9e>

NSW Department of Planning and Environment (2016). NSW (Mitchell) Landscapes – version 3.1. <https://datasets.seed.nsw.gov.au/dataset/nsw-mitchell-landscapes-version-3-1>

NSW Department of Planning and Environment (2017). NSW Landuse mapping. <https://datasets.seed.nsw.gov.au/dataset/nsw-landuse-2017>

NSW Department of Planning and Environment (2022a). Threatened Reptiles Biodiversity Assessment Method Survey Guide. <https://www.environment.nsw.gov.au/research-and-publications/publications-search/threatened-reptiles-biodiversity-assessment-method-survey-guide>

NSW Department of Planning and Environment (2022b). Areas of Outstanding Biodiversity Value. <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/areas-of-outstanding-biodiversity-value>

NSW Department of Planning and Environment (2022c). State Vegetation Type Map C1.1.M1.1. <https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map>

NSW Department of Planning and Environment (2022d). Acid Sulfate Soils Risk. <https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c>

NSW Department of Climate Change, Energy, the Environment and Water (2024a). BioNet. <https://www.bionet.nsw.gov.au/>

NSW Department of Climate Change, Energy, the Environment and Water (2024b). Threatened Biodiversity Data Collection. < https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/about-bionet-atlas/threatened-biodiversity-profiles>

NSW Department of Climate Change, Energy, the Environment and Water (2024c). BioNet Vegetation Classification. <http://www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx>

NSW Department of Climate Change, Energy, the Environment and Water (2024d). NSW Biodiversity Values Map. https://datasets.seed.nsw.gov.au/dataset/biodiversity-values-map

NSW Department of Climate Change, Energy, the Environment and Water (2024e). Wetlands. https://www.environment.nsw.gov.au/topics/water/wetlands

NSW Department of Climate Change, Energy, the Environment and Water (2024f). NSW Plant Community Type Classification. <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/nsw-plant-community-type-classification>

NSW Department of Planning, Industry and Environment (2020a). Surveying threatened plants and their habitats. NSW survey guide for the Biodiversity Assessment Method.

NSW Department of Planning, Industry and Environment (2020b). Biodiversity Assessment Method. <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-assessment-method-2020-200438.pdf>

NSW Department of Planning, Industry and Environment (2020c). NSW Survey Guide for Threatened Frogs: A guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method. <https://www.environment.nsw.gov.au/research-and-publications/publications-search/nsw-survey-guide-for-threatened-frogs>

NSW Department of Primary Industries (2023). Freshwater threatened species distribution maps. https://www.dpi.nsw.gov.au/fishing/threatened-species/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps

NSW Department of Primary Industries (2024). NSW WeedWise: Priority weeds for the Northern Tablelands <https://weeds.dpi.nsw.gov.au/WeedBiosecurities?AreaId=8>

NSW National Parks and Wildlife Service (2003). The Bioregions of New South Wales their biodiversity, conservation and history.

Royal Botanic Gardens and Domain Trust. (2024). PlantNET. <http://plantnet.rbgsyd.nsw.gov.au>

Serov, P, Kuginis, L, Williams, JP. (2012). Risk assessment guidelines for groundwater dependent ecosystems, Volume 1 – The conceptual framework, NSW Department of Primary Industries, Office of Water, Sydney.

Thackway, R., & Cresswell, I. (1995). An interim biogeographic regionalisation for Australia: a framework for setting priorities in the National Reserves System Cooperative Program.

Triggs, B 1996, Tracks, scats and other traces: a field guide to Australian mammals, Oxford University Press, Melbourne, Victoria

Van Dyck, S and Strahan, R (Eds) 2008, The mammals of Australia (3rd edition). Reed New Holland, Sydney, NSW

Van Dyck et al. (2012). Field Companion to The Mammals of Australia. New Holland Books.

APPENDIX A – DATABASE SEARCH RESULTS

EPBC Act Protected Matters Report

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: 22-Nov-2024

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	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	36
Listed Migratory Species:	8

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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	18
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:	None
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

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

Ramsar Site Name	Proximity
Banrock station wetland complex	1100 - 1200km upstream from Ramsar site
Riverland	1100 - 1200km upstream from Ramsar site
The coorong, and lakes alexandrina and albert wetland	1300 - 1400km upstream from Ramsar site

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
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	Critically Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within 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
BIRD		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Melanodryas cucullata cucullata		
South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area
Neophema chrysostoma		
Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area
Rostratula australis		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Stagonopleura guttata		
Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area
MAMMAL		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat may occur within 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
Nyctophilus corbeni		
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Petaurus australis australis		
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within 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

Scientific Name	Threatened Category	Presence Text
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
PLANT		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area
Callistemon pungens [55581]	Vulnerable	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus mckieana McKie's Stringybark [20199]	Vulnerable	Species or species habitat may occur within area
Eucalyptus nicholii Narrow-leaved Peppermint, Narrow-leaved Black Peppermint [20992]	Vulnerable	Species or species habitat likely to occur within area
Picris evae Hawkweed [10839]	Vulnerable	Species or species habitat may occur within area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area
REPTILE		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Myuchelys belli		
Western Sawshelled Turtle [86075]	Endangered	Species or species habitat may occur within area
Uvidicolus sphyrurus		
Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine 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

Extra Information

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
North East NSW RFA	New South Wales

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Not controlled action (particular manner)			
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

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BioNET Atlas search – threatened species predicted to occur within the Glenn Innes-Guyra Basalts and Deepwater Downs subregions of the New England Tablelands Bioregion.

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records
Amphibia	*Adelotus brevis*	Tusked Frog population in the Nandewar and New England Tableland Bioregions	E2,P		P
Amphibia	*Litoria booroolongensis*	Booroolong Frog	E1,P	E	P
Amphibia	*Litoria castanea*	Yellow-spotted Tree Frog	E4A,P	CE	23
Amphibia	*Litoria piperata*	Peppered Tree Frog	E4A,P	V	P
Amphibia	*Litoria subglandulosa*	Glandular Frog	V,P	V	P
Aves	*Anseranas semipalmata*	Magpie Goose	V,P		1
Aves	*Anthochaera phrygia*	Regent Honeyeater	E4A,P,2	CE	1
Aves	*Aphelocephala leucopsis*	Southern Whiteface	V,P	V	1
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		54
Aves	*Burhinus grallarius*	Bush Stone-curlew	E1,P		P
Aves	*Calidris acuminata*	Sharp-tailed Sandpiper	P	C,J,K	10
Aves	*Calidris ferruginea*	Curlew Sandpiper	E1,P	CE,C,J,K	1
Aves	*Calidris melanotos*	Pectoral Sandpiper	P	J,K	1
Aves	*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	V,P,2	V	5
Aves	*Chlidonias leucopterus*	White-winged Black Tern	P	C,J,K	1
Aves	*Chthonicola sagittata*	Speckled Warbler	V,P		25
Aves	*Circus assimilis*	Spotted Harrier	V,P		2
Aves	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P	V	25
Aves	*Daphoenositta chrysoptera*	Varied Sittella	V,P		8
Aves	*Ephippiorhynchus asiaticus*	Black-necked Stork	E1,P		1
Aves	*Falco subniger*	Black Falcon	V,P		1
Aves	*Gallinago hardwickii*	Latham's Snipe	P	J,K	24
Aves	*Glossopsitta pusilla*	Little Lorikeet	V,P		24
Aves	*Grantiella picta*	Painted Honeyeater	V,P	V	P
Aves	*Grus rubicunda*	Brolga	V,P		2
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P		36
Aves	*Hieraaetus morphnoides*	Little Eagle	V,P		19
Aves	*Hirundapus caudacutus*	White-throated Needletail	V,P	V,C,J,K	3
Aves	*Irediparra gallinacea*	Comb-crested Jacana	V,P		1
Aves	*Lathamus discolor*	Swift Parrot	E1,P	CE	3
Aves	*Lophoictinia isura*	Square-tailed Kite	V,P,3		5
Aves	*Melanodryas cucullata cucullata*	South-eastern Hooded Robin	E1,P	E	4
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P		2
Aves	*Neophema pulchella*	Turquoise Parrot	V,P,3		5

Aves	*Ninox connivens*	Barking Owl	V,P,3		5
Aves	*Ninox strenua*	Powerful Owl	V,P,3		2
Aves	*Oxyura australis*	Blue-billed Duck	V,P		29
Aves	*Petroica boodang*	Scarlet Robin	V,P		23
Aves	*Petroica phoenicea*	Flame Robin	V,P	M	13
Aves	*Phaethon lepturus*	White-tailed Tropicbird	P	C,J	1
Aves	*Phalaropus lobatus*	Red-necked Phalarope	P	C,J,K	1
Aves	*Pluvialis fulva*	Pacific Golden Plover	P	C,J,K	1
Aves	*Poephila cincta cincta*	Black-throated Finch (southern subspecies)	E4,P	E	1
Aves	*Rostratula australis*	Australian Painted Snipe	E1,P	E	4
Aves	*Stagonopleura guttata*	Diamond Firetail	V,P	V	22
Aves	*Stictonetta naevosa*	Freckled Duck	V,P		4
Aves	*Tringa stagnatilis*	Marsh Sandpiper	P	C,J,K	4
Aves	*Tyto novaehollandiae*	Masked Owl	V,P,3		P
Flora	*Acacia macnuttiana*	MacNutt's Wattle	V	V	3
Flora	*Acacia pycnostachya*	Bolivia Wattle	V	V	2
Flora	*Aldrovanda vesiculosa*	Waterwheel Plant	E1		2
Flora	*Almaleea cambagei*	Torrington Pea	E1	E	P
Flora	*Arthraxon hispidus*	Hairy Jointgrass	V	V	P
Flora	*Boronia boliviensis*	Bolivia Hill Boronia	E4A,P,3		P
Flora	*Boronia granitica*	Granite Boronia	V,P	E	5
Flora	*Boronia inflexa subsp. torringtonensis*		E4A,P	CE	1
Flora	*Callistemon pungens*			V	2
Flora	*Dichanthium setosum*	Bluegrass	V	V	92
Flora	*Diuris pedunculata*	Small Snake Orchid	E1,P,2	E	37
Flora	*Eucalyptus boliviana*	Bolivia Stringybark	E4A		P
Flora	*Eucalyptus camphora subsp. relicta*	Warra Broad-leaved Sally	E1		1
Flora	*Eucalyptus magnificata*	Northern Blue Box	E1		P
Flora	*Eucalyptus mckieana*	McKie's Stringybark	V	V	10
Flora	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint	V	V	26
Flora	*Eucalyptus rubida subsp. barbigerorum*	Blackbutt Candlebark	V	V	595
Flora	*Euphrasia ciliolata*	Polblue Eyebright	V		2
Flora	*Homoranthus croftianus*	Bolivia Homoranthus	E4A		P
Flora	*Micromyrtus grandis*	Severn River Heath-myrtle	E1,3	E	P
Flora	*Muehlenbeckia sp. Mt Norman*	Scrambling Lignum	V		P
Flora	*Picris evae*	Hawkweed	V	V	3
Flora	*Pimelea venosa*	Bolivia Hill Rice-flower	E1,3	E	P
Flora	*Polygala linariifolia*	Native Milkwort	E1		2
Flora	*Prasophyllum sp. Wybong*		P	CE	P

Flora	*Prostanthera staurophylla*	Moombahlene Mint-bush	E1,2	CE	P
Flora	*Rutidosis heterogama*	Heath Wrinklewort	V	V	P
Flora	*Swainsona sericea*	Silky Swainson-pea	V		4
Flora	*Thesium australe*	Austral Toadflax	V	V	89
Mammalia	*Cercartetus nanus*	Eastern Pygmy-possum	V,P		P
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	27
Mammalia	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		4
Mammalia	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P		11
Mammalia	*Myotis macropus*	Southern Myotis	V,P		2
Mammalia	*Petauroides volans*	Southern Greater Glider	E1,P	E	1
Mammalia	*Petrogale penicillata*	Brush-tailed Rock-wallaby	E1,P	V	1
Mammalia	*Phascolarctos cinereus*	Koala	E1,P	E	71
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	12
Mammalia	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P		3
Mammalia	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		5
Reptilia	*Hoplocephalus bitorquatus*	Pale-headed Snake	V,P		P
Reptilia	*Myuchelys bellii*	Western Sawshelled Turtle, Bell's Turtle	E1,P	E	139

*NSW Status: P=Protected, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.
+ Comm. Status: M=Marine, C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable.
- Number of Records: P = predicted to occur.

BioNET Atlas search – threatened ecological communities predicted to occur within the Glenn Innes-Guyra Basalts and Deepwater Downs subregions of the New England Tablelands Bioregion.

Community Name	*NSW status	+Comm. Status	Records
Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions	E3		K
Lowland Rainforest of Subtropical Australia		CE	K
McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions	E3		P
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3		P
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland		CE	K
New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodlands		CE	K
New England Peppermint (*Eucalyptus nova-anglica*) Woodland on Basalts and Sediments in the New England Tableland Bioregion	E4B		K
Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion	E3		K
Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion	E3		K
Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)		E	K
Weeping Myall Woodlands		E	K
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and	E4B		K
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland		CE	K

*NSW Status: E3=Endangered, E4B=Critically endangered.
+Comm. Status: CE=Critically endangered, E=Endangered.
- Number of Records: K=Known to occur P=Predicted to occur.

