



Biodiversity Development Assessment Report

Gara Battery Energy Storage System

86 Woodlands Road, 67 and 280 Argyle-Mining Vale Road, Armidale, NSW 2350

13 November 2025



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13 November 2025

Prepared for
ACEnergy Pty Ltd

Declaration:
I certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and clause 6.15 of the *Biodiversity Conservation Act 2016*.



Signature:
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Date: 02 November 2025
BAM Assessor Accreditation and Case File no: _00051433/BAAS18041/24/00051434

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1 Introduction

1.1 Background

Habitat Environmental Services Pty Ltd (Habitat) have been engaged by ACenergy Pty Ltd to prepare a Biodiversity Development Assessment Report (BDAR) to support an Environmental Impact Statement (EIS) for the proposed large-scale Gara Battery Energy Storage System (Gara BESS) and overhead sub-transmission lines (the project). The Gara BESS and overhead connection route are to be located within the northeast of 86 Woodlands Road, 67 and 280 Argyle-Mining Vale Road, Armidale, NSW 2350, hereafter referred to as the Study Area (refer to **Figure 1**).

The project is State Significant Development (SSD) under Part 4 Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The following terms are used throughout this report:

- Study Area / Buffer Area (site) - approximately 32.97 hectares (ha) and is comprised of the following land parcels:
 - 86 Woodlands Road, Armidale NSW (Lot 1 DP246878, Lot 1 DP573787, Lot 145 DP755826)
 - 280 Argyle-Mining Vale Road NSW (Lot 144 DP755826 and Lot 153 DP755826)
 - Part of the traveling stock route along Waterfall Way (Lot 7003 DP1060212, Lot 7009 DP1062013)
- Subject Land (development footprint) - the area within the Study Area to be directly impacted by the project. The Subject Land is approximately 20.97 ha and is comprised of:
 - A total of 13.58 ha of land to be directly impacted by ground disturbance
 - A total of 7.39 ha to be partially impacted by the overhead sub-transmission line connection route
- Locality: Land within a five kilometre (km) radius of the Study Area
- Assessment Area: Land within a 1,500 meter buffer of the Subject Land.

A project referral was submitted to the Commonwealth Minister for the Environment and Water on 17 January 2025 (EPBC 2025/10102) for potentially significant impacts to matters protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Commonwealth Minister determined the project as a 'controlled action' on 01 April 2025.

Consequently, the project requires State and Commonwealth approval, and will be assessed under the Assessment Bilateral Agreement, Amending Agreement No. 1, and in compliance with Schedule 1 of that agreement. This includes addressing the matters outlined in Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations) (further discussed in **Section 2**).

In accordance with the bilateral assessment process, the extent of direct and indirect impacts to State listed entities and Commonwealth listed matters have been assessed using the NSW Biodiversity Assessment Method (BAM) (DPIE 2020a), as stipulated under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the NSW *Biodiversity Conservation Regulation 2017* (BC Regulation). Where applicable, likely impacted matters have been assessed in accordance with Schedule 4 of the EPBC Regulations and the Significant Impact Guidelines 1.1 - MNES (DEWHA 2013).

Consideration has been given to the environmental assessment requirements (EARs) (SSD-71680710) issued with the secretary environmental assessment requirements (SEARs) on 19 June 2024, and the supplementary SEARs, which contain matters outlined in Schedule 4 of the EPBC Regulations, on 29 March 2025. A summary of the assessment requirements for the project are provided in **Appendix A**.

1.2 Project Exhibition

The project EIS was submitted and exhibited on the NSW Major Projects Portal on 08 August 2025. The Conservation Programs, Heritage and Regulation Group (CPHR) of the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) (DOC25/665097-8) undertook a review of the exhibited EIS (SSD-71680710), against the SEARs, and identified the following outstanding key biodiversity:

- The extent of proposed clearing and partial clearing assessment requires revision
- The assessment requirements for entities at risk of Serious and Irreversible Impacts (SAII) are to be addressed in accordance with Section 9.1.1 BAM for the White Box - Yellow Box -Blakeley's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community
- Vegetation mapping requires revision
- Exclusion of some candidate species does not accord with the BAM
- Targeted surveys for koala may not comply with published guidelines
- The new southern access connection requires survey and assessment.

The key biodiversity issues raised by CPHR (DOC25/665097-8), and the section of the BDAR where it has been addresses, are detailed in **Appendix A (Table A5)**.

1.3 Scope

This BDAR aims to quantify impacts of the project upon biodiversity values based upon the methods described within the BAM (DPIE 2020a). The assessment includes:

- Stage 1 – Biodiversity Assessment: Mapping of Plant Community Types (PCTs) including Endangered Ecological Communities (EECs), an assessment of the potential occurrence of threatened species and their habitats, and the potential occurrence of candidate threatened species returned by the BAM Calculator (BAM-C)
- Stage 2 – Impact Assessment: Identification of potential impacts of the project, avoidance and mitigation measures, and biodiversity offset requirements based upon residual impacts.

1.4 Site Description

The Study Area is located approximately nine kilometres to the southeast of the township of Armidale within the Armidale Regional Council Local Government Area (LGA) (refer to **Figure 1**). Armidale is a major regional centre that has been identified as an essential area within the New England Renewable Energy Zone (REZ) for the future development of renewable energy infrastructure.

The Study Area is zoned RU1: Primary Production under the Armidale Regional Local Environment Plan (LEP) (2012). Surrounding land use is primarily agricultural and primary production (refer to

Figure 2). The site is currently used for grazing sheep and there is a residence with associated infrastructure located in the central west of the host lot, outside of the development footprint. The vegetation is comprised of native and exotic grassland with isolated trees and small patches of woodland vegetation.

The topography is flat to undulating and gently slopes to the northwest. A large, constructed dam occurs approximately 15 meters east of the connection route and two smaller dams occur approximately 200 meters to the south and southeast of the project. Several mapped waterways occur throughout the site, however, only two (first order streams) traverse the Study Area in the north. Both waterways are at least 100 meters from the BESS infrastructure. The first order streams are tributaries of Burying Ground Creek which is located approximately 700 meters west of the site.

1.5 Proposed Development

The proponent seeks to construct a 400-megawatt (MW) BESS with a storage capacity of approximately 1,760 MW hours (MWh) and up to one kilometre of 330 kilovolt (kV) overhead sub-transmission lines. To enable connection of the BESS to the existing TransGrid transmission line (approximately 430 meters north), a tower would be installed midway along the new easement and an existing tower would be replaced at the 330kV point of connection to the TransGrid line (refer to **Figure 3**). The BESS would have an operational life of 23 years.

The proponent and TransGrid have collaborated to optimise the design layout, while minimizing ground disturbance and impacts to native vegetation. Approximately 3,600 square meters (m²) of ground disturbance is required for the replacement of the existing tower and 625 m² of ground disturbance is required for the installation of the new tower. The remaining areas of the transmission line would only require partial clearing (trees and shrubs above four meters). The ground layer vegetation would be retained and managed by TransGrid in accordance with their ISO 14001 certified Environmental Management System (EMS) and an approved Vegetation Management Plan.

A 1.8-meter high (fauna friendly) fence is proposed around the perimeter of the BESS to prevent animals/public from entering the compound area and/or from injury. The existing unsealed track and access off Waterfall Way would be improved to accommodate for the increase in heavy vehicle traffic during construction and BESS maintenance. Approximately fifty seven trees near the existing access and eight trees southwest of the access along Waterfall Way, would require removal for the upgrade and sufficient sight distance for eastbound vehicles. A copy of the concept design plans for the tree removal is provided in **Appendix I**.

The project layout is illustrated on **Figure 3** and key infrastructure for project is summarised below:

- Enclosed lithium-ion batteries and power conversion systems, including associated transformers
- Underground power and fibre optic cabling interconnecting the equipment
- Grid connection equipment including switchgear, protection and control equipment, metering, reactive power equipment, filtering equipment, auxiliary transformers and enclosures/buildings for housing equipment
- One new overhead tower and one tower replacement at the point of connection to the existing line
- Earthing and lightning protection systems, site office, storage area/enclosure, internal access tracks, on-site parking, security fencing, CCTV, and temporary construction laydown area
- Upgrade of the existing site access via Waterfall Way to the south.

1.6 Information Sources

The following sources of information were used to inform the assessment:

- Biodiversity Assessment Method (DPIE 2020)
- The NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) BioNet Atlas (NSW DCCEEW 2025a) for previous records of threatened species, populations, and ecological communities within five km radius of the Study Area
- NSW State Vegetation Type Map (NSW DCCEEW 2025b)
- The NSW DPE, BioNet Vegetation Classification Database (NSW DCCEEW 2025c) for identification and allocation of Plant Community Types (PCTs) to vegetation zones on site
- The NSW DCCEEW, BioNet Threatened Biodiversity Data Collection (NSW DCCEEW 2025d), Threatened Species Profiles (NSW DCCEEW 2024e) and Final Determinations (NSW DCCEEW 2024f) for information on threatened species, populations, and ecological communities
- The Commonwealth DCCEEW Protected Matters Search Tool (PMST) (DCCEEW 2025a) for Matters of National Environmental Significance (MNES) including predicted threatened species, populations, and ecological communities
- Relevant published literature.

Additional information sources applicable to specific assessment methodology are listed in the corresponding section of this report. References are provided in **Section 10**.

1.7 Experience of Contributors

The Biodiversity Accredited Assessor System (BAAS) Case number for the project is 00051433/BAAS18041/24/00051434 and the accredited assessor is Dr. Gilbert Whyte. Details of the persons responsible for preparing the BDAR, and the investigations on which the BDAR relies, are detailed in **Table 1**.