BioNET Atlas search – Key Threatening Processes predicted to occur within the Glenn Innes-Guyra Basalts and Deepwater Downs subregions of the New England Tablelands Bioregion.

Threats	NSW status	Comm. status	Records
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802)	KTP	KTP	P
Alteration of habitat following subsidence due to longwall mining	KTP		P
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP		P
Anthropogenic Climate Change	KTP	KTP	P
Bushrock removal	KTP		P
Clearing of native vegetation	KTP	KTP	P
Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)	KTP	KTP	P
Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758	KTP	KTP	P
Competition from feral honey bees, *Apis mellifera* L.	KTP		P
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP		P
Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus* Linnaeus 1758	KTP		P
Herbivory and environmental degradation caused by feral deer	KTP		P
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP		P
Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972	KTP	KTP	P
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	P
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	P
Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP	P
Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)	KTP		P
Invasion and establishment of exotic vines and scramblers	KTP		P
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP		P
Invasion and establishment of the Cane Toad (*Bufo marinus*)	KTP	KTP	P
Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.	KTP		P
Invasion of native plant communities by *Chrysanthemoides monilifera*	KTP		P
Invasion of native plant communities by exotic perennial grasses	KTP		P
Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW	KTP		P
Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. Lat)	KTP		P
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	P
Loss of Hollow-bearing Trees	KTP		P
Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP		P
Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP		P
Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish)	KTP		P
Predation by the European Red Fox *Vulpes Vulpes* (Linnaeus, 1758)	KTP	KTP	P
Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)	KTP	KTP	P
Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758	KTP	KTP	P
Removal of dead wood and dead trees	KTP		P

Biodiversity Values Map

NSW GOVERNMENT Department of Planning and Environment

Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to your local council to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under the Biodiversity Conservation Regulation 2017 (Cl. 7.2 & 7.3).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether a BDAR is required for the proposed development:

1. Is there Biodiversity Values Mapping?
2. Is the 'clearing of native vegetation area threshold' exceeded?

Biodiversity Values Map and Threshold Report

Date of Report Generation		22/11/2024 12:37 PM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	**Does the development Footprint intersect with BV mapping?**	no
1.2	**Was ALL BV Mapping within the development footprinted added in the last 90 days?** (dark purple mapping only, no light purple mapping present)	no
1.3	**Date of expiry of dark purple 90 day mapping**	N/A
1.4	**Is the Biodiversity Values Map threshold exceeded?**	no
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	**Size of the development or clearing footprint**	147,479.9 sqm
2.2	**Native Vegetation Area Clearing Estimate (NVACE)** (within development/clearing footprint)	147,480.1 sqm
2.3	**Method for determining Minimum Lot Size**	LEP
2.4	**Minimum Lot Size** (10,000sqm = 1ha)	400,000 sqm
2.5	**Area Clearing Threshold** (10,000sqm = 1ha)	10,000 sqm
2.6	**Does the estimate exceed the Area Clearing Threshold?** (NVACE results are an estimate and can be reviewed using the Guidance)	yes
REPORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the proposed development footprint area? (Your local council will determine if a BDAR is required)		**yes**

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Department of Planning and Environment

What do I do with this report?

• If the result above indicates the BOS Threshold has been exceeded, your local council **may require** a Biodiversity Development Assessment Report with your development application. Seek further advice from Council. An accredited assessor can apply the Biodiversity Assessment Method and prepare a BDAR for you. For a list of accredited assessors go to: https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor.

• If the result above indicates the BOS Threshold has not been exceeded, you may not require a Biodiversity Development Assessment Report. This BMAT report can be provided to Council to support your development application. Council can advise how the area clearing threshold results should be considered. Council will review these results and make a determination if a BDAR is required. Council may ask you to review the area clearing threshold results. You may also be required to assess whether the development is "'likely to significantly affect threatened species" as determined under the test in Section 7.3 of the *Biodiversity Conservation Act 2016*.

• If a BDAR is not required by Council, you may still require a permit to clear vegetation from your local council.

• If **all** Biodiversity Values mapping within your development footprint was less than 90 days old, i.e. areas are displayed as dark purple on the BV map, a BDAR may not be required if your Development Application is submitted within that 90 day period. Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 1.3 above.

For more detailed advice about actions required, refer to the **Interpreting the evaluation report** section of the Biodiversity Values Map Threshold Tool User Guide .

Review Options:

• If you believe the Biodiversity Values mapping is incorrect please refer to our BV Map Review webpage for further information.

• If you or Council disagree with the area clearing threshold estimate results from the NVACE in Line Item 2.6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared), review the results using the Guide for reviewing area clearing threshold results from the BMAT Tool.

Acknowledgement

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

Signature: _____ Date: _____

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

22/11/2024 12:37 PM

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Department of Planning and Environment

Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The BV map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Scheme applies to a clearing or development proposal. You have used the Threshold Tool in the map viewer to generate this BV Threshold Report for your nominated area. This report calculates results for your proposed development footprint and indicates whether Council may require you to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

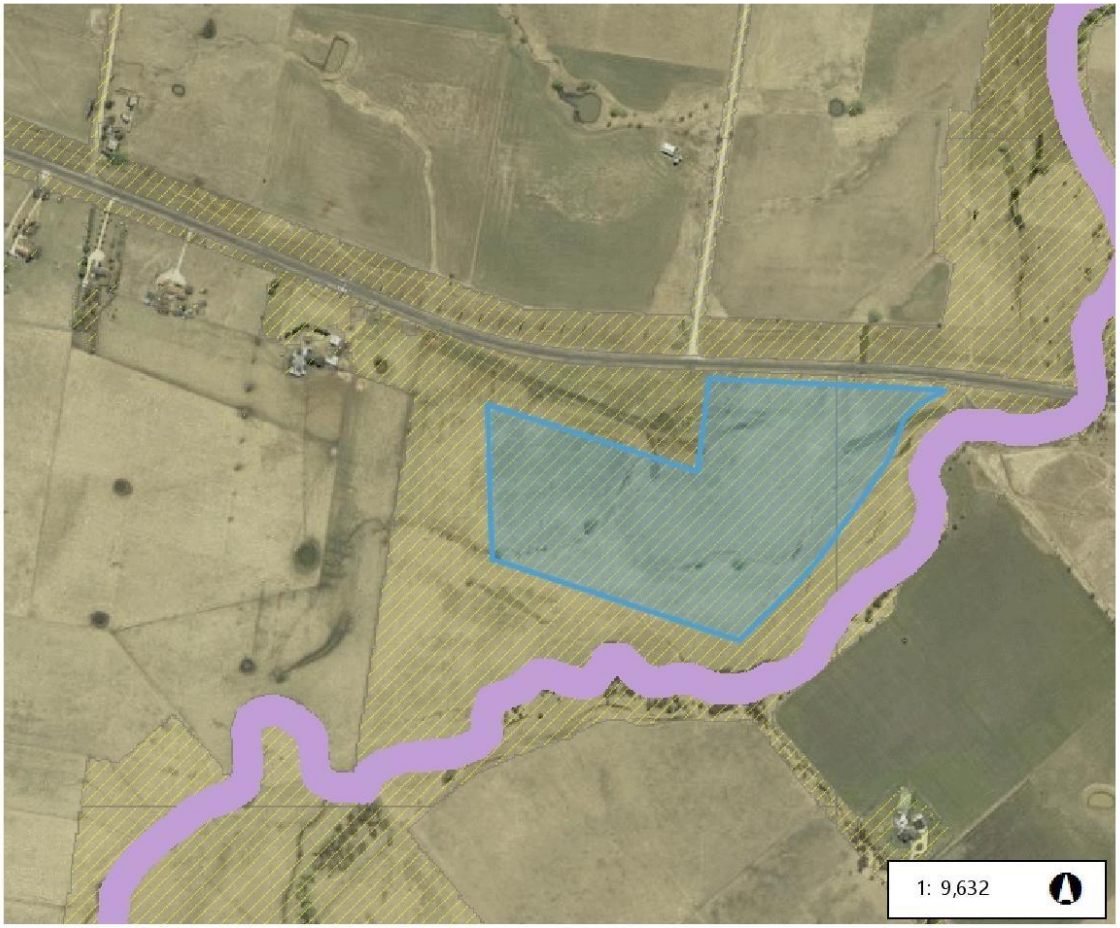
This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

What's new? For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the Biodiversity Values Map webpage.

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the Biodiversity Values Map Review webpage.

If you need help using this map tool see our Biodiversity Values Map and Threshold Tool User Guide or contact the Map Review Team at map.review@environment.nsw.gov.au or on 1800 001 490.

Biodiversity Values Map



489.3 0 244.66 489.3 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

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

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days
- Native Vegetation Area Clearing Estimate (NVACE)
- Development area selected by proponent

22/11/2024 12:37 PM

The results provided in this tool are generated using the best available mapping and knowledge of species habitat requirements.

This map is valid as at the date the report was generated. Checking the Biodiversity Values Map viewer for mapping updates is recommended.

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APPENDIX B – FIELD SURVEY RESULTS

Flora species list

In total, 56 plant species were detected during the May and November 2024 field surveys. This list includes species within, and adjacent to, the subject site. Of these, 25 were native (44.64%) and 31 introduced (55.36%). Among the introduced species, eight are listed as High-threat Exotic species (HTE) under the Biodiversity Assessment Method (2020). One species – Blackberry (*Rubus fruticosus* species aggregate) – is also considered a Weed of National Significance (WoNS) and a Priority Weed (PW) for the Northern Tablelands. Another species – Sweet Briar (*Rosa rubiginosa*) is listed as a PW but not as a WoNS.

[1]Growth Form	Scientific Name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
FG	*Asperula conferta*	Common Woodruff	N	No	No	No
FG	*Calotis scapigera*	Tufted Burr-Daisy	N	No	No	No
FG	*Dichondra repens*	Kidney Weed	N	No	No	No
FG	*Euchiton japonicus*	Creeping Cudweed	N	No	No	No
FG	*Geranium solanderi*	Native Geranium	N	No	No	No
FG	*Haloragis heterophylla*	Rough Raspwort	N	No	No	No
FG	*Oxalis exilis*	Wood-sorrel	N	No	No	No
FG	*Plantago debilis*	Native Plantain	N	No	No	No
FG	*Ranunculus lappaceus*	Common Buttercup	N	No	No	No
FG	*Rumex brownii*	Swamp Dock	N	No	No	No
GG	*Bothriochloa macra*	Red Grass	N	No	No	No
GG	*Chloris truncata*	Windmill Grass	N	No	No	No
GG	*Cynodon dactylon*	Couch	N	No	No	No
GG	*Enteropogon acicularis*	Curly Windmill Grass	N	No	No	No
GG	*Eragrostis leptostachya*	Paddock Lovegrass	N	No	No	No
GG	*Juncus australis*	Rush	N	No	No	No
GG	*Juncus filicaulis*	Rush	N	No	No	No
GG	*Juncus subsecundus*	Rush	N	No	No	No
GG	*Juncus vaginatus*	Rush	N	No	No	No
GG	*Panicum queenslandicum*	Yadbila Grass	N	No	No	No
GG	*Phragmites australis*	Common Reed	N	No	No	No
GG	*Poa labillardierei*	Tussock	N	No	No	No
GG	*Poa sieberiana*	Snowgrass	N	No	No	No
GG	*Rytidosperma bipartitum*	Wallaby Grass	N	No	No	No
GG	*Typha sp.*	Cumbngi	N	No	No	No
FG	*Cirsium vulgare*	Spear Thistle	E	No	No	No
FG	*Cyclospermum leptophyllum*	Slender Celery	E	No	No	No
FG	*Gamochaeta calviceps*	Cudweed	E	No	No	No
FG	*Hypochaeris glabra*	Smooth Catsear	E	No	No	No
FG	*Leucanthemum vulgare*	Ox-Eye Daisy	E	Yes	No	No
FG	*Medicago polymorpha*	Burr Medic	E	No	No	No

FG	*Paronychia brasiliana*	Chilean Whitlow Wort	E	No	No	No
FG	*Plantago lanceolata*	Lamb's Tongues	E	No	No	No
FG	*Polygonum aviculare*	Wireweed	E	No	No	No
FG	*Rumex acetosella*	Sorrel	E	No	No	No
FG	*Rumex crispus*	Curled Dock	E	No	No	No
FG	*Sanguisorba minor*	Salad Burnet	E	No	No	No
FG	*Taraxacum officinale*	Dandelion	E	No	No	No
FG	*Trifolium repens*	White Clover	E	No	No	No
FG	*Trifolium subterraneum*	Subterranean Clover	E	No	No	No
GG	*Cenchrus longisetus*	White Foxtail	E	Yes	No	No
GG	*Chloris virgata*	Feathertop Rhodes Grass	E	No	No	No
GG	*Cyperus eragrostis*	Umbrella Sedge	E	Yes	No	No
GG	*Dactylis glomerata*	Cocksfoot	E	No	No	No
GG	*Eragrostis curvula*	African Lovegrass	E	Yes	No	No
GG	*Festuca arundinacea*	Tall Fescue	E	No	No	No
GG	*Festuca pratensis*	Meadow Fescue	E	No	No	No
GG	*Holcus lanatus*	Yorkshire Fog	E	No	No	No
GG	*Paspalum dilatatum*	Paspalum	E	Yes	No	No
GG	*Phalaris aquatica*	Phalaris	E	No	No	No
GG	*Setaria pumila*	Pale Pigeon Grass	E	No	No	No
GG	*Vulpia bromoides*	Squirrel Tail Fescue	E	No	No	No
SG	*Rosa rubiginosa*	Sweet Briar, Eglantine	E	Yes	No	Yes
SG	*Rubus fruticosus species aggregate*	Blackberry	E	Yes	Yes	Yes
TG	*Salix babylonica*	Weeping Willow	E	Yes	No	No
OG	*Vicia villosa*	Russian Vetch	E	No	No	No

1: FG = Forb, GG = Grass and Grass-like, SG = Shrub, TG = Tree, EG = Fern, OG = Other

2: N = Native I = Introduced,

3: HTE = High Threat Exotic under the BAM (2020)

4: Weed of National Significance

5: Priority Weed for the Northern Tablelands.