Table 1 Experience of contributors

Name	Tasks Performed	Relevant Qualifications	BAM Acc No.
Dr Gilbert Whyte Principal Botanist	Vegetation Assessment Threatened Flora Surveys Data Analysis/ Reporting	BSc (Hons) PhD	BAAS18041
Chelayne Whyte Principal Consultant	Project Management Reporting/ Spatial Analysis (GIS)	Bachelor of Geography Advanced Diploma Spatial Information Services	N/A
Ben Stewart Senior Botanist	Vegetation assessment Threatened Flora surveys	Bachelor of Marine Science & Management (Masters)	BAAS23006
Dr Daniel O'Brien Principal Ecologist (Fauna)	Fauna surveys	BSc (Hons) PhD	BAAS21023

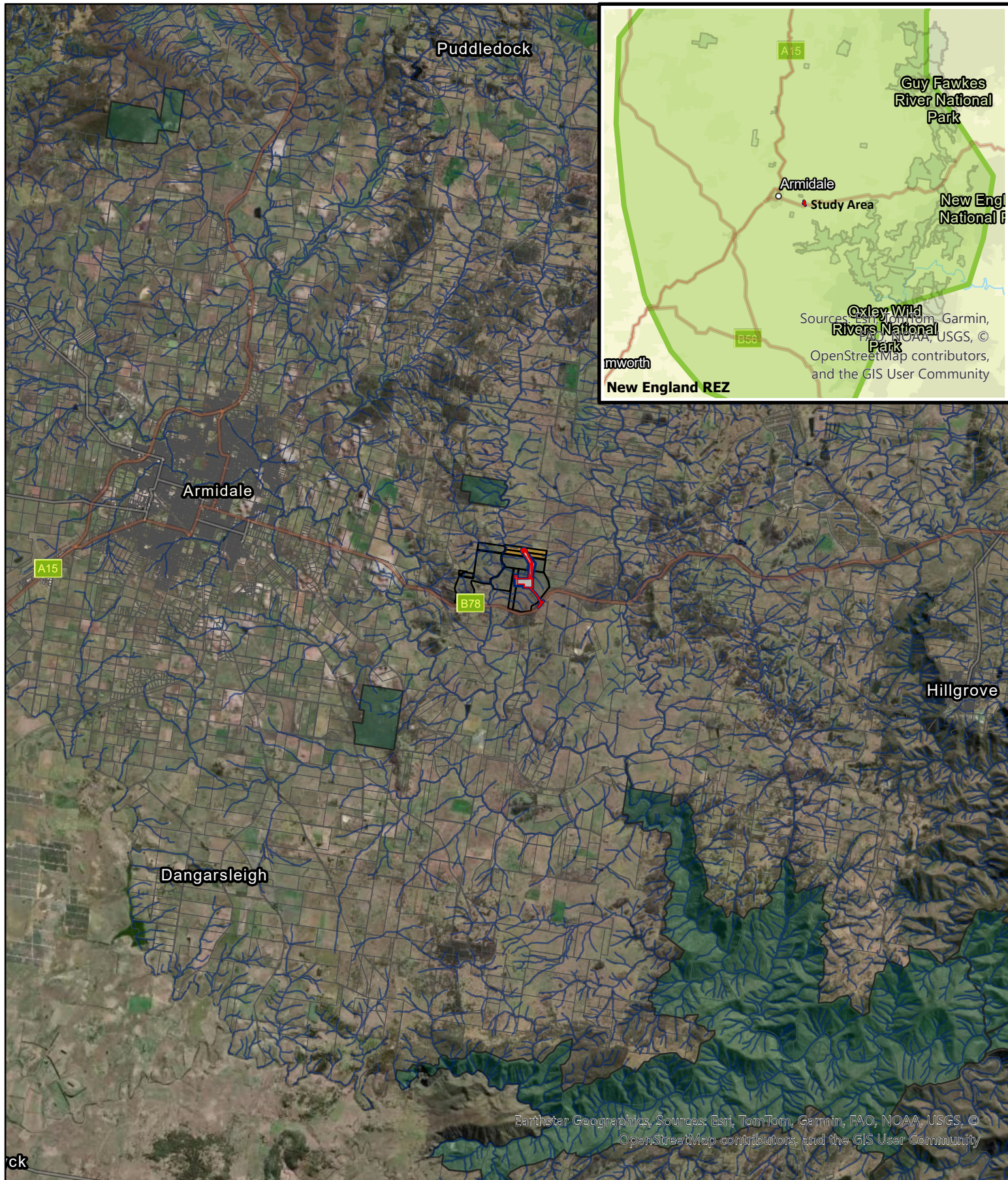
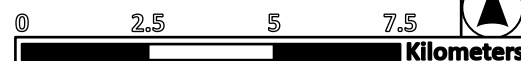


Figure 1 - Locality



Legend

- | | |
|---|--|
|  Study Area - Buffer Area |  Cadastral Boundary |
|  Subject Land (development footprint) |  NSW National Parks |
|  67/ 280 Argyle-Mining Vale Rd |  Mapped Waterway (SIXMaps 2024) |
|  86 Woodlands Rd | |



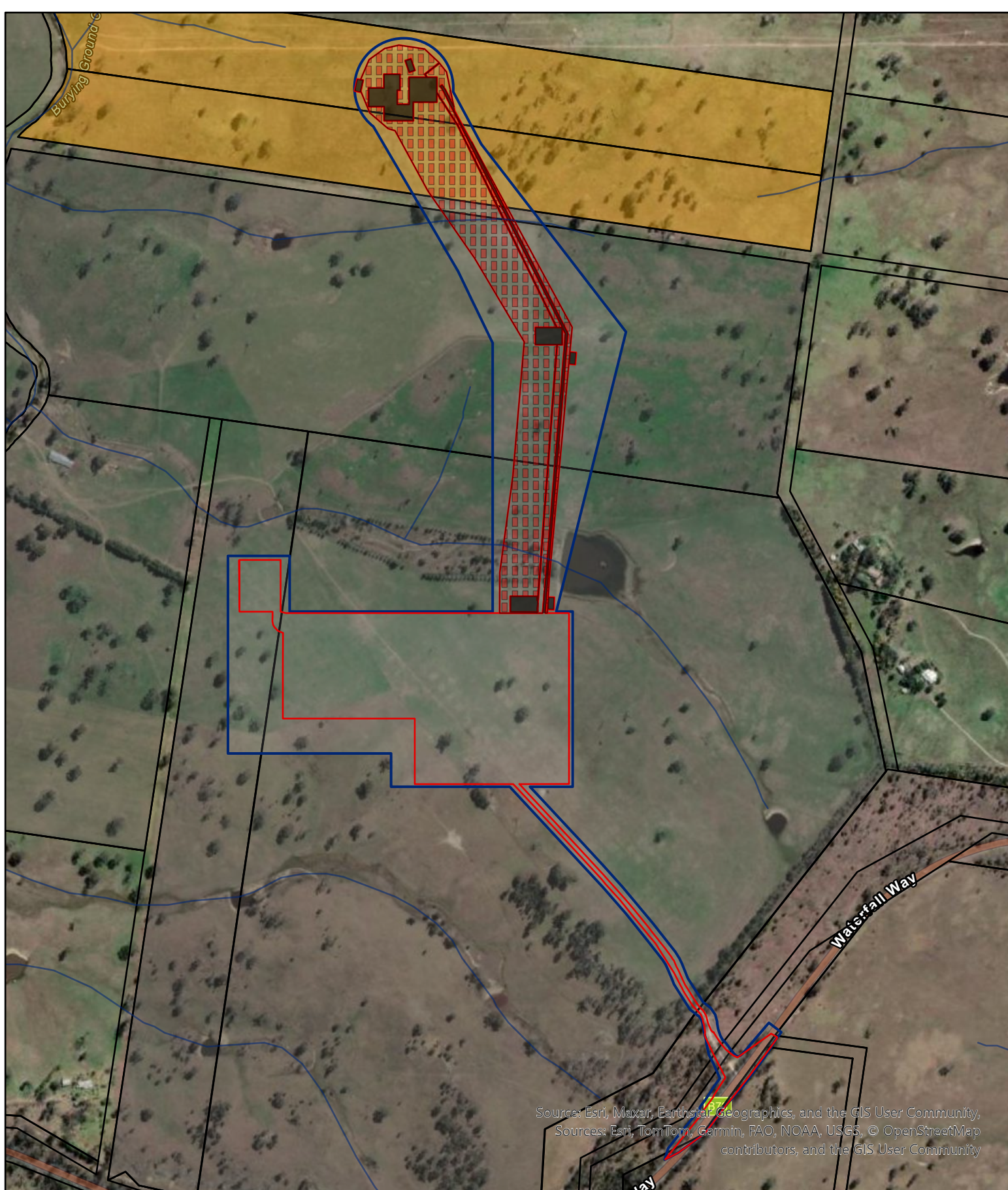


Figure 2 - Study Area and Subject Land



Legend

- | | |
|---|---|
| Study Area - Buffer Area | 67/ 280 Argyle-Mining Vale Rd |
| Subject Land (development footprint) | 86 Woodlands Rd |
| Subject Land (direct impact - easement ground disturbance) | Cadastral Boundary |
| Subject Land (partial impact - overhead easement) | — Mapped Waterway (SIXMaps 2024) |