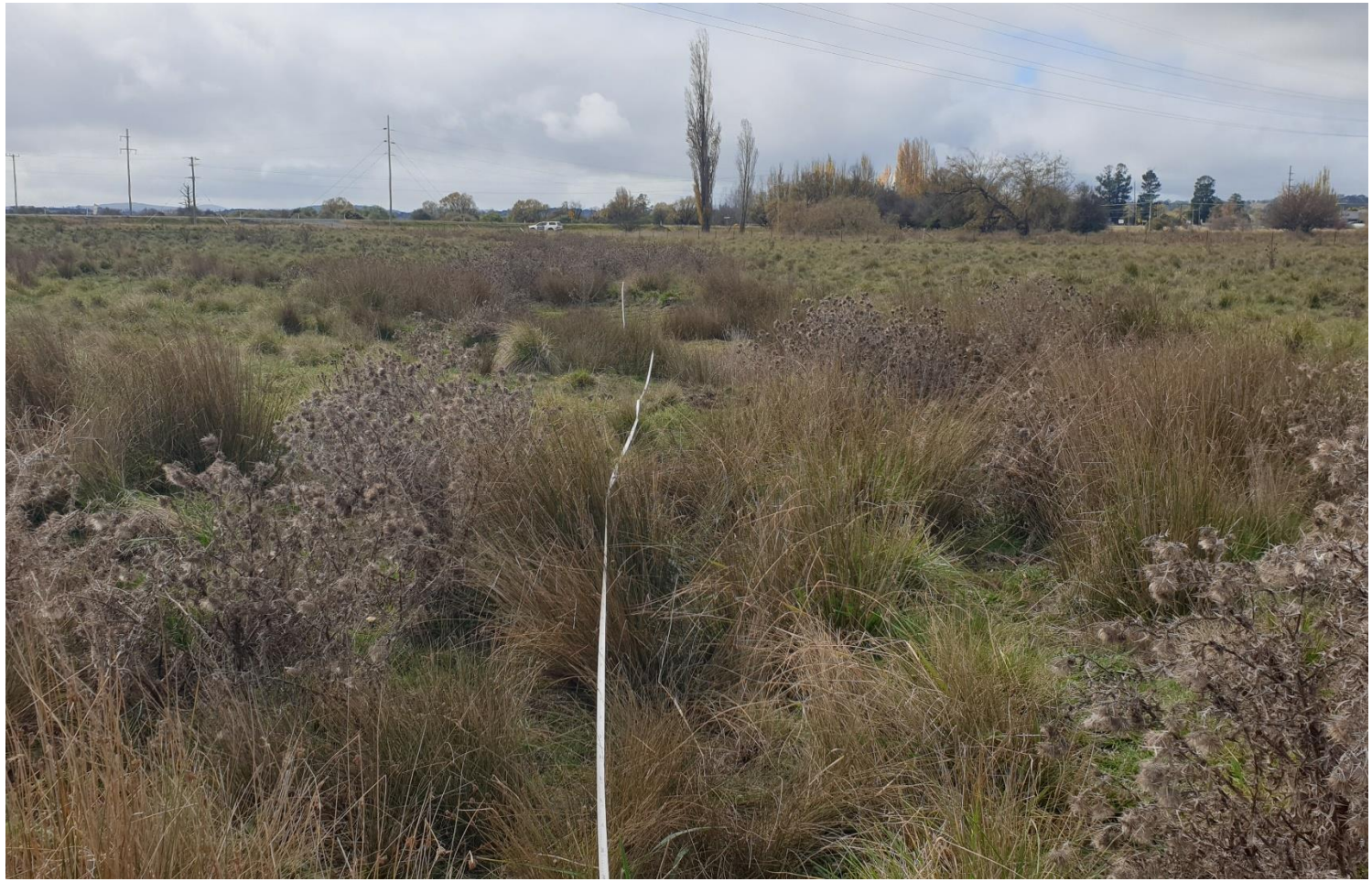
Fauna species list

In total, 18 fauna species (17 native and one introduced) were identified at site during the 7th of May 2024 field survey. No threatened fauna species were detected.

Class	Scientific Name	Common Name	Status
Amphibia	*Crinia signifera*	Common Eastern Froglet	N
Amphibia	*Limnodynastes dumerilii*	Eastern Banjo Frog	N
Amphibia	*Limnodynastes tasmaniensis*	Spotted Marsh Frog	N
Aves	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	N
Aves	*Anas superciliosa*	Pacific Black Duck	N
Aves	*Ardea pacifica*	White-necked Heron	N
Aves	*Chenonetta jubata*	Australian Wood Duck	N
Aves	*Corvus coronoides*	Australian Raven	N
Aves	*Elanus axilaaris*	Black-shouldered Kite	N
Aves	*Gymnorhina tibicen*	Australian Magpie	N
Aves	*Hirundo neoxena*	Welcome Swallow	N
Aves	*Milvus migrans*	Black Kite	N
Aves	*Neochmia temporalis*	Red-browed Finch	N
Aves	*Phalacrocorax varius*	Pied Cormorant	N
Aves	*Rhipidura leucophrys*	Willie Wagtail	N
Aves	*Strepera graculina*	Pied Currawong	N
Aves	*Threskiornis moluccus*	Australian White Ibis	N
Aves	*Sturnus vulgaris*	Common Starling	I

*Status: N = native, I = introduced.

PCT	Site Photographs
PCT 3351_Derived – Armidale Creekflat Snow Gum Woodland-Scrub	

PCT 3981_Poor - Tableland Semi-permanent Shallow Wetlands	

APPENDIX C – BC & EPBC ACT HABITAT ASSESSMENT FOR THREATENED SPECIES AND COMMUNITIES PREDICTED TO OCCUR

List generated by conducting a vegetation associations report for the Glenn Innes-Guyra Basalts and Deepwater Downs subregions of the New England Tablelands Bioregion. To determine whether any threatened species were known to occur near the subject site, BioNet Atlas records of threatened species within these subregions were downloaded and the records clipped to within 10 km of the subject site in QGIS.

Likelihood of occurrence description is sourced from https://www.environment.nsw.gov.au/threatenedSpeciesApp

The likelihood of occurrence of threatened species, populations or ecological communities was categorised as follows:

- 'Present' – the species was observed or has been previously recorded on the site.
- 'High' – a medium to high probability that a species uses the site, based on nearby records and suitable habitat being present.
- 'Moderate' – suitable habitat for a species occurs on the site, but the species has not been observed or previously recorded at the site.
- 'Low' – a very low likelihood that the species uses the site, based on lack of the preferred type and size of habitat
- 'Absent' – the species does not occur at the site, due to local/global extinction, locality outside of its geographic distribution, and/or a lack of suitable habitat.

Likelihood of occurrence table for BC and EPBC Act listed species and populations.

Scientific Name	Common Name	*NSW status	+Comm. status	Records <10 km	Likelihood of Occurrence	Test of Significance required (Yes/No)
Adelotus brevis	Tusked Frog population in the Nandewar and New England Tableland Bioregions	E2,P		0	The Tusked Frog is distributed along the eastern coast and adjacent ranges from central Queensland to southern NSW, extending inland to the New England Tableland (New England Bioregion) and North West Slopes (Nandewar Bioregion). Tusked Frogs have experienced large declines in in the New England and Nandewar Bioregions and are now very rare there, and the population in these regions has been listed as an Endangered Population under the Biodiversity and Conservation Act. The species remains more common in lower elevation coastal areas. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (3351 and 3981) are present. However, there are no records within 10 km.**	Yes
Litoria booroolongensis	Booroolong Frog	E1,P	E	0	The Booroolong Frog is restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. It has disappeared from much of the Northern Tablelands, however several populations have recently been recorded in the Namoi catchment. The species is rare throughout most of the remainder of its range. Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. **Absent – No permanent streams with fringing vegetation occur within the subject site.**	No
Litoria castanea	Yellow-spotted Tree Frog	E4A,P	CE	0	Historically, this species occurred in two separate highland ranges: on the New England Tableland, and on the southern and central tablelands from Bathurst to Bombala. Following the chytrid virus pandemic in the 1970s, this species went unrecorded for 30 years and was believed to be extinct, until it was rediscovered in 2009 on the Southern Tablelands. This population - near Yass - remains the only known extant site of the species. Require large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation. **Absent – No large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation occur within the subject site.**	No
Litoria piperata	Peppered Tree Frog	E4A,P	V	0	The species has not been definitively recorded in the wild since the 1990s. It was previously found on the New England Tablelands from south of Armidale to the Gibraltar Range, at an altitude of 800 to 1000 m. Found in streamside vegetation and under rocks and fallen timber along rocky streams flowing eastward from the Tablelands.	No

					Absent – No permanent streams with fringing vegetation occur within the subject site.	
Litoria subglandulosa	Glandular Frog	V,P	V	0	Known only from stream habitats on the eastern escarpment of the Great Dividing Range from the "The Flags" near Walcha in the south to Girraween National Park in the north, a distance of about 250 km. Glandular Frogs may be found along streams in rainforest, moist and dry eucalypt forest or in subalpine swamps. **Absent – No permanent streams with fringing vegetation occur within the subject site.**	
Anseranas semipalmata	Magpie Goose	V,P		0	The Magpie Goose is still relatively common in the Australian northern tropics but had disappeared from south-east Australia by 1920 due to drainage and overgrazing of reed swamps used for breeding. Since the 1980s there have been an increasing number of records in central and northern NSW. Vagrants can follow food sources to south-eastern NSW. Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Anthochaera phrygia	Regent Honeyeater	E4A,P,2	CE	0	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. Once recorded between Adelaide and the central coast of Queensland, its range has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests. The Regent Honeyeater is a flagship threatened woodland bird whose conservation will benefit a large suite of other threatened and declining woodland fauna. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Aphelocephala leucopsis	Southern Whiteface	V,P	V	0	Prefers the drier habitats of southern Australia. Commonly found in dry open forests and woodland, mallee, mulga and saltbush. Prefers sites with fallen timber or dead trees and stumps. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No

Artamus cyanopterus cyanopterus	Dusky Woodswallow	V,P		0	Dusky woodswallows are widespread in eastern, southern and south western Australia. The species occurs throughout most of New South Wales, but is sparsely scattered in, or largely absent from, much of the upper western region. Most breeding activity occurs on the western slopes of the Great Dividing Range. Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (3351 and 3981) are present. However, there are no records within 10 km.**	Yes
Burhinus grallarius	Bush Stone-curlew	E1,P		0	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber. Largely nocturnal, being especially active on moonlit nights. Feed on insects and small vertebrates, such as frogs, lizards and snakes. Nest on the ground in a scrape or small bare patch. Two eggs are laid in spring and early summer. **Low – Although an associated PCT (3351) is present, the subject site lacks the preferred habitat for this species (open forests and woodlands with a sparse grassy ground layer and fallen timber). Furthermore, no records occur within 10 km.**	No
Calidris acuminata	Sharp-tailed Sandpiper		E	0	The Sharp-tailed Sandpiper spends the non-breeding season in Australia with small numbers occurring regularly in New Zealand. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. Many inland records are of birds on passage. In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. They may be attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No

Calidris ferruginea	Curlew Sandpiper	E	CE	0	In Australia, Curlew Sandpipers occur around the coasts and are also quite widespread inland, though in smaller numbers. Records occur in all states during the non-breeding period, and also during the breeding season when many non-breeding one-year old birds remain in Australia rather than migrating north. In NSW, they are widespread east of the Great Divide, especially in coastal regions. They are occasionally recorded in the Tablelands and are widespread in the Riverina and south-west NSW, with scattered records elsewhere. Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Calidris melanotos	Pectoral Sandpiper	P	J,K	1	The Pectoral Sandpiper breeds in northern Russia and North America. Within Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. In New South Wales (NSW), the Pectoral Sandpiper is widespread, but scattered. Records exist east of the Great Divide, from Casino and Ballina, south to Ulladulla. West of the Great Divide, the species is widespread in the Riverina and Lower Western regions. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. The species has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands. **Moderate – Subject site is within the species known geographic distribution and a record occurs within 10 km. However, there are no associated PCTs present.**	Yes
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V,P,2	V	1	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. An isolated population exists on Kangaroo Island, South Australia. Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods. **Absent – No suitable feeding or breeding habitat occurs within the subject site. The single record within the 10 km search area is located approximately 3.5 km from the subject site.**	No
Chlidonias leucopterus	White-winged Black Tern	P	C,J,K	0	The species is a non-breeding migrant to Australia, where it is widespread and common along south-western, northern and central-eastern coasts, with only scattered records of small numbers along the coasts elsewhere in southern	No