0 170 340 510

Meters



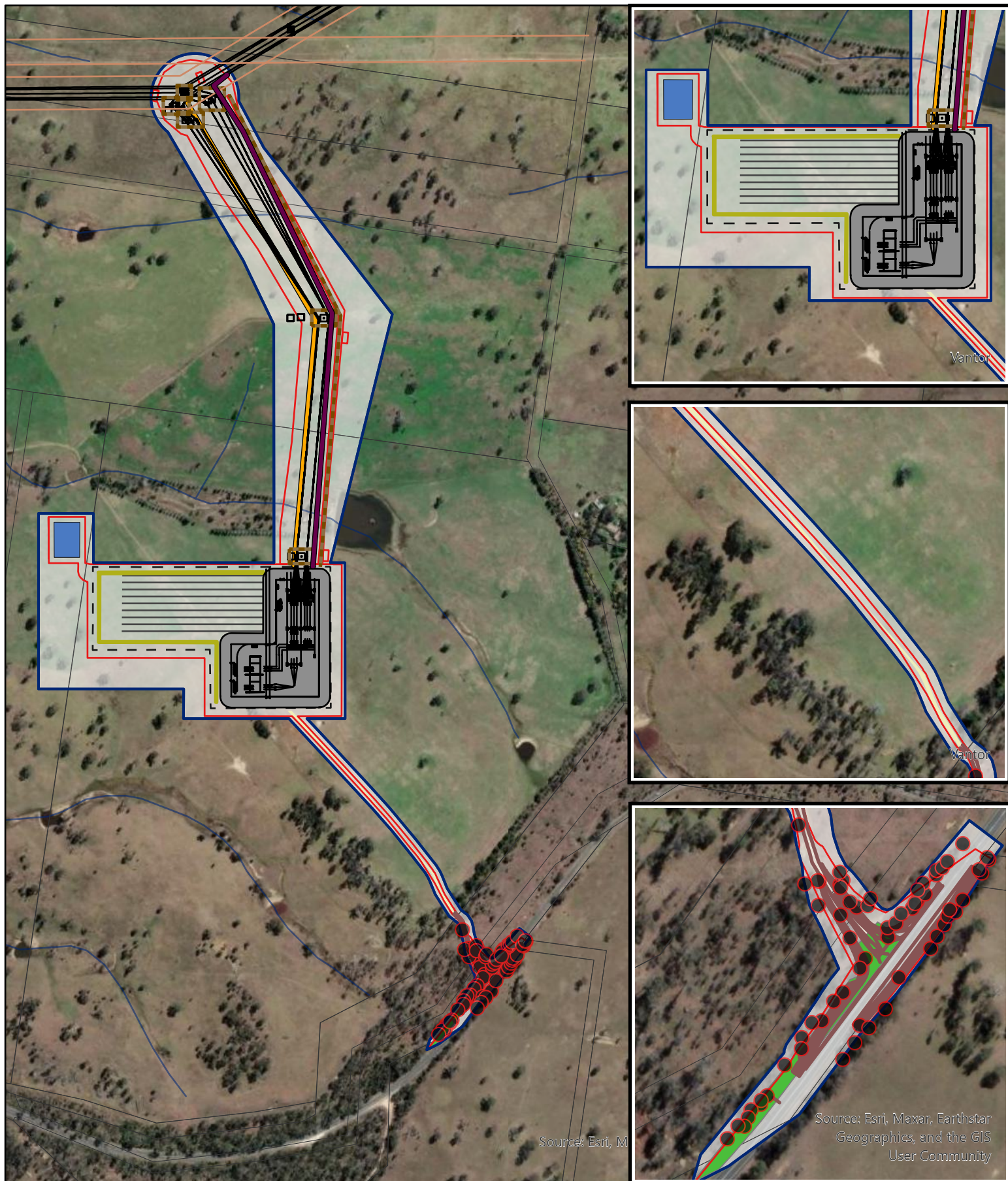


Figure 3 - Proposed Development



Legend

- Study Area - Buffer Area
- Subject Land (development footprint)
- OPGW
- Proposed Access Upgrade
- Proposed DCA Connection Assets
- Proposed Transmission Access Track and Clearance
- Impacted trees for access upgrade and sufficient sight distance

- TransGrid Easement
- Underground Fibre Optic Cable
- BESS Area
- Dedicated Connection Asset
- Existing Unsealed Access
- Indicative Basin

- Security Fencing
- Vegetation Management Area
- BESS Fencing
- Cadastral Boundary
- Mapped Waterway (SIXMaps 2024)

0 190 380 570

Meters

2 Legislation and Policy

The assessment was undertaken in accordance with the following Acts and Policies.

Commonwealth:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations)

State:

- *Biodiversity Conservation Act 2016* (BC Act)
- *Biodiversity Conservation Regulation 2017* (BC Regulation)
- *Biosecurity Act 2015*
- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *Water Management Act 2000* (WM Act)
- *Coastal Management Act 2016* (CM Act)
- *Local Land Services Act 2013* (LLS Act)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021 – Chapter 3 Koala Habitat Protection 2020
- State Environmental Planning Policy (Resilience and Hazards) 2021
- State Environmental Planning Policy (Planning Systems) 2021

Local:

- Armidale Dumaresq Development Control Plan 2012
- Armidale Regional Local Environment Plan 2012
- Armidale Koala Management Strategy 2021
- Armidale Regional Council Renewable Energy Action Plan 2022

Information pertaining to the above list is presented in the following subsections.

2.1 Summary

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act, approval is required for actions that are likely to have a significant impact on MNES. An action includes a project, development, undertaking, activity, or series of activities. When a person proposes to take an action, which they believe may need approval under the EPBC Act, they must submit a project referral to the Commonwealth Minister for the Environment and Water. The Act identifies the following nine MNES:

- 1 - World Heritage properties
- 2 - National heritage places
- 3 - Wetlands of international importance (Ramsar Convention)
- 4 - Listed threatened species and communities
- 5 - Migratory species listed under international agreements
- 6 - Great Barrier Reef Marine Park
- 7 - Commonwealth marine areas
- 8 - Nuclear actions
- 9 - Water resources in respect to CSG and large coal mines.

A project referral (EPBC 2025/10102) was submitted to the Commonwealth Minister for the Environment and Water on 17 January 2025 for potentially significant impacts to controlling provision number 4 (listed threatened species and communities) of the listed MNES. The Commonwealth Minister determined the project as a ‘controlled action’ on 01 April 2025. Consequently, the project is now being assessed under the Assessment Bilateral Agreement.

The Assessment Bilateral Agreement permits the NSW government to assess the impact of the proposed action on behalf of the Commonwealth, removing the need for a separate environmental assessment while retaining the Commonwealth’s power of the approval under the EPBC Act. The agreement endorses the NSW Biodiversity Offsets Scheme (BOS) and the BAM (DPIE 2020a) via the EPBC Act Condition-setting Policy. Therefore, a proponent, also requiring an EPBC Act approval, may use the NSW BOS to assess and meet their biodiversity offset requirements (refer to **Section 2.1.3**).

Impacts to MNES resulting from the construction and operation of the project will be offset in accordance with the offset rules set out in the BC Regulation, endorsing like-for-like offsets for EPBC Act listed matters. Biodiversity offset requirements for impacts to NSW and Commonwealth listed entities are detailed in **Section 8** and impacts to MNES are summarised in **Section 9**.

2.1.2 Environment Protection and Biodiversity Conservation Regulations 2000

The EPBC Regulations are a set of rules that essentially support the objectives of the EPBC Act. The regulations provide a framework for protecting Australia's environment (MNES), and for promoting ecologically sustainable development and biodiversity conservation by providing specific details and procedures for:

- Identifying and protecting MNES (nationally threatened species, ecological communities, and protected areas)
- Regulating actions that may impact these matters - the regulations outline the assessment and approval processes for actions that could have significant impacts on protected matters
- Promoting biodiversity conservation - the regulations support the listing and management of threatened species and ecological communities
- Facilitating co-operative approaches - the regulations aim to foster collaboration between government and stakeholders for environmental management
- Managing access to biological resources - controls access to biological resources in Commonwealth areas for research purposes.

The regulations also cover areas such as permits and approvals, conservation agreements, environmental and strategic assessment, bilateral agreements, the reconsideration of decisions, and aspects such as fees. Schedule 4 - Matters to be addressed by draft public environment report and environmental impact statement for a controlled action, of the EPBC Regulations is applicable to the project.

In accordance with the EPBC Regulations and the supplementary SEARs, consideration has been given to Schedule 4 of the EPBC Regulations. Key details of the project, as it applies to Schedule 4 of the regulation, and the relevant section of the BDAR where it has been addressed are provided in **Appendix A**.

2.1.3 Biodiversity Conservation Act 2016

The NSW BC Act and the NSW BC Regulation outline the framework for addressing impacts on biodiversity from development and clearing. The framework details a pathway to avoid, minimise and offset impacts on biodiversity from development through the BOS. Entry into the NSW BOS is triggered by developments, projects and activities that meet criteria or certain thresholds for significant impacts on biodiversity in accordance with Section 6.3 of the BC Act.

Criteria to which the BOS applies include the following:

- Local Development (assessed under Part 4 of the EP&A Act) that triggers the BOS Threshold or is “likely to significantly affect threatened species” (based on a test of significance pursuant to Section 7.3 of the BC Act). The BOS Threshold has two parts, and is triggered by the following:
 - Clearing of vegetation that exceeds an area threshold (based on the minimum lot size), or
 - Impacts are predicted to occur within an area mapped on the NSW Biodiversity Values Map (BV Map) (DPIE 2022f).
- State Significant Development (SSD) and State Significant Infrastructure projects (SSI), unless the Environment Agency Head and Secretary of the Planning Agency determine that the project is not likely to have any significant impact on biodiversity values”
- Biodiversity certification proposals
- Clearing of native vegetation in urban areas and areas zoned for environmental conservation that exceeds the BOS threshold and does not require development consent
- Clearing of native vegetation that requires approval by the Native Vegetation Panel under the LLS Act
- Activities assessed and determined under Part 5 of the EP&A Act (generally, proposals by government entities) if proponents choose to ‘opt in’ to the Scheme.