					Australia. In Australia, and elsewhere in their non-breeding range, the species mostly inhabits fresh, brackish or saline, and coastal or subcoastal wetlands. White-winged Black Terns frequent tidal wetlands, such as harbours, bays, estuaries and lagoons, and their associated tidal sandflats and mudflats. Terrestrial wetlands, including swamps, lakes, billabongs, rivers, floodplains, reservoirs, saltworks, sewage ponds and outfalls are also inhabited. In NSW, the species is widespread east of the Great Divide, mainly south to about Wollongong, but with scattered records further south along the coast and on inland wetlands west of the Great Divide, for example Lake Cowal, Narran Lake and as far west as the Menindee Lakes. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	
Chthonicola sagittata	Speckled Warbler	V,P		0	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. There has been a decline in population density throughout its range, with the decline exceeding 40% where no vegetation remnants larger than 100ha survive. The Speckled Warbler lives in a wide range of *Eucalyptus* dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. The diet consists of seeds and insects, with most foraging taking place on the ground around tussocks and under bushes and trees. Pairs are sedentary and occupy a breeding territory of about ten hectares, with a slightly larger home-range when not breeding. The rounded, domed, roughly built nest of dry grass and strips of bark is located in a slight hollow in the ground or the base of a low dense plant, often among fallen branches and other litter. A side entrance allows the bird to walk directly inside. A clutch of 3-4 eggs is laid, between August and January, and both parents feed the nestlings. The eggs are a glossy red-brown, giving rise to the unusual folk names 'Blood Tit' and 'Chocolatebird'. Some cooperative breeding occurs. The species may act as host to the Black-eared Cuckoo. Speckled Warblers often join mixed species feeding flocks in winter, with other species such as Yellow-rumped, Buff-rumped, Brown and Striated Thornbills. **Low – Although an associated PCT (3351) is present, the subject site lacks the preferred habitat for this species (a wide range of *Eucalyptus* dominated communities that have a grassy understorey, often on rocky ridges or in gullies). Furthermore, no records occur within 10 km.**	No
Circus assimilis	Spotted Harrier	V,P		0	The Spotted Harrier occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges, and rarely in Tasmania. Individuals disperse widely in NSW and comprise a single population. Occurs in grassy open woodland including Acacia and mallee remnants, inland	Yes

					riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (3351 and 3981) are present. However, there are no records within 10 km.**	
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V,P	V	0	The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. The western boundary of the range of *Climacteris picumnus victoriae* runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell and along this line the subspecies intergrades with the arid zone subspecies of Brown Treecreeper *Climacteris picumnus picumnus* which then occupies the remaining parts of the state. The eastern subspecies lives in eastern NSW in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands such as the Snowy River Valley, Cumberland Plains, Hunter Valley and parts of the Richmond and Clarence Valleys. The population density of this subspecies has been greatly reduced over much of its range, with major declines recorded in central NSW and the northern and southern tablelands. Declines have occurred in remnant vegetation fragments smaller than 300 hectares, that have been isolated or fragmented for more than 50 years. **Low – Although an associated PCT (3351) is present, the subject site lacks the preferred habitat for this species (eucalypt woodland). Furthermore, no records occur within 10 km.**	No
Daphoenositta chrysoptera	Varied Sittella	V,P		0	The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is nearly continuous from the coast to the far west. The Varied Sittella's population size in NSW is uncertain but is believed to have undergone a moderate reduction over the past several decades. Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. **Absent – No woodland habitat occurs within the subject site.**	No
Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		1	In Australia, Black-necked Storks are widespread in coastal and subcoastal northern and eastern Australia, as far south as central NSW (although vagrants may occur further south or inland, well away from breeding areas). In NSW, the species becomes increasingly uncommon south of the Clarence Valley, and rarely occurs south of Sydney. Since 1995, breeding has been recorded as far south as Buladelah. Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries. Black-necked Storks build large nests high in tall trees close to water.	Yes

					Trees usually provide clear observation of the surroundings and are at low elevation (reflecting the floodplain habitat). **High – Subject site is within the species known geographic distribution, associated PCTs (3351 and 3981) are present, and one record occurs within 10 km.**	
Falco subniger	Black Falcon	V,P		0	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. Some reports of 'Black Falcons' on the tablelands and coast of New South Wales are likely to be referable to the Brown Falcon. In New South Wales there is assumed to be a single population that is continuous with a broader continental population, given that falcons are highly mobile, commonly travelling hundreds of kilometres. The Black Falcon occurs as solitary individuals, in pairs, or in family groups of parents and offspring. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3351) is present. However, there are no records within 10 km.**	Yes
Gallinago hardwickii	Latham's Snipe	P	J,K	2	Latham's Snipe is a non-breeding visitor to south-eastern Australia and is a passage migrant through northern Australia (i.e. it travels through northern Australia to reach non-breeding areas located further south). The species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia (including the Adelaide plains and Mount Lofty Ranges, and the Eyre Peninsula). The range extends inland over the eastern tablelands in south-eastern Queensland (and occasionally from Rockhampton in the north), and to west of the Great Dividing Range in New South. The species is widespread in Tasmania and is found in all regions of Victoria except for the north-west. Most birds spend the non-breeding period at sites located south of the Richmond River in New South Wales. In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies. However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity. **Moderate – Subject site is within the species known geographic distribution and two records occur within 10 km. However, there are no associated PCTs present.**	Yes
Glossopsitta pusilla	Little Lorikeet	V,P		0	The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets found westward as far as Dubbo and Albury. Nomadic movements are common, influenced by season and food availability, although some areas retain residents for much of the year and 'locally nomadic' movements are suspected of breeding pairs. Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora,	No

					Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. **Low – Although an associated PCT (3351) is present, the subject site lacks the preferred habitat for this species (eucalypt forest and woodland). Furthermore, no records occur within 10 km.**	
Grantiella picta	Painted Honeyeater	V,P	V	0	The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits Boree/ Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Grus rubicunda	Brolga	V,P		0	The Brolga was formerly found across Australia, except for the south-east corner, Tasmania and the south-western third of the country. It is still abundant in the northern tropics, but very sparse across the southern part of its range. Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. They feed using their heavy straight bill as a 'crowbar' to probe the ground or turn it over, primarily on sedge roots and tubers. They will also take large insects, crustaceans, molluscs and frogs. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3981) is present. However, there are no records within 10 km.**	Yes
Haliaeetus leucogaster	White-bellied Sea-Eagle	V,P		0	The White-bellied Sea-eagle is distributed around the Australian coastline, including Tasmania, and well inland along rivers and wetlands of the Murray Darling Basin. In New South Wales it is widespread along the east coast, and along all major inland rivers and waterways. Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass. **Absent – No suitable nesting trees occur within the subject site.**	No

Hieraaetus morphnoides	Little Eagle	V,P		1	The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. **Absent – No suitable nesting trees occur within the subject site.**	No
Hirundapus caudacutus	White-throated Needletail	P	V,C,J,K	0	The White-throated Needletail is widespread in eastern and south-eastern. In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable, but there are, nevertheless, certain preferences exhibited by the species. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (3351 and 3981) are present. However, there are no records within 10 km.**	Yes
Irediparra gallinacea	Comb-crested Jacana	V,P		0	The Comb-crested Jacana occurs on freshwater wetlands in northern and eastern Australia, mainly in coastal and subcoastal regions, from the north-eastern Kimberley Division of Western Australia to Cape York Peninsula then south along the east coast to the Hunter region of NSW, with stragglers recorded in south-eastern NSW (possibly in response to unfavourable conditions further north). Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3981) is present. However, there are no records within 10 km.**	Yes
Lathamus discolor	Swift Parrot	E1,P	CE	0	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany Eucalyptus robusta, Spotted Gum (*Corymbia maculata*), Red Bloodwood (*C. gummifera*), Forest Red Gum (*E. tereticornis*), Mugga Ironbark (*E. sideroxylon*), and White Box (*E. albens*).	No

					Low – Although an associated PCT (3351) is present, the subject site lacks the preferred habitat for this species (eucalypt forest and woodland). Furthermore, no records occur within 10 km.	
Lophoictinia isura	Square-tailed Kite	V,P,3		0	The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast, arriving in September and leaving by March. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. **Low – Although an associated PCT (3351) is present, the subject site lacks the preferred habitat for this species (dry woodland, open forests, and timbered watercourses). Furthermore, no records occur within 10 km.**	No
Melanodryas cucullata cucullata	South-eastern Hooded Robin	E1,P	E	0	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. However, it is common in few places, and rarely found on the coast. It is considered a sedentary species, but local seasonal movements are possible. The south-eastern form (subspecies *cucullata*) is found from Brisbane to Adelaide and throughout much of inland NSW, with the exception of the extreme north-west, where it is replaced by subspecies *picata*. Two other subspecies occur outside NSW. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V,P		0	The Black-chinned Honeyeater has two subspecies, with only the nominate (*gularis*) occurring in NSW. he eastern subspecies extends south from central Queensland, through NSW, Victoria into south eastern South Australia, though it is very rare in the last state. In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Inland Grey Box (*E. microcarpa*), Yellow Box (*E. melliodora*), Blakely's Red Gum (*E. blakelyi*) and Forest Red Gum (*E. tereticornis*). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-trees. A gregarious species usually seen in pairs and small groups of up to 12 birds. Feeding territories are large making the species locally nomadic. Recent studies have found that the Black-chinned Honeyeater tends to occur in the largest woodland patches in the landscape as birds forage over large home ranges of at least 5 hectares. Moves	No

					quickly from tree to tree, foraging rapidly along outer twigs, underside of branches and trunks, probing for insects. Nectar is taken from flowers, and honeydew is gleaned from foliage. Breeds solitarily or co-operatively, with up to five or six adults, from June to December. The nest is placed high in the crown of a tree, in the uppermost lateral branches, hidden by foliage. It is a compact, suspended, cup-shaped nest. **Low – Although an associated PCT (3351) is present, the subject site lacks the preferred habitat for this species (drier open forests or woodlands dominated by box and ironbark eucalypts). Furthermore, no records occur within 10 km.**	
Neophema pulchella	Turquoise Parrot	V,P,3		0	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Ninox connivens	Barking Owl	V,P,3		0	The Barking Owl is found throughout continental Australia except for the central arid regions. Although common in parts of northern Australia, the species has declined greatly in southern Australia and now occurs in a wide but sparse distribution in NSW. Core populations exist on the western slopes and plains and in some northeast coastal and escarpment forests. Many populations crashed as woodland on fertile soils was cleared over the past century, leaving linear riparian strips of remnant trees as the last inhabitable areas. Surveys in 2001 demonstrated that the Pilliga Forest supported the largest population in southern Australia. The owls sometimes extend their home range into urban areas, hunting birds in garden trees and insects attracted to streetlights. Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g. western NSW) due to the higher density of prey on these fertile riparian soils. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3351) is present. However, there are no records within 10 km.**	Yes
Ninox strenua	Powerful Owl	V,P,3		0	The Powerful Owl is endemic to eastern and south-eastern Australia, mainly on the coastal side of the Great Dividing Range from Mackay to south-western Victoria. In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains suggesting occupancy prior to land clearing. Now at low densities throughout most of its eastern range, rare along the Murray River and former inland populations may never recover. The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented	No

					landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation comprising species such as Turpentine *Syncarpia glomulifera*, Black She-oak *Allocasuarina littoralis*, Blackwood Acacia melanoxylon, Rough-barked Apple Angophora floribunda, Cherry Ballart *Exocarpus cupressiformis* and a number of eucalypt species. Powerful Owls nest in large tree hollows (at least 0.5 m deep), in large eucalypts (diameter at breast height of 80-240 cm) that are at least 150 years old. While the female and young are in the nest hollow the male Powerful Owl roosts nearby (10-200 m) guarding them, often choosing a dense "grove" of trees that provide concealment from other birds that harass him. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	
Oxyura australis	Blue-billed Duck	V,P		1	The Blue-billed Duck is endemic to south-eastern and south-western Australia. It is widespread in NSW, but most common in the southern Murray-Darling Basin area. Birds disperse during the breeding season to deep swamps up to 300 km away. It is generally only during summer or in drier years that they are seen in coastal areas. The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. **Absent – Large permanent wetlands and swamps with dense aquatic vegetation do not occur within the subject site. The single record within the 10 km search area is located approximately 6.4 km from the subject site, at Beardy Waters.**	No
Petroica boodang	Scarlet Robin	V,P		0	The Scarlet Robin is found from south east Queensland to south east South Australia and also in Tasmania and south west Western Australia. In NSW, it occurs from the coast to the inland slopes. After breeding, some Scarlet Robins disperse to the lower valleys and plains of the tablelands and slopes. Some birds may appear as far west as the eastern edges of the inland plains in autumn and winter. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat. The Scarlet Robin breeds on ridges, hills and foothills of the western slopes, the Great Dividing Range and eastern coastal regions; this species is occasionally found up to 1000 metres in altitude. The Scarlet Robin is primarily a resident in forests and woodlands, but some adults and young birds disperse to more open habitats after breeding. In autumn and winter many Scarlet Robins live in open grassy woodlands, and grasslands or grazed paddocks with scattered trees. The Scarlet Robin is a quiet and unobtrusive species which is often quite tame and easily approached. Birds forage from low perches, fenceposts or on the ground, from where they pounce on small insects and other	Yes