Conclusion

The project is SSD and therefore regulated under the EP&A Act. A BDAR must be prepared for SSD in accordance with the biodiversity assessment requirements under Section 7.9 of the NSW BC Act and in accordance with the BAM (DPIE 2020a). As specified in the supplementary SEARs (SSD-71680710) the project was determined as a ‘controlled action’ by the Commonwealth Minister of the Environment on 01 April 2025 and will be assessed under the Assessment Bilateral Agreement (refer to **Section 2.1.1**).

This assessment will be used to inform the project approval and biodiversity credit requirement under both the BC Act and the EPBC Act, however project approval will remain independent of each consent authority. A summary of information pertaining to the project specific and supplementary environmental assessment requirements (SSD-71680710) and the relevant section of the BDAR where it has been addressed is provided in **Appendix A**.

2.1.4 Local Land Services Act 2013

NSW Draft Native Vegetation Regulatory Map

The *Local Land Services Act 2013* (LLS Act) regulates the clearing of native vegetation on Rural land when the proposed activity is permitted without consent from the relevant determining authority. The NSW Draft Native Vegetation Regulatory Map (NSW DCCEEW 2024b) is a key tool in the NSW

Land Management Framework and designates areas of land where the proposed clearing of native vegetation is categorized either as regulated land or exempt land. These categories are defined according to criteria defined under the LLS 2013.

Although the NSW Vegetation Regulatory Map is currently in draft form, informative mapping is publicly available for all areas of NSW. This mapping identifies the following land categories:

- Category 1 exempt land is land where native vegetation can be cleared without approval from Local Land Services.
- Category 2 land is divided into:
- Category 2 regulated land is land that is not vulnerable or sensitive regulated land. Vegetation clearing for some activities requires authorisation from LLS, however some allowable activities can be carried out without authorisation.
- Category 2 vulnerable regulated land is land where clearing of native vegetation may be limited under the Land Management (Native Vegetation) Code 2018, and a limited range of allowable activities are permitted.
- Category 2 sensitive regulated land is land where clearing is not permitted under the Land Management Code (Native Vegetation) Code 2018, and a limited range of allowable activities is permitted.

Review of the NSW Draft Native Vegetation Regulatory Map on 01 December 2024 revealed that the majority of the Study Area is mapped as Category 2 regulated land. A narrow portion of land along the eastern boundary of Lot 1 DP246878, is mapped as Category 1 – exempt land. Therefore, the clearing of native vegetation within the Study Area cannot be undertaken without authorization.

2.1.5 Biosecurity Act 2015

Under the *Biosecurity Act 2015* all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated, or minimised, so far as is reasonably practicable. Under the Act, a biosecurity impact is an adverse effect on the economy, environment, or the community that arises, or has the potential to arise, from a biosecurity matter. This legislation is addressed in **Section 9.2**.

2.1.6 Water Management Act 2000

Controlled activities carried out in, on or under waterfront land are regulated by the WM Act. Waterfront land is defined as the bed of any river, lake or estuary, and the land within 40 meters (m) of the riverbank, lake shore or estuary mean high water mark.

Two (first order streams) traverse the northern portion of the Study Area, running east/west under the proposed overhead connection route (refer to **Figure 3**). Both waterways are at least 100 meters from the BESS infrastructure and the ground disturbance areas for the two overhead poles. The first order streams are tributaries of Burying Ground Creek which is located approximately 700 meters west of the site.

Irrespective of the mapping, the waterways are likely historical overland flows, as they do not exhibit features of a defined waterway or have a vegetated riparian corridor. Consideration of indirect impacts to aquatic environments are provided in **Section 7.6**.

2.1.7 State Environmental Planning Policy (Planning Systems) 2021

Chapter 2 State and Regional Development

Chapter 2 of the SEPP Planning Systems aims to identify development that is State significant development, State significant infrastructure and critical State significant infrastructure, and to identify development that is regionally significant. The project is for the purpose of electricity generating works and has an estimated development cost (EDC) of more than \$30 million dollars. Pursuant to Section 20 of Schedule 1 of SEPP Planning Systems 2021, the project is characterised as SSD.

2.1.8 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapters 3 and 4 of the Biodiversity and Conservation SEPP contain rules for Koala habitat protection and essentially relate to the former SEPPs Habitat Protection 2020 and Koala Habitat Protection 2021. They contain provisions aimed to encourage the conservation and management of areas of natural vegetation that provide habitat for Koalas, and to support a permanent free-living population over their present range and reversing the trend towards population decline.

Chapter 3 Koala Habitat Protection (Koala SEPP) 2020

Chapter 3 of the SEPP applies to RU1, RU2 and RU3 zoned land, in LGA's specified in Schedule 2 of SEPP, except if the LGA is marked with an * in that schedule. Under Clause 10 of the SEPP, if an approved Koala Plan of Management Plan (KPOM) has been prepared for an LGA, the development application must be prepared in consistent with the provisions of the KPOM.

Armidale Regional Council is a listed LGA under Schedule 2, and the Study Area is zoned RU1. While a Koala management strategy has been prepared for the Armidale Regional Council LGA (further discussed in **Section 2.1.12**), this strategy is yet to be approved by the Planning Secretary and therefore has no effect until the day it is approved by the Planning Secretary. Given that an approved Koala Plan of Management (KPOM) is not applicable to the Study Area, a Koala habitat assessment has been prepared in accordance with the provision of the Koala SEPP 2020 (**Section 5.1.4**).

2.1.9 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 2 Coastal Management

The aim of this Chapter is to promote an integrated and coordinated approach to land use planning in the coastal zone in a manner consistent with the CM Act and the four coastal management areas:

- Coastal wetlands and littoral rainforests area – areas which display the characteristics of coastal wetlands or littoral rainforests that were previously protected by SEPP 14 and SEPP 26
- Coastal vulnerability area – areas subject to coastal hazards such as coastal erosion and tidal inundation.
- Coastal environment area – areas that are characterized by natural coastal features such as beaches, rock platforms, coastal lakes and lagoons and undeveloped headlands. Marine and estuarine waters are also included.
- Coastal use area – land adjacent to coastal waters, estuaries and coastal lakes and lagoons.

The Study Area is not mapped, or proximate to, a coastal management area or land identified as a Coastal Wetland or Littoral Rainforest.

2.1.10 Armidale Dumaresq Development Control Plan 2012

The Armidale Dumaresq Development Control Plan (DCP) (2012) supports the LEP (2012) by providing additional detail and guidance on issues associated with development. The aim of the DCP (2012) is to explain the legislative planning requirements for development activity in the LGA, including land subdivision, land use, and construction. The DCP (2012) also contains provisions to protect the environment, including the impacts on land, air and water, flora and fauna, habitats and biodiversity from the built environment. These provisions have been considered during the preparation of this assessment

2.1.11 Armidale Regional Local Environment Plan 2012

The Armidale Regional LEP (2012) includes standards and matters for consideration for different types of residential, commercial, industrial and rural development. The LEP identifies where different types of development are permitted through land use zoning.

2.1.12 Armidale Koala Management Strategy 2021

The Armidale Koala Management Strategy (Armidale Strategy) (Ecosure 2021) was developed to encourage the conservation, management and rehabilitation of areas of natural vegetation that provide habitat for Koalas to support a permanent free-living population over their present range in Armidale LGA. Within the LGA, the strategy applies to land identified within Precinct 1 and 1a, and Precinct 2 and aims to:

- Identify areas of protection that meet the definition of core Koala habitat that are on private or public land (excluding state forests and national parks)
- Identify areas with other habitat values (habitat linkages, impact buffers, areas sufficient for population expansion or recovery, underutilized Koala habitat that Koalas may move into)
- Provide management recommendations for planning frameworks for the LEP and DCP
- Establish a landholder education program including awareness of Koalas, habitat management, rehabilitation and Koala corridor management in Precinct 2
- Identify key threatening processes
- Establish procedures to secure and manage Koala populations into the future
- Specify requirements for land use/activity assessment inside and outside core Koala habitat and areas with other habitat value
- Provide the next steps for Council in management of Koala habitat and strategic planning.

The Armidale Strategy (Ecosure 2021) has been considered in this assessment **Section 5.1.4**.

2.1.13 Armidale Regional Council Renewable Energy Action Plan 2022

The Renewable Energy Action Plan (Constructive Energy 2022) reflects Council's desire to engage with renewable energy and to identify options for projects that benefit Council and the Armidale community. The plan focuses on opportunities and the benefits of transitioning the region to 100% renewable energy sources by 2030. The project is consistent with Councils renewable energy goals and strategy for the region.

3 Landscape Features

Landscape features applicable to the Study Area are described in **Table 2** and presented on **Figure 4** and **Figure 5**.

Table 2 Landscape Features

Landscape Features	Information
IBRA Region	The Study Area occurs within the New England Tableland IBRA Region.
IBRA Sub Region	The Study Area occurs within the Armidale Plateau Sub IBRA
Mitchell Landscape	The extent of Mitchells Landscapes within the locality of the Study Area is mapped as Dingo Spur Meta-sediments. A description of this landscape is provided below, and the mapping is provided on Figure 4: Quaternary Steep ranges and hills intersected by a dendritic drainage pattern leading into deep gorges with high waterfalls on the Great Escarpment, extending west onto the tablelands. Gorges incised into faulted, steep dipping Devonian quartzose sandstone, greywacke, massive argillite and slate. Tablelands area on Perma-Carboniferous mudstone, lithic sandstone, tuff, slate, hornfels and some schist. General elevation 300 to 1400m, local relief 600m. Shallow stony loam on steep scree slopes with moderate organic content. Shallow gradational loam and sandy loam elsewhere with deeper uniform profiles in low valleys. A very complex vegetation environment encompassing coastal closed forests, dry hardwood forests and cold high plateau components.
Rivers, streams and estuaries	Several unnamed waterways are mapped in lands adjacent to Study Area. Two traverse the northern portion of the Subject Land, running east/west under the proposed overhead connection route (refer to Figure 3). Both waterways are first order streams and are located at least 100 meters from all project infrastructure. The most southern of the two streams flows into the large, constructed dam and the other disperses over the land. The first order streams are tributaries of Burying Ground Creek which is located approximately 700 meters west of the site. Irrespective of the mapping, the waterways are likely historical overland flows, as they do not exhibit features of a defined waterway or have a defined vegetated riparian corridor, therefore they lack key habitat features suitable for native aquatic species. Consultation with DCCEEW and/ or Water NSW is recommended to determine if an approval or license for the project is required. Mitigation measures to reduce the potential for indirect impacts to aquatic environments during construction and operational activities are provided in Section 7.
Wetlands	The Study Area does not contain or lie adjacent to a mapped Coastal Wetland, or is it mapped as a coastal environment area under Chapter 2 of the Resilience and Hazards SEPP. Additionally, there are no local wetlands (being any wetland which is not identified as an important wetland under the BAM) occurring within the Study Area. Mitigation measures to reduce the potential for indirect impacts to aquatic environments during construction and operation activities are provided in Section 7.
Connectivity of different areas of habitat	The Study Area occurs within the Great Eastern Tablelands Corridor for northeast NSW. The corridor is continental-scale conservation corridor extending along Australia's great eastern ranges from Victoria through NSW to Atherton in Queensland, providing potential habitat linkages for Australian biodiversity. For the Armidale region the corridor is important for providing linkages for woodland birds and the Brush-tailed Phascogale. On a local level, the Study Area is situated within an area fragmented by clearing for agriculture. Only small areas of remnant vegetation with minimal habitat connectivity occur within the Study Area. Surrounding patches of vegetation connecting to larger tracts of vegetation and National Parks would be retained. National Parks and Reserves located within the area, including: Yina Nature Reserve – 1.6 km northwest

Landscape Features		Information
		• Imbota Nature Reserve – 300 km southwest • Oxley Wild Rivers National Park – 13 km south.
Areas of geological significance and soil hazard features		There are no areas of geological significance or acid sulphate soils, however, the soil landscape (further discussed below) is prone to hazards features such as steep slopes, high erosion and to groundwater ground water pollution (King 2009).
Areas of outstanding biodiversity value		There are no areas of outstanding biodiversity value mapped within the Study Area.
Geology and Soils		The majority of the Study Area occurs on the Middle Earth soil landscape; however, the northern part of the proposed connection route occurs on Argyle soil landscape. A description of each landscape is provided below. • Middle Earth - undulating plains, rises and foot slopes on Sandon Beds. Local relief 0–30 m, slopes 0–10%, elevation 910–1 120 m. Extensively cleared open-woodland to partially cleared. Soils are moderately deep to deep (>70 cm), moderately well-drained Bleached-Mottled Haplic Eutrophic Yellow Kurosols and Chromosols (Yellow Podzolic Soils) are widespread. Deep (>100 cm), poorly drained Yellow Chromosols and Mottled-Mesonatric occupy drainage depressions and poorly drained areas. Landscape limitations include groundwater pollution hazard, low general fertility, severe gully and sheet erosion risk and shallow soils and dieback • Argyle - rolling low hills and occasional hills on greywacke/chert and related sediments. Local relief 30–80 m, slopes mostly 10–30%, elevation 910–1 170 m. Minor rock outcrop (<10%) Partially cleared <i>Eucalyptus caliginosa</i> (broad-leaved stringybark) open-woodland. Soils are very shallow to shallow (<50 cm), well-drained Basic Lithic Leptic Rudosols (Lithosols) and other shallow soils on crests, ridges and upper slopes. Landscape limitations include low general fertility, steep slopes and high erosion risk and shallow soils.
Native Cover	Vegetation	Native vegetation constitutes 85% (1,245 ha) of the 1,500 m landscape buffer (1,496 ha). Native Vegetation Cover is classed as >70%. The extent of native vegetation within 1,500 m buffer from the Study Area boundary is presented on Figure 5 .

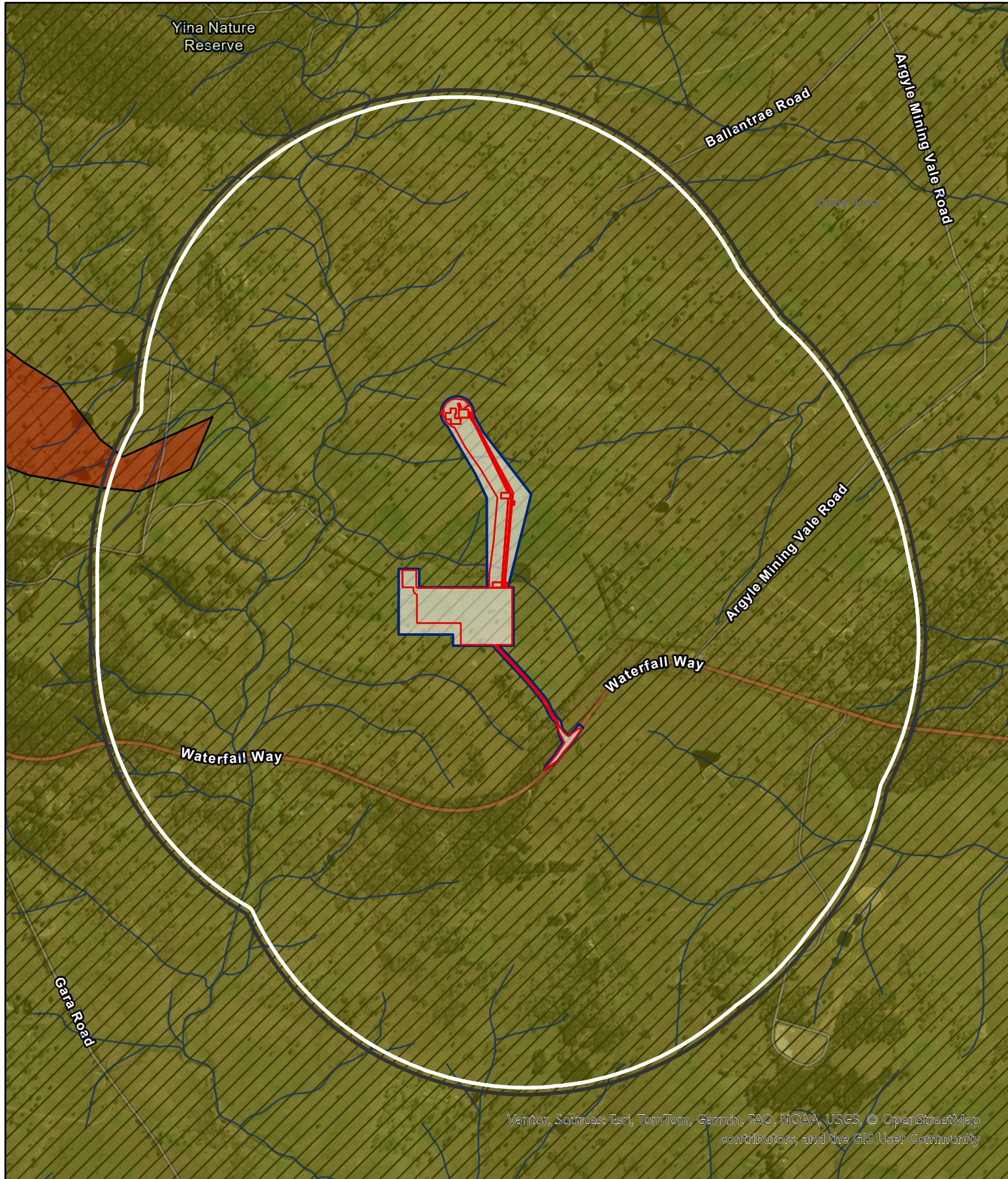
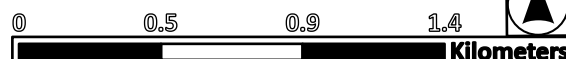


Figure 4 - Landscape Assessment (Mitchells Landscape)



Legend

- Study Area - Buffer Area
- Subject Land (development footprint)
- 1,500 m Buffer (1,496 ha)
- New England Tableland IBRA Armidale Plateau Sub IBRA
- Dingo Spur Meta-sediments
- Uralla Basalts and Sands
- Mapped Waterway (SIXMaps 2024)