					invertebrates which are taken from the ground, or off tree trunks and logs; they sometimes forage in the shrub or canopy layer. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (3351 and 3981) are present. However, there are no records within 10 km.**	
Petroica phoenicea	Flame Robin	V,P	M	0	The Flame Robin is endemic to south eastern Australia, and ranges from near the Queensland border to south east South Australia and also in Tasmania. In NSW, it breeds in upland areas and in winter, many birds move to the inland slopes and plains. It is likely that there are two separate populations in NSW, one in the Northern Tablelands, and another ranging from the Central to Southern Tablelands. Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. Prefers clearings or areas with open understoreys. In winter, birds migrate to drier more open habitats in the lowlands (i.e. valleys below the ranges, and to the western slopes and plains), in dry forests, open woodlands and in pastures and native grasslands, with or without scattered trees. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (3351 and 3981) are present. However, there are no records within 10 km.**	Yes
Phaethon lepturus	White-tailed Tropicbird	P	C,J	0	Found in tropical ocean, islands while nesting on islands but otherwise spends most of its time far out at sea, over warm waters. **Absent – Coastal habitat does not occur within the subject site.**	No
Phalaropus lobatus	Red-necked Phalarope	P	C,J,K	0	The Red-necked Phalarope breeds in the Arctic and subarctic North America, Europe and Russia. During non-breeding period the Red-necked Phalarope occurs mainly at sea. In Australia it is recorded at both inland and coastal lakes/swamps, including highly saline waters and artificial wetlands notably saltfields. **Absent – Coastal habitat and suitable inland lakes/swamps do not occur within the subject site.**	No
Pluvialis fulva	Pacific Golden Plover	P	C,J,K	0	Within Australia, the Pacific Golden Plover is widespread in coastal regions, though there are also a number of inland records (in all states), sometimes far inland and usually along major river systems, especially the Murray and Darling Rivers and their tributaries. As the species breeds overseas, in non-breeding grounds in Australia this species usually inhabits coastal habitats, though it occasionally occurs around inland wetlands. **Absent – Coastal habitat and major river systems do not occur within the subject site.**	No
Poephila cincta cincta	Black-throated Finch (southern subspecies)	E4,P	E	0	The southern subspecies was once found from the Atherton Tableland in Queensland to the Inverell district in northern NSW. It has suffered a massive range contraction and is now rarely recorded south of Clermont in Queensland. In	No

					NSW it was once widespread in the northern tablelands and northwest slopes, but was last recorded in 1994 and may now be extirpated in the State. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	
Rostratula australis	Australian Painted Snipe	E1,P	E	0	The Australian Painted Snipe is restricted to Australia. Most records are from the south east, particularly the Murray Darling Basin, with scattered records across northern Australia and historical records from around the Perth region in Western Australia. In NSW many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Other important locations with recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. Forages nocturnally on mud-flats and in shallow water. Feeds on worms, molluscs, insects and some plant-matter. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3981) is present. However, there are no records within 10 km.**	Yes
Stagonopleura guttata	Diamond Firetail	V,P	V	0	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Cental and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the Bega Valley. This species has a scattered distribution over the rest of NSW, though is very rare west of the Darling River. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (3351 and 3981) are present. However, there are no records within 10 km.**	Yes
Stictonetta naevosa	Freckled Duck	V,P		0	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal NSW and Victoria during such times. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters	No

					such as lakes, reservoirs, farm dams and sewage ponds. Generally, rest in dense cover during the day, usually in deep water. Feed at dawn and dusk and at night on algae, seeds and vegetative parts of aquatic grasses and sedges and small invertebrates. Nesting usually occurs between October and December but can take place at other times when conditions are favourable. Nests are usually located in dense vegetation at or near water level. **Absent – Permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree do not occur within the subject site.**	
Tringa stagnatilis	Marsh Sandpiper	P	C,J,K	1	The Marsh Sandpiper is found on coastal and inland wetlands throughout Australia. The species is widespread in coastal Queensland, but few records exist north of Cooktown. It is recorded in all regions of NSW but especially the central and south coasts and (inland) on the western slopes of Great Divide and western plains. The Marsh Sandpiper lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks. They are recorded less often at reservoirs, waterholes, soaks, bore-drain swamps and flooded inland lakes. In north Australia they prefer intertidal mudflats (Higgins & Davies 1996), although surveys in Kakadu National Park recorded more birds around shallow freshwater lakes than in areas influenced by tide (Bamford 1988). At the Top End they often use ephemeral pools on inundated freshwater and tidal floodplains (Higgins & Davies 1996). Three of the five sites with highest recorded numbers are saltwater habitats (Hunter Estuary, NSW; Port Hedland Saltworks, Western Australia; Tullakool Evaporation Ponds, NSW) (Watkins 1993). In the south-east Gulf of Carpentaria they have been recorded round both saline and fresh waters (Garnett 1989). Elsewhere they said to avoid, or rarely occur in, tidal habitats, and rarely occur on beaches. In Western Australia they prefer freshwater to marine environments. In south-east Australia they prefer inland saline lakes and coastal saltworks. They are found infrequently around mangroves (Higgins & Davies 1996). **Absent – Suitable wetlands for this species do not occur within the subject site. The single record within the 10 km search area is located approximately 8 km from the subject site, adjacent to Beardy Waters.**	No
Tyto novaehollandiae	Masked Owl	V,P,3		0	Extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner. There is no seasonal variation in its distribution. Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3351) is present. However, there are no records within 10 km.**	Yes

Acacia macnuttiana	MacNutt's Wattle	V	V	0	MacNutt's Wattle grows in dry forest or woodland and heath vegetation, usually on granite or metasediments and often near streams. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Acacia pycnostachya	Bolivia Wattle	V	V	0	Restricted to NSW. Three extensive populations exist in the vicinity of Bolivia Hills and Bluff River Nature Reserves south of Tenterfield, and on nearby Crown Land. Smaller populations have been found on private land in other areas and the species may be more widespread than is currently documented. The plant tends to occur in patches although sparsely distributed individuals are common across the Bolivia Hill ranges. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Aldrovanda vesiculosa	Waterwheel Plant	E1		0	The species is more commonly found in northern Australia and tropical regions of Asia and Africa. Known in NSW only from lagoons in the Moruya area on the south coast, from the Evans Head area on the north coast and from north of Guyra on the New England Tablelands. Found free-floating in near-coastal shallow freshwater lagoons that are rich in organic matter **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3981) is present. However, there are no records within 10 km.**	Yes
Almaleea cambagei	Torrington Pea	E1	E	0	The majority of *Almaleea cambagei* populations occur within Torrington State Conservation Area on the New England Tablelands, with a few populations potentially occurring in the adjacent agricultural lands. There are records from the Mt Slow area near Henry River. The species is also reported from Girraween National Park in Queensland. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Arthraxon hispidus	Hairy Jointgrass	V	V	0	Occurs over a wide area in south-east Queensland, and on the northern tablelands and north coast of NSW, but is never common. Also found from Japan to central Eurasia. Moisture and shade-loving grass, found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Boronia boliviensis	Bolivia Hill Boronia	E4A,P,3		0	Bolivia Hill Boronia occurs primarily in Bolivia Hill Nature Reserve south of Tenterfield. The population was estimated at 1000 mature plants in 1999, reportedly decreasing during the subsequent decade. However, new sub-populations were discovered with more extensive field work, including one very large patch. The drought of 2018-2019 led to severe grazing by macropods and a major reduction in mature plants. Subsequent rains have stimulated seedlings but competition with	No

					Boronia anethifolia, which was not as greatly reduced by grazing, may hinder a return to prior abundance in some patches. A previous record near Demon Nature Reserve has been subsequently identified as *Boronia granitica*. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	
Boronia granitica	Granite Boronia	V,P	E	0	Granite Boronia occurs in scattered localities on the New England Tablelands and North West Slopes north from the Armidale area to the Stanthorpe district in southern Queensland. It can be locally common in appropriate habitat (e.g. Torrington). **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Boronia inflexa subsp. torringtonensis		E4A,P	CE	0	Restricted to Torrington SCA and near Bolivia Hill. Habitat consists of rock outcrops on granite. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Callistemon pungens		P	V	0	In NSW, the species occurs from near Inverell to the eastern escarpment in New England National Park. It also occurs in the northern tablelands of south-eastern Queensland, mainly in the Stanthorpe area. Recorded in a number of national parks and nature reserves in NSW and Queensland including Warrabah, Kings Plains, Oxley Wild Rivers and Single National Parks and Severn River, Ironbark and Mann Rivers Nature Reserves. It is also known form Torrington State Recreation Area. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Dichanthium setosum	Bluegrass	V	V	6	Bluegrass occurs on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, extending to northern Queensland. It occurs widely on private property, including in the Inverell, Guyra, Armidale and Glen Innes areas. Associated species include *Eucalyptus albens, Eucalyptus melanophloia, Eucalyptus melliodora, Eucalyptus viminalis, Myoporum debile, Aristida ramosa, Themeda triandra, Poa sieberiana, Bothriochloa ambigua, Medicago minima, Leptorhynchos squamatus, Lomandra aff. longifolia, Ajuga australis, Calotis hispidula* and *Austrodanthonia, Dichopogon, Brachyscome, Vittadinia, Wahlenbergia* and *Psoralea species*. **Moderate – Subject site is within the species known geographic distribution and six records occur within 10 km. However, there are no associated PCTs present.**	Yes
Diuris pedunculata	Small Snake Orchid	E1,P,2	E	0	Grows in grassy tall eucalypt forest with Kangaroo Grass and Bladey Grass on brown clay soil.	No

					Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.	
Eucalyptus boliviana	Bolivia Stringybark	E4A		0	*Eucalyptus boliviana* is very rare and restricted to the Bolivia Hill Ranges area between Glen Innes and Tenterfield. A few small patches that were previously recorded in this region have disappeared over the past two decades. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Eucalyptus camphora subsp. relicta	Warra Broad-leaved Sally	E1		0	Confined to Warra National Park near Backwater east of Guyra, where it is known from two stands (the largest of these two stands is just 20 m by 150 m in area) and Capoompeta National Park east of Bolivia. Two closely related subspecies occur on the central and southern tablelands. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Eucalyptus magnificata	Northern Blue Box	E1		0	Known in NSW from only a few widely separate populations on the New England Tablelands, around Hillgrove east of Armidale and in the Glen Innes and Tenterfield region, where they occur individually or in small populations. Most populations occur on travelling stock routes or private property. Only a single population occurs in a conservation reserve, in Oxley Wild Rivers National Park. The species also occurs in two Queensland locations. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Eucalyptus mckieana	McKie's Stringybark	V	V	0	Confined to the drier western side of the New England Tablelands of NSW, from Torrington to Bendemeer. Most populations occur on private property, but it does occur in Kings Plain National Park, Torrington State Conservation Area and Severn River Nature Reserve. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	V	4	This species is sparsely distributed but widespread on the New England Tablelands from Nundle to north of Tenterfield, being most common in central portions of its range. Found largely on private property and roadsides, and occasionally in conservation reserves. Planted as urban trees, windbreaks and corridors. Typically grows in dry grassy woodland, on shallow soils of slopes and ridges. Found primarily on infertile soils derived from granite or metasedimentary rock. **Absent – This species was not observed during the field survey.**	No
Eucalyptus rubida subsp. barbigerorum	Blackbutt Candlebark	V	V	215	Known from scattered populations on the New England Tablelands from Guyra to the Tenterfield area. Most populations occur on private property however the species is recorded in Barayamal and Guy Fawkes National Parks.	No

					Absent – This species was not observed during the field survey.	
Euphrasia ciliolata	Polblue Eyebright	V		0	Polblue Eyebright is restricted to the northern tablelands of NSW. Major occurrences are on the Barrington Tops and Gloucester Tops in Barrington Tops NP, but the species also occurs in Werrikimbe NP, near Yarrowitch and in Nowendoc SF. An old collection from near Deepwater has not been relocated. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Homoranthus croftianus	Bolivia Homoranthus	E4A		0	Restricted to Bolivia Hill Ranges, north of Deepwater on the New England Tablelands of NSW. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Micromyrtus grandis	Severn River Heath-myrtle	E1,3	E	0	Restricted to Severn River Nature Reserve and an adjacent property, about 60km north-west of Glen Innes on the New England Tablelands. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Muehlenbeckia sp. Mt Norman	Scrambling Lignum	V		0	Sporadic after disturbance on North Coast, Northern and Central Tablelands. Mostly in rocky, higher-altitude sites following disturbance such as fire or clearing for powerlines. An old collection from Wallerawang possibly now underwater in artificial lake. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Picris evae	Hawkweed	V	V	0	Known in NSW north from the Inverell area, in the north-western slopes and plains regions. It has been collected from Elsmore and Myall Creek (both near Inverell) as well as in Inverell, Oxley Park (Tamworth) and also from Dangar Falls in the Oxley Wild Rivers National Park in the northern tablelands of NSW. The species also occurs in the Darling Downs and Moreton regions of south-eastern Queensland. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Pimelea venosa	Bolivia Hill Rice-flower	E1,3	E	0	This rice-flower species occurred primarily in the Bolivia Hill and Bluff Rock Ranges south of Tenterfield. Observations over the past decade suggest that this highly palatable species might have been widespread prior to the introduction of domestic stock. Surveys at previously occupied sites and in potential habitat conducted in 1999 found no plants. Sites that were burned by wildfire were re-surveyed in 2012 in hopes of post-fire sprouting but no plants were seen. One new population of the species was discovered in 2012, the first seen in over 15 years. It too gradually declined and all plants died by 2017. However, a subsequent low intensity wildfire in the area during late 2019, followed by consistent rainfall, stimulated sprouting of 800 seedlings including in nearby areas that were not occupied by mature plants in 2012. Three smaller populations ranging from 4 - 250 individuals have subsequently	No

					been found within a kilometre of this regenerated population. In 2021 a second large population of approximately 1000 plants was found in the region, occupying more fertile black loams. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	
Polygala linariifolia	Native Milkwort	E1		0	North from Copeton Dam and the Warialda area to southern Queensland; also found on the NSW north coast near Casino and Kyogle, and there is an isolated population in far western NSW near Weebah Gate, west of Hungerford. This species also occurs in Western Australia. In the Pilliga area, this species has been recorded in Fuzzy Box woodland, White Cypress Pine-Bulloak - Ironbark woodland, Rough-barked Apple riparian forb-grass open forest, and Ironbark - Brown Bloodwood shrubby woodland. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Prasophyllum sp. Wybong		P	CE	0	Endemic to NSW, it is known from near Ilford, Premer, Muswellbrook, Wybong, Yeoval, Inverell, Tenterfield, Currabubula and the Pilliga area. Most populations are small, although the Wybong population contains by far the largest number of individuals. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Prostanthera staurophylla	Moombahlene Mint-bush	E1,2	CE	0	Currently known from a single granite outcrop in the Tenterfield area of the New England Tablelands. Within its only current known population, the species occurs in shallow skeletal soil in rock crevices. The site is an exposed granite outcrop near the mountain summit, with skeletal gritty loam soil. **Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.**	No
Rutidosis heterogama	Heath Wrinklewort	V	V	0	Recorded from near Cessnock to Kurri Kurri with an outlying occurence at Howes Valley. On the Central Coast it is located north from Wyong to Newcastle. There are north coast populations between Wooli and Evans Head in Yuraygir and Bundjalung National Parks. It also occurs on the New England Tablelands from Torrington and Ashford south to Wandsworth south-west of Glen Innes. Grows in heath on sandy soils and moist areas in open forest, and has been recorded along disturbed roadsides. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Swainsona sericea	Silky Swainson-pea	V		0	Silky Swainson-pea has been recorded from the Northern Tablelands to the Southern Tablelands and further inland on the slopes and plains. There is one isolated record from the far north-west of NSW. Its stronghold is on the Monaro. Also found in South Australia, Victoria and Queensland. Found in Natural	Yes

					Temperate Grassland and Snow Gum Eucalyptus pauciflora Woodland on the Monaro. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3351) is present. However, there are no records within 10 km.**	
Thesium australe	Austral Toadflax	V	V	16	Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. It is also found in Tasmania and Queensland and in eastern Asia. Although originally described from material collected in the SW Sydney area, populations have not been seen in a long time. It may persist in some areas in the broader region. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast **High – Subject site is within the species known geographic distribution, an associated PCT (3351) is present, and 16 records occur within 10 km.**	Yes
Cercartetus nanus	Eastern Pygmy-possum	V,P		0	The Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW it extends from the coast inland as far as the Pilliga, Dubbo, Parkes and Wagga Wagga on the western slopes. Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (3351) is present. However, there are no records within 10 km.**	Yes
Dasyurus maculatus	Spotted-tailed Quoll	V,P	E	5	The range of the Spotted-tailed Quoll has contracted considerably since European settlement. It is now found in eastern NSW, eastern Victoria, south-east and north-eastern Queensland, and Tasmania. Only in Tasmania is it still considered relatively common. Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. **Absent – Suitable habitats and den sites do not occur within the subject site. The five records are scattered within the 10 km search area, likely representing individuals that are traversing the landscape. This species has large territories and can move several kilometres in a single night.**	No
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V,P		1	The Eastern False Pipistrelle is found on the south-east coast and ranges of Australia, from southern Queensland to Victoria and Tasmania. Prefers moist habitats, with trees taller than 20 m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.	Yes

					High – Subject site is within the species known geographic distribution, associated PCTs (3351 and 3981) are present, and one record occurs within 10 km.	
Miniopterus orianae oceanensis	Large Bent-winged Bat	V,P		1	Eastern Bentwing-bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. **Absent – Primary roosting habitat does not occur within the subject site. The single record within the 10 km search area is located within the Glen Innes town centre (approximately 2.7 km from the subject site).**	No
Myotis macropus	Southern Myotis	V,P		0	The Southern Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. It is rarely found more than 100 km inland, except along major rivers. Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (3351 and 3981) are present. However, there are no records within 10 km.**	Yes
Petauroides volans	Southern Greater Glider	E1,P	E	0	The Southern Greater Glider occurs in eastern Australia, in eucalypt forests and woodlands, where it has a broad distribution from around Proserpine in Queensland, south through NSW and the Australian Capital Territory into Victoria. **Low – Although an associated PCT (3351) is present, the subject site lacks the preferred habitat for this species (eucalypt forest and woodlands). Furthermore, no records occur within 10 km.**	No
Petrogale penicillata	Brush-tailed Rock-wallaby	E1,P	V	0	The range of the Brush-tailed Rock-wallaby extends from south-east Queensland to the Grampians in western Victoria, roughly following the line of the Great Dividing Range. However the distribution of the species across its original range has declined significantly in the west and south and has become more fragmented. In NSW they occur from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. Shelter or bask during the day in rock crevices, caves and overhangs and are most active at night when foraging. Browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees. Highly territorial and have strong site fidelity with an average home range size of about 15 ha. Males tend to have larger home ranges than females. The home range consists of a refuge area and a foraging range linked by habitually used commuting routes. Females settle in or near their mother's range, while males mainly disperse between female groups within colonies, and less commonly between colonies.	No

					Low – Subject site is not within the species known geographic distribution, there are no associated PCTs present, and no records within 10 km.	
Phascolarctos cinereus	Koala	E1,P	E	6	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range. Inhabit eucalypt woodlands and forests. **Absent – No Koala feed tree species occur within the subject site. Four of the six records within the 10 km search area are found within patches of remnant vegetation. The remaining two are located within the residential area of Glen Innes.**	No
Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	7	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. Annual mating commences in January and conception occurs in April or May; a single young is born in October or November. Site fidelity to camps is high; some camps have been used for over a century. Can travel up to 50 km from the camp to forage; commuting distances are more often <20 km. Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops. **Absent – No Grey-headed Flying-fox feed tree species occur within the subject site, and no nearby roosting camps are present. All six records within the 10 km search area are of individuals becoming entangled in netting/wire or electrocuted.**	No
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V,P		0	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range - most of Victoria, south-western NSW and adjacent South Australia - it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and North West Slopes. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Breeding has been recorded from December to mid-March, when a single young is born. Seasonal movements	No

					are unknown; there is speculation about a migration to southern Australia in late summer and autumn. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	
Scoteanax rueppellii	Greater Broad-nosed Bat	V,P		0	The Greater Broad-nosed Bat is found mainly in the gullies and river systems that drain the Great Dividing Range, from north-eastern Victoria to the Atherton Tableland. It extends to the coast over much of its range. In NSW it is widespread on the New England Tablelands, however, does not occur at altitudes above 500 m. Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species. **Low – Subject site is within the species known geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Hoplocephalus bitorquatus	Pale-headed Snake	V,P		0	A patchy distribution from north-east Queensland to the north-eastern quarter of NSW. In NSW it has historically been recorded from as far west as Mungindi and Quambone on the Darling Riverine Plains, across the north west slopes, and from the north coast from Queensland to Sydney. A small number of historical records are known for the New England Tablelands from Glenn Innes and Tenterfield; however, the majority of records appear to be from sites of relatively lower elevation. Although the Pale-headed snake distribution is very cryptic, it now appears to have contracted to a patchy and fragmented distribution. The Pale-headed Snake is a highly cryptic species that can spend weeks at a time hidden in tree hollows. Found mainly in dry eucalypt forests and woodlands, cypress forest and occasionally in rainforest or moist eucalypt forest. In drier environments, it appears to favour habitats close to riparian areas. **Low – Subject site is within the species predicted geographic distribution. However, there are no associated PCTs present or records within 10 km.**	No
Myuchelys bellii	Western Sawshelled Turtle, Bell's Turtle	E1,P	E	11	In NSW, currently found in four disjunct populations in the upper reaches of the Namoi, Gwydir and Border Rivers systems, on the escarpment of the North West Slopes. A separate small population exists in Queensland and though disjunct, recent studies indicate all populations are the same subspecies. Recent surveys have demonstrated that the species is more widely distributed than formerly thought, locally abundant in some areas yet also sparse in habitat that appears suitable. Occurs within shallow to deep pools in upper reaches or small tributaries of major rivers in granite country. Most typically uses narrow stretches of rivers 30 - 40 m wide.	No

					Absent – Suitable habitat (shallow to deep pools in narrow stretches of rivers 30 – 40 m wide) does not occur within the subject site. The 11 records within the 10 km search area are all located within the Beardy Waters system (both upstream and downstream of the dam wall).	

*NSW Status: P=Protected, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.

+Commonwealth Status: M=Marine, C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable.

Likelihood of occurrence table for BC Act Threatened Ecological Communities

Community	+NSW Status	Likelihood of Occurrence	5-part test required (Yes / No)
Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions	E3	Carex Sedgelands are fens dominated by sedges, grasses and semi-aquatic herbs. They mainly occur in drainage depressions in valley floors, frost hollows, and undulating terrain between 440 and 1360 m in altitude. They are mostly found at higher altitude on tablelands but extend onto the slopes. The community has been recorded from the local government areas of Armidale Dumaresq, Warrumbungle, Glen Innes Severn, Guyra, Gwydir, Inverell, Liverpool Plains, Tamworth Regional, Uralla and Walcha. The community occupies an estimated extent of 5000 hectares, which is estimated to be a 50% decline in extent since European settlement. Less than 100 hectares is currently represented in conservation reserves in NSW. **Absent – The community was not present at the subject site.**	No
McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions	E3	Restricted distribution on the North West Slopes and New England Tablelands, from Kings Plains to Bundarra and to west of Uralla. The community has been severely fragmented, and generally occurs along roadsides and on Travelling Stock Routes and private property. This is an open forest community characterised by the presence of McKie's Stringybark (*Eucalyptus mckieana*), New England Blackbutt (*E. andrewsii*), and Black Cypress Pine (*Callitris endlicheri*). Other tree species may also be present. **Absent – The community was not present at the subject site.**	No
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3	The Montane Peatlands and Swamps EEC is currently known from parts of the Local Government Areas of Armidale Dumaresq, Bega Valley, Bellingen, Blue Mountains, Bombala, Cooma-Monaro, Eurobodalla, Gloucester, Greater Argyle, Guyra, Hawkesbury, Lithgow, Oberon, Palerang, Severn, Shoalhaven, Snowy River, Tenterfield, Tumbarumba, Tumut, Upper Lachlan and Wingecarribee but may occur elsewhere in these bioregions. The community is currently known from conservation reserves including Werrikimbee, Barrington, Kanangra-Boyd, Monga, Wadbilliga, South East Forests and Kosciuszko National Parks. However, these examples are generally small, unrepresentative of the range of variation in the community, affected by past disturbances and continue to be threatened by some of the processes listed below. Analogous communities occur in Victoria, where the community is listed as threatened under the Flora and Fauna Guarantee Act, and in the Australian Capital Territory. Losses of Montane Peatlands and Swamps due to land clearing are difficult to estimate. However, estimates vary from about 20% in the Guyra district to more than 75% in the far southeast of NSW.	No

		Absent – The community was not present at the subject site.	
New England Peppermint (*Eucalyptus nova-anglica*) Woodland on Basalts and Sediments in the New England Tableland Bioregion	E4B	The New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodlands ecological community is a type of temperate grassy eucalypt woodland to open forest in which the tree canopy is dominated or co-dominated by *Eucalyptus nova-anglica* (New England peppermint) and the ground layer is mostly grassy. Eucalyptus nova-anglica is a tree species that is restricted to northeastern NSW and the far south of Queensland. **Absent – The community was not present at the subject site.**	No
Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion	E3	Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest is an open forest or woodland that typically occurs at elevations between 700m – 1500m. It is mainly confined to the high undulating plateau of the New England Tablelands with deep basalt (chocolate or krasnozem) loam soils. **Absent – The community was not present at the subject site.**	No
Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion	E3	Upland Wetlands are temporary to near-permanent wetlands that are not connected to rivers by floodplains and are restricted to higher altitude watersheds (above about 900 m) of the Great Dividing Range in northern NSW. Upland Wetlands are found in drainage depressions on flat to undulating plateaus on soils derived mainly from basalt, although they occur on soils derived from other rock types. Upland Wetlands occurs within the New England Tableland Bioregion of NSW. They are currently known to occur within the Tenterfield, Guyra, Severn, Dumaresq and Uralla Local Government Areas, but may occur elsewhere in the New England Tableland Bioregion. For instance, Upland Wetlands have recently been recorded in the Walcha Local Government Area. **Absent – The community was not present at the subject site.**	No
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and	E4B	Box-Gum Woodland is found from the Queensland border in the north, to the Victorian border in the south. It occurs in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions. Characterised by the presence or prior occurrence of White Box, Yellow Box and/or Blakely's Red Gum and a generally grassy understorey. **Absent – The community was not present at the subject site.**	No

+ NSW Status: E3=Endangered, E4B=Critically Endangered.