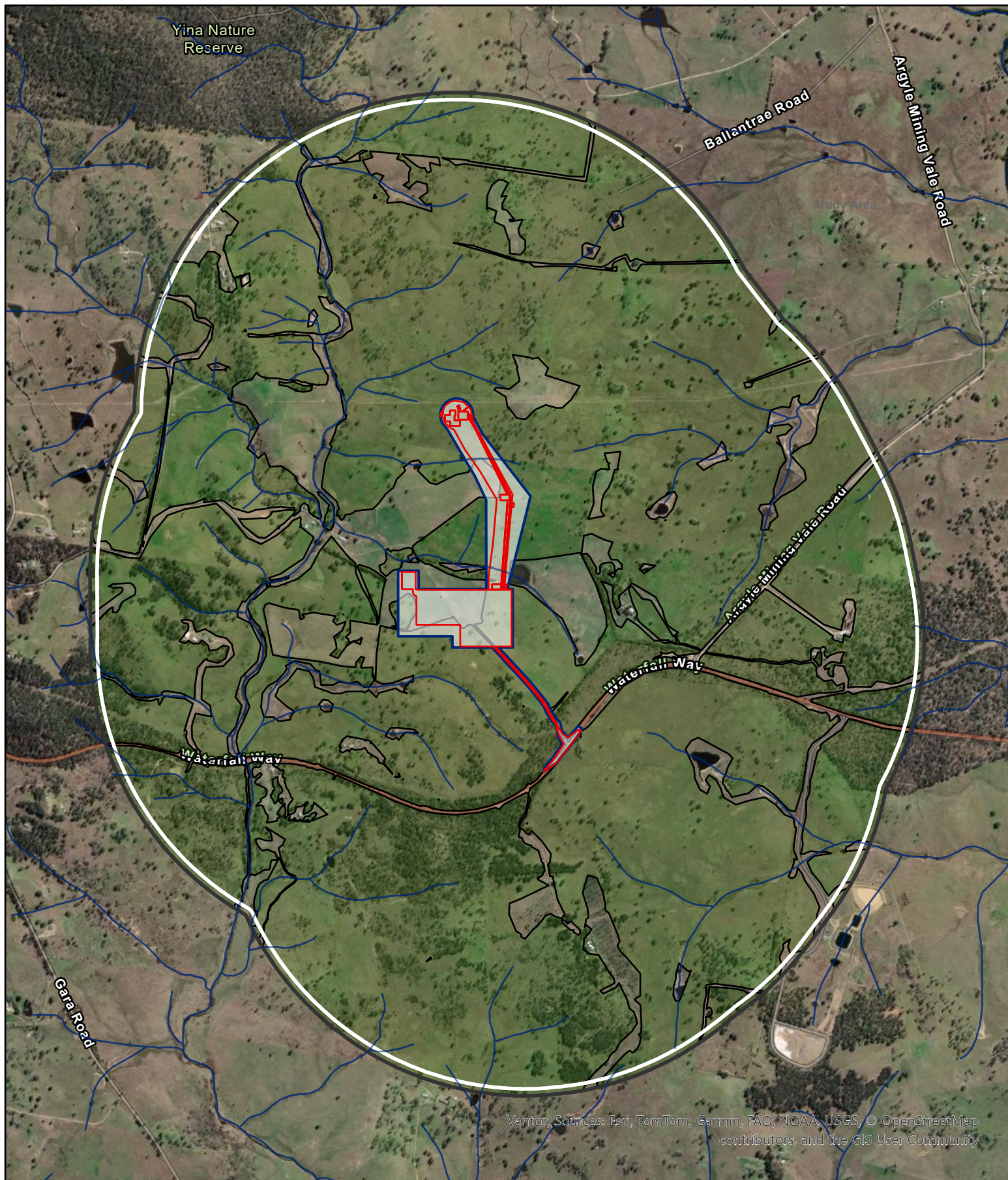
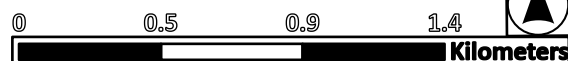


Figure 5 - Native Vegetation Extent



Legend

- Study Area - Buffer Area
- Subject Land (development footprint)
- Native Vegetation Extent (1,285 ha or 85%)
- 1,500 m Buffer (1,496 ha)
- Mapped Waterway (SIXMaps 2024)



4 Native Vegetation

4.1 Desktop Assessment

4.1.1 Data Review

A review of available information and data (data review) was conducted prior to undertaking field surveys within the Study Area. The following resources were used to identify biodiversity values, including Plant Community Types (PCTs), Threatened Ecological Communities (TECs), and Threatened Species, previously recorded, mapped, or predicted to occur within the locality of the Study Area:

- The NSW BioNet Atlas within a five kilometre radius (DCCEEW 2024a)
- NSW BioNet Vegetation Classification Database (DCCEEW 2024b)
- The Protected Matters Search Tool within a five kilometre radius (DCCEEW 2025)
- Mitchell Landscapes Version V3.1 (Mitchells 2003)
- NSW State Vegetation Type Map (DCCEEW 2024c)
- Soil Landscapes of the Armidale 1:100,000 Sheet (King 2009)
- Draft Native Vegetation Regulatory Map (NSW DCCEEW 2024d)
- High Environmental Value for the New England North West (DCCEEW 2016)
- Historic aerial imagery (Nearmap 2024).

4.2 Field Surveys

Detailed vegetation surveys, in accordance with Section 4 of the BAM (DPIE 2020a), were conducted across the Study Area on 09 and 25 April 2024, 15 August 2024, 10 September 2024 and 13-15 November 2024. Each survey method is described in the sub sections below. The survey effort is displayed on **Figure 6**.

4.2.1 Vegetation Mapping

The vegetation within the Study Area was mapped using a combination of rapid data points (RDP), walking transects and aerial photography. The RDPs involved collecting waypoints using a handheld GPS and recording the dominant species, structure, and condition. Walking transects involved verifying homogenous polygons in floristic composition and condition. The RDPs and survey tracks overlaid with aerial photography further clarify vegetation boundaries.

4.2.2 Plant Community Type Identification

Each vegetation community identified within the Study Area was assigned to the closest equivalent PCT from those listed in the BioNet Vegetation Classification database (NSW DCCEEW 2024c). The closest equivalent PCT for each vegetation community was determined through a comparison of the floristic descriptions of PCTs in the database with the plot / transect data (collected from the Study Area).

In addition to floristic and structural similarity, the landscape position, soil type and other diagnostic features of the vegetation communities on the site were compared to the descriptions in the database to determine the most suitable PCT. Threatened ecological communities (TECs) as defined under State and Commonwealth legislation were also identified if present.

4.2.3 Vegetation Zones and Vegetation Integrity

Vegetation zones were identified and delineated in the Study Area in accordance with Section 4.3 of the BAM (DPIE 2020a). A vegetation zone is defined in the BAM as a relatively homogenous area that is the same vegetation type and broad condition.

Following stratification of the Study Area into vegetation zones, nineteen plots/transects were undertaken to collect site condition data for the composition, structure and function attributes listed in **Table 3** (refer to **Figure 6**). The number of plots/transects sampled exceeds the minimum survey effort required according to the BAM (DPIE 2020a). All BAM Plot transect data is provided in a tabulated format in **Appendix E**. Excel files have also been uploaded to the BAM-C.

Table 3 **Components of Vegetation Integrity**

Growth form groups	Function attributes
• Tree (TG) • Shrub (SG) • Grass and grass-like (GG) • Forb (FG) • Fern (EG) • Other (OG)	• Number of large trees • Tree regeneration (presence/absence) • Tree stem size class (presence/absence) • Total length of fallen logs • Litter cover • High threat exotic vegetation cover (HTE) • Hollow-bearing trees (HBT)

4.2.4 Floristic Identification and Nomenclature

Floristic identification and nomenclature were based on Harden (1992, 1993, 2000 and 2002) with subsequent revisions as published on NSW PlantNet (<http://plantnet.rbgsyd.nsw.gov.au>).

4.3 Results

4.3.1 Regional Vegetation Mapping

The NSW State Vegetation Type Map (NSW DCCEE 2024b) maps three plant community types (PCT) as occurring within the Study Area:

- PCT 3352 Armidale Quartz Hill's Stringybark Forest in the southern portion of the site along Waterfall Way
- PCT 3359 New England Hills Stringybark-Box Woodland in patches throughout the central north of the site
- PCT 3344 New England Ribbon Gum Grassy Forest in patches in the north and western portion of the site.

In addition to the above listed PCTs, some areas within the Study Area are mapped as unclassified vegetation. These areas are mainly comprised of cleared land or non-native vegetation types, such as exotic grassland or other non-native exotic plantings.

The vegetation assessment revealed inaccuracies in the NSW State Vegetation Types mapping given that all native vegetation (grassland and woodland) was found to represent PCT 3359. This determination was based on analysis of floristic composition, vegetation structure, landscape position and other several other criteria (discussed further in **Section 4.3.4**).

4.3.2 High Environmental Values of the North West

The Study Area is identified as High Environmental Value (HEV) land based on criteria 8 and criteria 11 of the HEV mapping for the New England North West (NSW DCCEEW 2016). The HEV mapping criteria are listed as follows

- Criteria 8 – Potential occurring listed threatened ecological communities:
 - State listed endangered community New England Peppermint (*Eucalyptus nova-angelica*) Woodland on Basalts
 - State listed endangered community White Box Yellow Box Blakely Red Gum Woodland
 - Commonwealth listed critically endangered White Box Yellow Box Blakely's Red Gum Woodland
- Criteria 11 – Key habitat for threatened species:
 - Narrow-leaved Black Peppermint.

Following repeal of the NSW *Threatened Species Conservation Act 1995* (TSC Act) in 2016, the HEV mapping for the New England North West (NSW DCCEEW 2016) is no longer applicable. This mapping was superseded by the NSW BioNet Atlas (DCCEEW 2024a) and the NSW State Vegetation Type Map (DCCEEW 2024b) following enactment of the NSW BC Act (2016). Vegetation mapping and threatened species within the Study Area are further discussed in **Section 4.3.9** and **Section 5.5**.

4.3.3 Floristic Diversity

A moderate to high diversity of plant species was recorded during the assessment. A summary of floristic diversity is provided below:

- A total of 154 plant species were recorded during field surveys (sampling of vegetation survey plots). These were comprised of 101 native plant species and 53 exotic species (non-natives)
- Most of the plant species recorded were groundcover species, such as grasses, forbs and sedges. A relatively low diversity of native trees and shrubs were recorded.
- Nine high threat weeds (HTWs) were recorded in low abundance. Four weed species are also listed as priority weeds for the region under the NSW *Biosecurity Act 2015*. Three weed species are listed as Weed of National Significance (WoNS) under the EPBC Act. Weeds and their proposed management are discussed further in **Section 9.2**.
- One threatened plant species (*Callistemon pungens*) was recorded in the road reserve adjacent to Waterfall Way. This shrub species is listed as a vulnerable species under the Commonwealth EPBC Act; however, the species is not listed under the NSW BC Act. The project has been designed to avoid areas within the road reserve containing individuals of the species (further discussed in **Section 5.2.3**).

A complete list of the flora species identified during the assessment is provided in **Appendix B**.

4.3.4 Plant Community Type Mapping

The Study Area is predominantly cleared; native vegetation occurs in a modified state typical of rural areas that support agricultural activities. Vegetation is comprised of derived native grassland, planted vegetation, native woodland and large areas of exotic grassland characterised by exotic/ornamental trees and shrubs (windrows) and regular grazing.

Common exotic species include *Cupressus sp.* (Conifer Pine) and *Cotoneaster glaucophyllus* (Cotoneaster), *Dactylis glomerata* (Cocksfoot), *Setaria parviflora*, *Bromus catharticus* (Prairie Grass), *Rubus anglocandicans* (Blackberry), *Eragrostis lugens*, *Plantago lanceolata* (Lambs Tongue), *Marrubium vulgare* (White Horehound), *Cirsium vulgare* (Spear Thistle) and *Trifolium subterraneum* (Subterranean Clover).

Native vegetation occurring within the Study Area is commensurate with PCT 3359 New England Hills Stringybark-Box Woodland. A floristic description with justification for the allocation of PCT 3359 is discussed in the sub sections below and is shown on **Figure 6**. Photographs of general site features are provided in **Section 4.3.7**.

4.3.5 Vegetation Zones

Vegetation zones were delineated in the Study Area in accordance with Section 4.3 of the BAM (DPIE 2020a). The characteristics of each vegetation zone is summarised below:

- Vegetation Zone 01 (Good Condition Woodland) – VZ01 was mapped as a single woodland patch within the road reserve adjacent to the site access. The vegetation has an intact woodland structure comprised of mature canopy trees, a sparse coverage of shrubs and a groundcover dominated by native grasses and forbs. The vegetation contains a moderate to high diversity of native plant species and a low coverage of weeds
- Vegetation Zone 02 (Moderate Condition Woodland) – VZ02 contains small patches of moderate condition woodland and has been impacted by historical agricultural practices, including grazing. The canopy is comprised of a sparse layer of mature native tree species. The shrub layer is generally absent. A moderate to high diversity of native groundcover species were recorded, including evidence of tree regeneration (Eucalypt seedlings and saplings). Overall, the vegetation was found to contain a moderate diversity of native species
- Vegetation Zone 03 (Moderate Condition Grasslands) – VZ03 contains large areas of derived native grasslands where the canopy and shrub layer have been removed during historical agricultural practices. Although minimal tree or shrub regeneration was observed, a moderate to high coverage of native grasses and forbs were recorded
- Vegetation Zone 04 (Low Condition Woodland) – VZ04 contains small patches of low condition woodland vegetation within the central portion of the site. This vegetation zone contains a sparse canopy of native tree species and little to no midstory (small trees and shrubs). The groundcover is dominated with exotic vegetation, including several species of non-native perennial grasses and non-native forbs
- Vegetation Zone 05 (Planted Native Vegetation) – VZ05 is comprised of planted rows of native tree species with a managed understory and predominantly non-native groundcover. The VZ is restricted to a narrow patch in the central portion of the Study Area within a historical drainage channel where no remnant native riparian vegetation remains. VZ05 was assessed in accordance with the guidance published in Appendix D of the BAM. Based on the criteria provided in the decision- making key, the Planted Tree Module was not applied given that vegetation ‘occurs within an area that contains a mosaic of planted and remnant native vegetation and can be reasonably assigned to a PCT known to occur in the same IBRA subregion’ as the project. As such, the planted vegetation was assigned to PCT 3359, as it was mapped throughout the Study Area in various condition classes
- Non-native Vegetation – Large areas within the Study Area were identified as exotic grassland due to the high coverage of non-native perennial grasses and perennial forbs. Analysis of the

vegetation survey plots that were sampled in these areas (Q03, Q04, and Q09) revealed that the coverage of native groundcover species is less than 10%. Areas of non-native planted trees and shrubs (windrows) were also mapped along the western boundary. These areas were also found to display a negligible diversity or coverage of native plant species in the groundcover.

4.3.6 Vegetation Integrity

Information pertaining to the vegetation integrity score (VI score) for each zone is detailed in **Table 4**. The condition scores for the areas mapped as exotic grassland were included in this analysis (Q03, Q04, and Q09) to describe the current condition state. The low VI score of the exotic grassland areas demonstrate that it is non-native vegetation. The exotic grassland areas have not been allocated to a vegetation zone for further assessment in accordance with Stage 2 of the BAM. Note that the exotic grassland does not constitute suitable habitat for any candidate threatened species returned by the BAM-C (further discussed in **Section 5**).

Table 4 **Vegetation Integrity**

VZ	PCT	Condition Class		Study Area (ha)	HBT	Condition Scores			VI
						Composition	Structure	Function	
01	3359	Good	Condition	0.74	Y	87.5	65.1	89.3	79.8
		Woodland (CEEC)							
02	3359	Mod	Condition	3.63	Y	58.9	59.7	43.3	52.9
		Woodland (CEEC)							
03	3359	Mod	Condition	14.23	N	49.1	52.2	19.1	36.6
		Grassland (CEEC)							
04	3359	Low	Condition	3.15	Y	4.0	1.2	56.6	6.1
		Woodland							
05	3359	Planted Vegetation		0.68	N	41.8	43.5	58.2	47.3
NA	NA	Exotic Grassland		9.10	N	9.9	0.7	21.0	5.2
NA	NA	Planted	Exotic	0.06	N	-	-	-	-
		Vegetation							
Total				31.59					

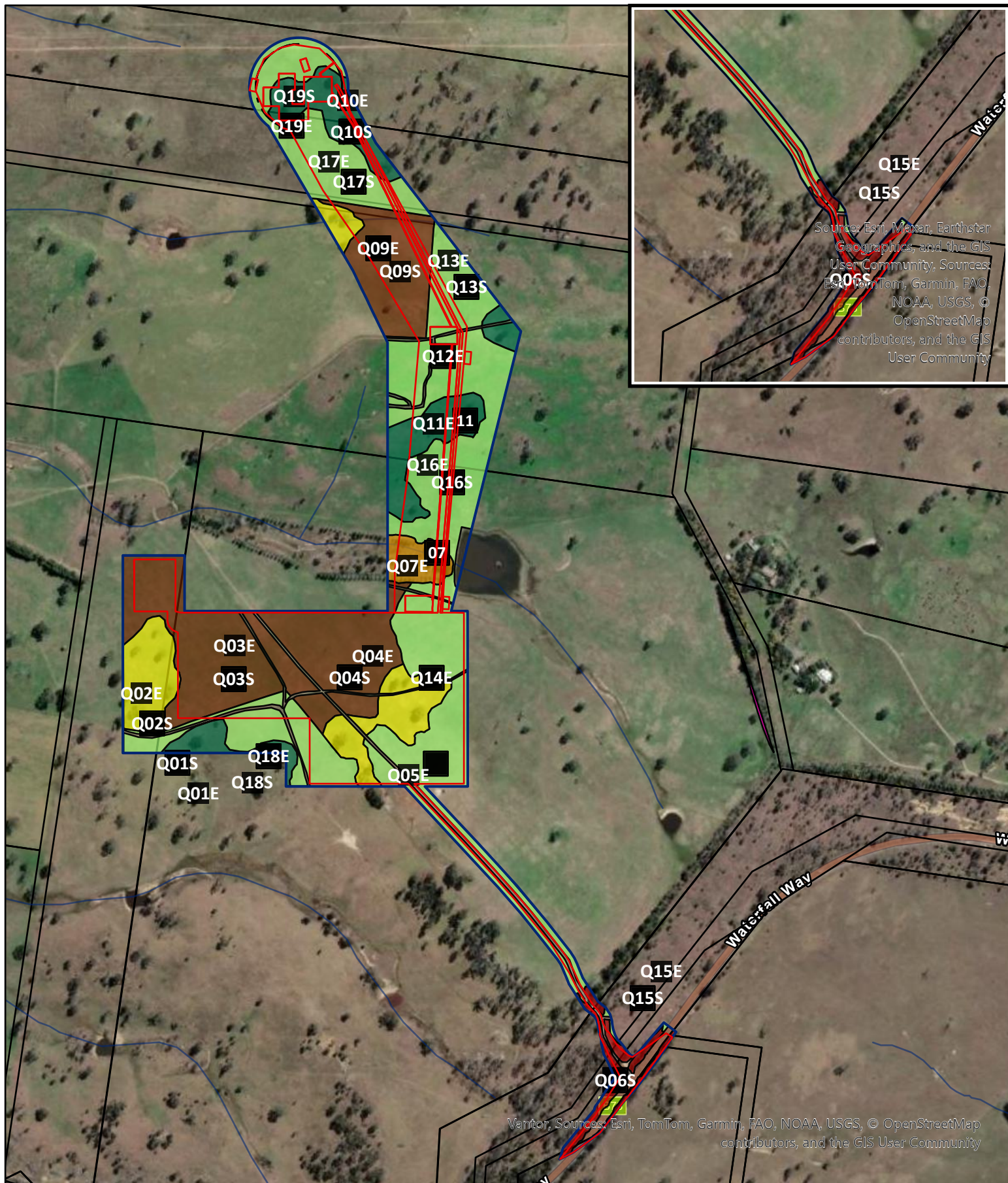


Figure 6 - Vegetation Mapping



4.3.7 Plant Community Type Information

A floristic description with justification for the allocation of PCT 3359 is presented in **Table 5**. Photographs of general site features and each vegetation zone are also provided in **Plate 1** through to **Plate 9**.