APPENDIX D – BC ACT TESTS OF SIGNIFICANCE

Biodiversity Conservation Act 2016 Test of significance

The threatened species 'test of significance' (or '5-part test') is used to determine if a development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. The test of significance is set out in s.7.3 of the *Biodiversity Conservation Act* 2016, and is completed in accordance with the questions set out below.

Information regarding the habitat requirements and lifecycles of threatened species is sourced from https://www.environment.nsw.gov.au/threatenedSpeciesApp

The following is to be considered for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

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

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

   i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

   ii. is likely to modify the composition of the ecological community substantially and adversely such that its local occurrence is likely to be placed at risk of extinction,

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

   i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

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

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

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

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

BC Act Tests of Significance

Species Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
Adelotus brevis	Tusked Frog population in the Nandewar and New England Tableland Bioregions	This species inhabits rainforests, wet forests and flooded grassland and pasture. They are usually found near creeks, ditches and ponds, and call while hidden amongst vegetation or debris. No records of this species occur within the 10 km search area. The closest record (from 1997) occurs approximately 35 km from the subject site and is located within a patch of remnant vegetation (Mann River Nature Reserve). Further records occur >65 km north of the subject site, adjacent to the Mole River. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of records within the 10 km search area and the degraded state of the subject site, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and groundcover of grasses or sedges and fallen woody debris. Woodland	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		habitat does not occur within the subject site. Furthermore, the species was not observed during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.		grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of woodland habitat, the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.			
Circus assimilis	Spotted Harrier	The Spotted Harrier constructs its twig nests in open- and remnant-woodland. Woodland habitat does not occur within the subject site. Furthermore, the species was not observed during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of woodland habitat, the inability to detect the species or its nests during the field survey, and the absence of records within the 10 km search area, it is unlikely that	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

				the proposal will jeopardise the long-term survival of the species.			
Ephippiorhynchus asiaticus	Black-necked Stork	Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. They build large nests high in tall trees close to water. Territories are large and variable in size, ranging from 10 000 ha to 15 000 ha in areas with poor or dispersed habitat. No suitable nesting trees occur within the subject site. Furthermore, the species was not observed during the field survey and only one record (from 2002) occurs within the 10 km search area. This record is of an immature individual found exhausted after bushfires, outside of its preferred habitat. Considering the above, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of suitable nesting trees, the inability to detect the species during the field survey, and the low number of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Falco subniger	Black Falcon	The Black Falcon utilises the old nests of other birds of prey and ravens, generally close to waterways. As no nests were detected during the field survey, there is only limited degraded and highly fragmented habitat available for nesting, and no records of this species occur within the 10 km search area, the proposal is	N/A	i. This species is associated with PCT 3351 within the subject site. Consequently, up to 0.46 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		unlikely to place a local population at risk of extinction.		drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of suitable nesting trees, the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.			
Grus rubicunda	Brolga	Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. The nest comprises a platform of grasses and sticks, augmented with mud, on an island or in the water. The species was not observed during the field survey and no records occur within the 10 km search area. Furthermore, the wetland habitat within the subject site is too small to support this species. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.29 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the small area of wetland habitat within the subject site, the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Irediparra gallinacea	Comb-crested Jacana	Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation. Breed mainly in spring and summer in NSW, with clutches recorded from September to April. The nest is a platform or shallow cup of vegetative material, though eggs are sometimes laid directly onto a large leaf. The species was not observed during the field survey and no records occur within the 10 km search area. Furthermore, the wetland habitat within the subject site is too small to support this species. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.29 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the small area of wetland habitat within the subject site, the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Ninox connivens	Barking Owl	The Barking Owl inhabits woodlands and open forests and can persist in areas of fragmented remnants and partly cleared farmland. Nesting requires large hollows, of which none were present within the subject site. Given the lack of suitable hollows and the absence of records within the 10 km search area, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCT 3351 within the subject site. Consequently, up to 0.46 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape,	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

				fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of suitable tree hollows and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.			
Petroica boodang	Scarlet Robin	The Scarlet Robin inhabits dry eucalypt forests and woodlands, typically with an understory that is open and grassy. Its cup-shaped nest is constructed in the crevices and forks of eucalypts. Woodland habitat does not occur within the subject site. Furthermore, the species was not observed during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of woodland habitat, the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Petroica phoenicea	Flame Robin	The Flame Robin breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes.	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species	No, AOBV not present within or	Yes. See **Appendix F**	No significant impact will arise to the local viability of this

		constructs an open cup-shaped nest, made up of plant materials and spiderwebs. Breeding habitat requires a native grass understorey. The subject site occurs within a degraded landscape and does not meet the breeding requirements of this species. Furthermore, the species was not observed during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.		will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of suitable breeding habitat, the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.	close to the subject site.		species or its habitat due to the undertaking of the proposal.
Rostratula australis	Australian Painted Snipe	This species prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. It builds nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. The species was not observed during the field survey and no records occur within the 10 km search area. Furthermore, the wetland habitat within the subject site is unlikely to be large enough to support this species. As such, the proposal	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.29 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		is unlikely to place a local population at risk of extinction.		iii. Considering the small area of wetland habitat within the subject site, the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.			
Stagonopleura guttata	Diamond Firetail	The Diamond Firetail can be found in eucalypt woodlands with a native grass understorey. Its nests are built either in the shrubby understorey or under raptor and ravens' nests. Woodland habitat does not occur within the subject site. Furthermore, the species was not observed during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of woodland habitat, the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Tyto novaehollandiae	Masked Owl	The Masked Owl inhabits dry eucalypt forests and woodlands. Although it nests within heavily forested areas, it often hunts along the edges of forests, such as roadsides.	N/A	i. This species is associated with PCT 3351 within the subject site. Consequently, up to 0.46 ha of associated PCT for this species will be removed or modified because of this proposal.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to

		Roosting and breeding typically occurs in large tree hollows or caves. Within the subject site there were no suitable hollows for the species. The fragmentary nature of vegetation at the subject site indicates that it would not constitute critical habitat for the species. Further, there are no records within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.		ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of suitable tree hollows and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.			the undertaking of the proposal.
Aldrovanda vesiculosa	Waterwheel Plant	This species is found free-floating in near-coastal shallow freshwater lagoons that are rich in organic matter. The species was not observed during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.29 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the inability to detect the species during the field survey, and the absence of records within the 10 km search area, it is	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

				unlikely that the proposal will jeopardise the long-term survival of the species.			
Dichanthium setosum	Bluegrass	Associated with heavy basaltic black soils and red-brown loams with clay subsoil, often in disturbed areas including roadside vegetation. Although six records of this species occur within the 10 km search area, all of these records are dated between 1913 and 1938. Furthermore, the species was not observed during the field survey (conducted during the appropriate survey window for this species), and no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. The proposal will not remove or modify any associated PCTs for this species. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of associated PCTs, the absence of records within the 10 km search area since 1938, and the inability to detect the species during the field survey, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Thesium australe	Austral Toadflax	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (*Themeda triandra*). The associated *T. triandra* was absent from the subject site. Furthermore, the species was not observed during the field survey (conducted during the appropriate survey window for this species). Of the 16 records within the 10 km search area,	N/A	i. This species is associated with PCT 3351 within the subject site. Consequently, up to 0.46 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape,	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		half are recorded between 1914 and 1997. The most recent records (2017) are located near the edge of the 10 km search area in a patch of remnant vegetation. Considering the above, the proposal is unlikely to place a local population at risk of extinction.		fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of associated species (*T. triandra*), the high level of disturbance at the subject site, and the inability to detect the species during the field survey, it is unlikely that the proposal will jeopardise the long-term survival of the species.			
Cercartetus nanus	Eastern Pygmy-possum	The Eastern Pygmy Possum shelters and nests within tree hollows, fallen timber, rotten stumps, and abandoned birds' nests. Within the subject site, there were two hollows and a split trunk which could potentially be utilised by this species. However, these habitat features occurred within Weeping Willow (*Salix babylonica*), a High Threat Exotic (HTE) species as per the Biodiversity Assessment Method 2020 (BAM). These habitat trees are likely of little value to native fauna. Other habitat features such as fallen timber, rotten stumps, and abandoned bird nests were absent. Furthermore, there are no records of this species within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCT 3351 within the subject site. Consequently, up to 0.46 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of preferred habitat features and the absence of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Falsistrellus tasmaniensis	Eastern False Pipistrelle	This species prefers moist habitats, with trees taller than 20 m. It generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. The subject site contains degraded habitat which lacks trees taller than 20 m and eucalypt hollows. Furthermore, only one record (from 2005) occurs within the 10 km search area. This record is located approximately 3.5 km from the subject site. Considering the above, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of woodland habitat with tall trees, and the low number of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Myotis macropus	Southern Myotis	This species generally roosts in groups of 10-15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. The subject site contains degraded habitat which does not fit the roosting requirements of this species. Although two hollow-bearing trees are present, both trees are Weeping Willow (*Salix babylonica*), a HTE species as	N/A	i. This species is associated with PCTs 3351 and 3981 within the subject site. Consequently, up to 0.75 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site is highly degraded and dominated by exotic pasture. The only exceptions to this are an area of native grassland in the western section of the subject site and small areas of native vegetation on drainage channels and depressions. These drainage channels and depressions occur	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		per the BAM. As such, these habitat trees are likely of limited value to this species – particularly considering they prefer hollow bearing trees that are overhanging open water. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.		scattered throughout the wider landscape, fragmented by exotic pasture and roads. The proposal would further exacerbate fragmentation within the landscape. iii. Considering the lack of preferred roosting habitat, and the lack of records within the 10 km search area, it is unlikely that the proposal will jeopardise the long-term survival of the species.			

APPENDIX E – MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The EPBC Act protects nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as matters of national environmental significance. The EPBC Act policy Matters of National Environmental Significance: Significant Impact Guidelines 1.1 (DoE, 2013) forms the basis of determining if impact to protected matters is significant.

The EPBC Act Protected Matters search has identified three wetlands of international importance, three TECs, 36 threatened species, 8 migratory species, and 18 marine species that could possibly occur in the study area. Assessment of the subject site determined that no Ramsar wetland would be impacted by the development.

The following tables give an overview of the assessments of these threatened entities and shows that the Proposed activity:

1. Is not likely to have a significant impact on a matter of national environmental significance. The matters of national environmental significance are:
    i. World heritage properties.
    ii. National heritage places.
    iii. Wetlands of international importance.
    iv. Threatened species and ecological communities.
    v. Migratory species.
    vi. Commonwealth marine areas.
    vii. The Great Barrier Reef Marine Park. And;
    viii. Nuclear actions (including uranium mines).
    ix. A water resource, in relation to coal seam gas development and large coal mining development.
2. Is not likely to have a significant impact on the environment in general (for actions by Commonwealth agencies or actions on Commonwealth land) or the environment on Commonwealth land (for actions outside Commonwealth land).

Notes: Important Population as determined by the *Environment Protection and Biodiversity Conservation Act* 1999, is one that for a vulnerable species:

a) is likely to be key source populations either for breeding or dispersal

b) is likely to be necessary for maintaining genetic diversity

c) is at or near the limit of the species range.

A ‘significant impact’ is an impact which is important, notable, or of consequence, having regard to its context or intensity (DoE, 2013).

Wetlands of International Importance

Name	Proximity	Assessment of significance required (Yes / No)
Banrock station wetland complex	1100 - 1200 km upstream	No, the proposal does not occur close to the wetland.
Riverland	1100 - 1200 km upstream	No, the proposal does not occur close to the wetland.
The Coorong, and Lakes Alexandrina and Albert Wetland	1300 - 1400 km upstream	No, the proposal does not occur close to the wetland.

EPBC Act-Listed Threatened Ecological Communities

Name	Status	Assessment of significance required (Yes / No)
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	No, this community does not occur within the subject site.
New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodlands	Critically Endangered	No, this community does not occur within the subject site.
White Box – Yellow Box – Blakley's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	No, this community does not occur within the subject site.

EPBC Act-listed Critically Endangered and Endangered Species

Australian Painted Snipe (*Rostratula australis*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 0.29 ha of potential habitat for the Australian Painted Snipe. The Australian Painted Snipe inhabits swamps, dams, and marshlands, where it shelters and nests beneath tall fringing vegetation (e.g., grasses, tussocks, and reeds). The wetland habitat within the subject site is unlikely to be large enough to support this species. Furthermore, the species was not observed during the field survey and no records occur within the 10 km search area. As such, this proposal will not lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	As indicated above it is unlikely that an established population exists at the site. This proposal is not expected to result in any additional fragmentation for this species.
Adversely affect habitat critical to the survival of a species	habitat critical to the survival of the Australian Painted Snipe can be considered to include: • Any natural wetland habitat where the species is known or likely to occur (especially with suitable breeding habitat). • Any location outside the above area that may be periodically occupied by Australian Painted Snipe when wetland conditions are favourable. Considering the area of wetland habitat within the subject site is restricted to small drainage channels and depressions, and the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the Australian Painted Snipe.
Disrupt the breeding cycle of a population	As indicated above it is unlikely that an established population exists at the site. This proposal is not expected to result in any additional fragmentation for this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.29 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Drainage of wetlands and alterations of natural flows; reduced water quality; predation by introduced species; use of herbicides, pesticides, and other chemicals; inappropriate grazing and burning of wetland areas; and exotic weed incursions are the main threats to this species. Although this proposal will exacerbate the impacts to native vegetation on drainage channels and depressions, due to the clearing/modifying of up to 0.29 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

EPBC Act-listed Vulnerable Species

White-throated Needletail (*Hirundapus caudacutus*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 0.75 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. The White-throated Needletail is a migratory species seen along eastern Australia, commonly in coastal areas and less often inland. The species was not detected during the field survey and no records occur within the 10 km search area. As such, the subject site is unlikely to support a population of this species. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	No, this species breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan from June-August.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	With this species being almost exclusively aerial, it is unlikely that the proposal will modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Aerial collision with wires, windows and lighthouses are the biggest threats for this species while it resides in Australia. Though the reduction in invertebrate prey due to the loss of woodland habitat is also a threat. It Is unlikely that the proposal will interfere with the recovery of this species.
Conclusion	**No significant impact**

Diamond Firetail (*Stagonopleura guttata*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 0.75 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. This species appears to be sedentary, though some populations move locally. The required woodland habitat does not occur within the subject site. Furthermore, the species was not observed during the field survey and no records occur within the 10 km search area. As such, the subject site is unlikely to support a population of this species. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the diamond firetail includes areas of eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats; low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting and breeding; and Drooping She-oak (*Allocasuarina verticillata*) within the Mt Lofty Ranges. Habitat within the subject site does not fit this description. As such, it is not considered habitat critical to the survival of a species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.75 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Clearing and fragmentation of woodland, open forest, grassland and mallee habitat for agriculture and residential development, and firewood collection; poor regeneration of open forest and woodland habitats; and the invasion of weeds, resulting in the loss of important food plants are the main threats facing this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 0.75 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Bluegrass (*Dichanthium setosum*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will not impact associated PCTs for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. This species is often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. As such, the subject site may contain suitable habitat. However, the species was not detected during the field survey (conducted during the appropriate survey window for this species). Furthermore, of the six records within the 10 km search area, all are dated between 1913 and 1938. As such, the subject site is unlikely to support a population of this species. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the inability to detect the species during the field survey and the lack of records within the 10 km search area since 1938, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will not remove/modify any area of associated PCTs for the species. The proposal will not isolate any habitat for this species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Clearing for agriculture and development, timber harvesting, lack of regeneration, loss of genetic integrity due to hybridisation and canopy die-back are the key threats to this species. The proposal is unlikely to significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

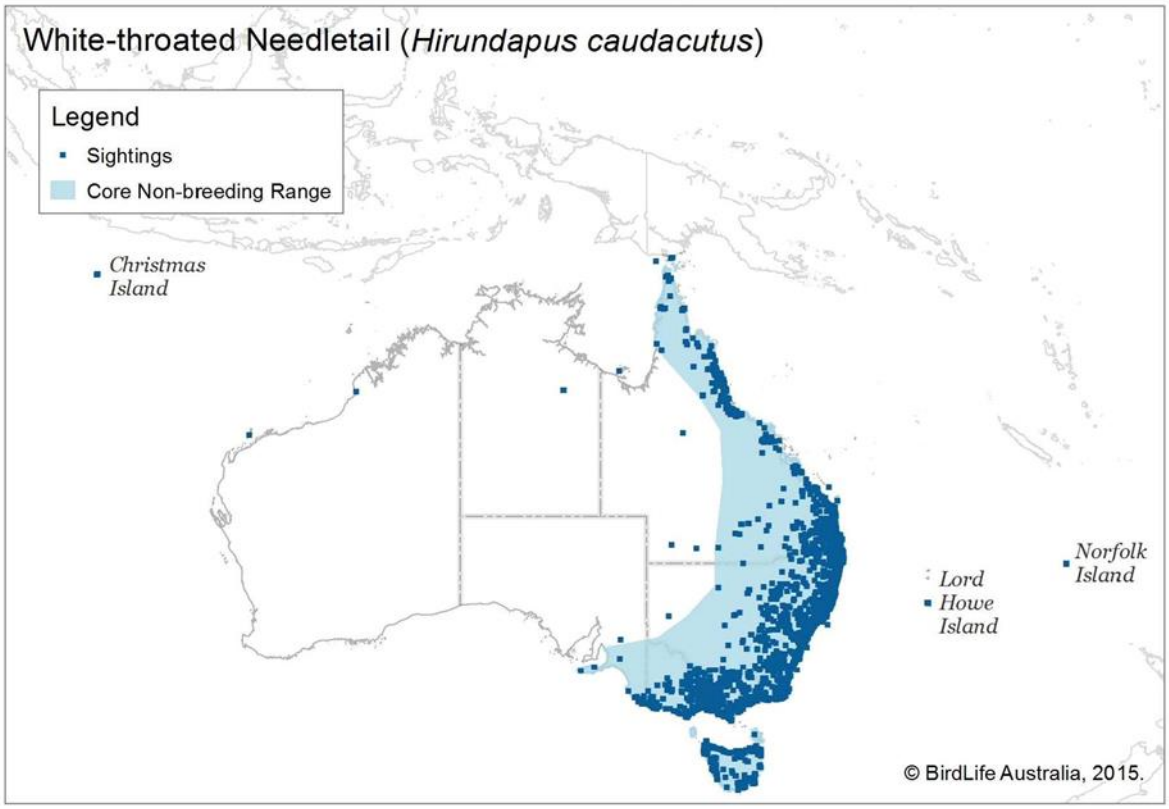
Austral Toadflax (*Thesium australe*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 0.46 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. This species occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (*Themeda triandra*). The associated *T. triandra* was absent from the subject site. Furthermore, Austral Toadflax was not observed during the field survey (conducted during the appropriate survey window for this species). Of the 16 records within the 10 km search area, half are recorded between 1914 and 1997. The most recent records (2017) are located near the edge of the 10 km search area in a patch of remnant vegetation. The nearest record (from 2010) is located approximately 1 km north of the subject site. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the high level of disturbance within the subject site, the lack of associated *T. triandra*, and the inability to detect the species during the field survey, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.46 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss and degradation of habitat; overgrazing by sheep and cattle; weed invasion; road widening; rabbit grazing pressure; and development are the main threats to this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 0.46 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

EPBC Act-listed Migratory Species

Pectoral Sandpiper (*Calidris melanotos*)	
Significant Impact Guideline	**Assessment**
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	As the species is very widely distributed, and as the subject site contains only a small area of potential foraging habitat, the proposal is unlikely to substantially modify, destroy or isolate any area of important habitat for this migratory species.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	It is unlikely that the proposal site constitutes important habitat for this species. While there is potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species, environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	It is highly unlikely that an ecologically significant proportion of the population occurs within or is dependent on the proposal site. Furthermore, this species breeds in northern Russia and North America during the northern hemisphere summer. As such, the proposal is unlikely to seriously disrupt the lifecycle for this species.
Conclusion	**Non-significant impact**

Latham's Snipe (*Gallinago hardwickii*)	
Significant Impact Guideline	**Assessment**
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	As the species is very widely distributed, and as the subject site contains only a small area of potential foraging habitat, the proposal is unlikely to substantially modify, destroy or isolate any area of important habitat for this migratory species.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	It is unlikely that the proposal site constitutes important habitat for this species. While there is potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species, environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	It is highly unlikely that an ecologically significant proportion of the population occurs within or is dependent on the proposal site. Furthermore, this species breeds in Japan and far eastern Russia during the northern hemisphere summer. As such, the proposal is unlikely to seriously disrupt the lifecycle for this species.
Conclusion	**Non-significant impact**

White-throated Needletail (*Hirundapus caudacutus*)	
Significant Impact Guideline	**Assessment**
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	The subject site occurs within the core non-breeding range of the White-throated Needletail (see figure below). As the species is very widely distributed, and as the subject site contains only a small area of potential foraging habitat, the proposal is unlikely to substantially modify, destroy or isolate any area of important habitat for this migratory species.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	It is highly unlikely that the proposal site constitutes important habitat for this species. While there is potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species, environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	It is highly unlikely that an ecologically significant proportion of the population occurs within or is dependent on the proposal site. Furthermore, this species breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan from June-August. As such, the proposal is unlikely to seriously disrupt the lifecycle for this species.
Conclusion	**Non-significant impact**



White-throated Needletail Core Non-breeding Range

APPENDIX F – KEY THREATENING PROCESSES

Key Threatening Processes (KTP) predicted as acting on the study area that may be exacerbated by the proposal.

Class	Name	NSW status	Comm. status	Likelihood of Occurrence	Exacerbated by Proposal?
Threat	Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802)	KTP	KTP	**Unlikely**	**No** Modification of vegetation structure can encourage Noisy Miners, though no woodland or forest habitat is present.
Threat	Alteration of habitat following subsidence due to longwall mining	KTP		**Very Unlikely**	**No** The proposal will not engage in works that will exacerbate this KTP.
Threat	Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP		**Very Likely**	**Yes** Three minor non-perennial watercourses occur within the subject site. These watercourses flow into Furracabad Creek. The proposal will alter the natural flow regimes of these watercourses.
Threat	Anthropogenic Climate Change	KTP	KTP	**Very Likely**	**Yes** Some unavoidable emissions will occur from construction machinery.
Threat	Bushrock removal	KTP		**Unlikely**	**Potentially** No deposits of surface rock were detected during the field survey. However, if, during construction, bushrock is detected, it should be relocated nearby, rather than be removed.
Threat	Clearing of native vegetation	KTP	KTP	**Very Likely**	**Yes** Up to 0.75 ha of native vegetation will be cleared by the current proposal.
Threat	Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)	KTP	KTP	**Unlikely**	**Potentially** The spread of grassy weeds that may result from these works could encourage rabbit activity.
Threat	Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758	KTP	KTP	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Threat	Competition from feral honey bees, *Apis mellifera* L.	KTP		**Likely**	**Potentially** Removal of hollow-bearing trees may exacerbate this KTP.
Threat	Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP		**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat

Class	Name	NSW status	Comm. status	Likelihood of Occurrence	Exacerbated by Proposal?
Threat	Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus* Linnaeus 1758	KTP		**Unlikely**	**No** The proposed development will not increase occupancy by this species.
Threat	Herbivory and environmental degradation caused by feral deer	KTP		**Unlikely**	**No** The proposed development will not increase occupancy by this species.
Threat	High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP		**Unlikely**	**No** Fire frequency will not increase due to activities undertaken as part of the proposal.
Threat	Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks; however, this species is not known to occur nearby.
Threat	Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	**Likely**	**Potentially** Removal of hollow-bearing trees may exacerbate this KTP.
Threat	Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Threat	Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Threat	Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)	KTP		**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Threat	Invasion and establishment of exotic vines and scramblers	KTP		**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Threat	Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP		**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Threat	Invasion and establishment of the Cane Toad (*Bufo marinus*)	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.

Class	Name	NSW status	Comm. status	Likelihood of Occurrence	Exacerbated by Proposal?
Threat	Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.	KTP		**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Threat	Invasion of native plant communities by *Chrysanthemoides monilifera*	KTP		**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Threat	Invasion of native plant communities by exotic perennial grasses	KTP		**Very likely**	**Yes** Exotic perennial grasses are already established at the site, increased disturbance could increase their spread.
Threat	Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW	KTP		**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks; however, this species is not known to occur nearby.
Threat	Invasion, establishment and spread of Lantana (*Lantana camara L. sens*. Lat)	KTP		**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks; however, this species is not known to occur nearby.
Threat	Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Threat	Loss of Hollow-bearing Trees	KTP		**Very Likely**	**Yes** Two non-native hollow-bearing trees will be removed.
Threat	Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP		**Unlikely**	**No** No sites known or suspected to be present.
Threat	Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP		**Unlikely**	**No** The proposed works would not increase the likelihood of this threat.
Threat	Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish)	KTP		**Unlikely**	**Potentially** Although there are watercourses present, the scope of works should not exacerbate this KTP.
Threat	Predation by the European Red Fox *Vulpes Vulpes* (Linnaeus, 1758)	KTP	KTP	**Unlikely**	**No** Ease of access for feral foxes will not be increased by the proposal
Threat	Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)	KTP	KTP	**Unlikely**	**No** Ease of access for feral cats will not be increased by the proposal

Class	Name	NSW status	Comm. status	Likelihood of Occurrence	Exacerbated by Proposal?
Threat	Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758	KTP	KTP	**Unlikely**	**No** Ease of access for feral pigs will not be increased by the proposal
Threat	Removal of dead wood and dead trees	KTP		**Likely**	**Yes** A small amount of dead wood was encountered during the field deployment. It is recommended that any dead wood detected on site be relocated nearby to avoid exacerbating this KTP.