Table 5 Plant Community Type Information - PCT 3359

Criteria	Information
PCT	PCT 3359- New England Hills Stringybark Box Woodland
Vegetation Formation and Class	Grassy Woodland
Vegetation Class	New England Grassy Woodland
Vegetation Zones within the Study Area	• VZ01: 0.74 ha • VZ02: 3.63 ha • VZ03: 14.23 ha • VZ04: 3.15 ha • VZ05: 0.68 ha
Vegetation Zones and Survey Effort within the Subject Land	• VZ01: 0.41 ha - 1 plot/transect required, 1 sampled (Q06) • VZ02: 1.81 ha - 1 plot/transect required, 5 sampled (Q01, Q10, Q11, Q18, and Q19) • VZ03: 8.13 ha - 3 plot/transects required, 6 sampled (Q05, Q12, Q13, Q15, Q16, Q17) • VZ04: 1.58 ha - 1 plot/transects required, 2 sampled (Q02, Q14) • VZ05: 0.54 ha - 1 plot/transect required, 1 sampled (Q07)
Floristic description	A summary of the floristic characteristics of each vegetation zone is provided below: • The canopy vegetation in remnant woodland areas (VZ01, VZ02 and VZ03), contains a moderate to sparse coverage of several locally occurring native tree species. These include <i>Angophora floribunda</i> (Rough-barked Apple), <i>Eucalyptus blakelyi</i> (Blakely's Red Gum), <i>Eucalyptus bridgesiana</i> (Apple Box), <i>Eucalyptus caliginosa</i> (New England Stringybark), <i>Eucalyptus melliodora</i> (Yellow Box), <i>Eucalyptus pauciflora</i> (Snow Gum), and <i>Eucalyptus prava</i> (Orange Gum). In areas of planted vegetation (VZ05), canopy species include <i>Eucalyptus camphora</i> subsp. <i>humeana</i> (Mountain Swamp Gum), <i>Eucalyptus cinerea</i> subsp. <i>cinerea</i> (Argyle Apple). • The shrub layer within the roadside vegetation adjacent to the site access (VZ01) contains a moderate coverage and diversity of shrub species, including <i>Acacia filicifolia</i> (Fern-leaved Wattle), <i>Bursaria spinosa</i> var. <i>spinosa</i> (Blackthorn), <i>Daviesia latifolia</i> (Hop Bitter Pea), <i>Cassinia quinquefaria</i> and <i>Hibbertia obtusifolia</i>. The shrub layer was found to be generally sparse to absent throughout the majority of the Subject Land due to historical agricultural practices (clearing, slashing, mowing etc.) • The groundcover within the Subject Land contains a mix of native and non-native species, mainly comprised of grasses and forbs. The dominant native grass species in vegetation zones with a predominantly native groundcover (VZ01, VZ02, VZ03) include <i>Aristida ramosa</i>, <i>Aristida vagans</i>, <i>Themeda australis</i>, <i>Sporobolus creber</i>, <i>Austrostipa scabra</i>, <i>Bothriochloa macra</i>, <i>Chloris truncata</i>, and <i>Cymbopogon refractus</i>. The dominant sedges include <i>Carex appressa</i>, <i>Carex inversa</i>, <i>Fimbristylis dichotoma</i>, and <i>Juncus filicaulis</i>. The dominant native forbs include <i>Acaena novae-zelandiae</i>, <i>Asperula conferta</i>, <i>Calotis cuneifolia</i> and <i>Chrysocephalum apiculatum</i>. • The more dominant exotic plant species in non-native vegetation such as exotic grassland included <i>Bromus catharticus</i>, <i>Cirsium vulgare</i>, <i>Conyza bonariensis</i>, <i>Dactylis glomerata</i> and <i>Eleusine tristachya</i>.
Vegetation Condition	Vegetation condition was variable across the Study Area, as indicated by the presence or absence of native tree cover, the diversity and coverage of native groundcover species and the abundance of non-native species, including weeds. Vegetation zones were delineated according to their broad condition states (refer to Section 4.3.5). Five vegetation Zones were classified into one of three classes (Good, Moderate, Low) as follows:

Criteria	Information
	- Good Condition Vegetation - VZ01 is in a good condition state as evidenced by the high floristic diversity, structural complexity (vegetation strata) and the presence of key habitat features, including fallen logs, large trees, and hollow-bearing trees. - Moderate Condition Vegetation- VZ02 and VZ03 are in a moderate state as evidenced by the absence of shrub species, the moderate diversity of native plant species recorded in the groundcover, and a lower coverage of habitat features such as logs and deep leaf litter. - Low Condition Vegetation - VZ04 and VZ05, including areas mapped as Exotic Grassland, are in a low condition state. These areas are dominated by exotic groundcover species, lack structural complexity, and the presence of key habitat features.
Habitat trees	Hollow bearing trees occur within VZ01, VZ02, VZ03 and VZ04.
Justification for PCT selection	- Following review of the BioNet Vegetation Classification database, PCT 3359 was selected as the most representative a result of the dominance of Eucalypt, shrub and ground cover species across the site in conjunction with the landscape position, soils, elevation and location of the site are commensurate with the New England Grassy Woodland vegetation class (Keith 2004). This vegetation class is widespread across the Northern Tablelands and is common throughout the locality. - A preliminary list of PCTs was obtained by filtering the NSW PCTs bulk export by approved PCTs in the IBRA region (New England Tablelands) and IBRA sub-region (Armidale Plateau), Classification Confidence Level (High to Very High), Vegetation Formation (Grassy Woodlands), Vegetation Class (New England Grassy Woodlands) and by LGA (Armidale). - The short-list of PCTs included: PCT 3350, 3351, 3352, 3353, 3358, 3359 and 3363. Each of these PCTs contain Eucalyptus caliginosa in the upper stratum and have similar ground cover species. The main floristic differences between the PCTs are shrub species. As such, the shortlist was filtered by the most dominant shrub species occurring within the site (<i>Lissanthe strigosa</i>, <i>Brachlyoma daphnoides</i> and <i>Melichrus urceolatus</i>), which reduced the list to 3352, 3359 and 3363. Each of these PCTs were then compared against their floristic descriptions, landscape position, soils and geology, elevation and location. - PCT 3363 is typified by the high cover and frequency of <i>Eucalyptus blakelyi</i>, while <i>E. caliginosa</i> is typically rare. While <i>E. blakelyi</i> is present on the site, the dominant species is <i>E. caliginosa</i> across the majority of the Study Area. Both PCT 3352 and 3359 are typified by the dominance of <i>E. caliginosa</i>; however, PCT 3352 generally has few other Eucalypts present, and where present, the most common species consist of <i>E. dalrympleana</i> and <i>E. radiata</i>, both of which are not present. - PCT 3359 is considered the most appropriate fit due to the dominance of <i>E. caliginosa</i> and more frequently occurring <i>E. bridgesiana</i>, <i>E. blakelyi</i>, <i>E. melliodora</i> and <i>Angophora floribunda</i> in the upper stratum. The dominant shrub and ground cover species listed for the community fit well for the vegetation occurring on the Study Area.
NSW BC Act Status	The NSW BioNet Vegetation Classification associates PCT 3359 with the following Critically Endangered Ecological Community: 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 Riverina Bioregions Whether this community occurs within the Study Area is discussed in Section 4.3.9.
Commonwealth EPBC Act Status	PCT 3359 forms part of the Critically Endangered Ecological Community: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Whether this community occurs within the Study Area is discussed in Section 9.1.
PCT % Cleared	73%



Plate 1 **PCT 3359 - VZ01 Good Condition Woodland within road reserve**



Plate 2 **PCT 3359 - VZ02 Moderate Condition Woodland within the Study Area**

Date & Time: Tue, 10 Sep 2024 at 14:05:14 AEST
 Position: 56 J 381683 6621747 ($\pm 4.7\text{m}$)
 Altitude: 988m ($\pm 3.4\text{m}$)
 Datum: AUSTRALIAN GEOCENTRIC 2020 (GDA2020)
 Azimuth/Bearing: 133° S47E 2364mils True ($\pm 11^\circ$)
 Elevation Angle: +02.8°
 Horizon Angle: -02.2°
 Zoom: 0.5X
 Q17e



Plate 3 PCT 3359 - VZ03 Moderate Condition Grassland within the Study Area

Date & Time: Tue, 09 Apr 2024 at 14:56:04 AEST
 Position: 56 J 381378 6620885 ($\pm 4.7\text{m}$)
 Altitude: 978m ($\pm 3.4\text{m}$)
 Datum: AUSTRALIAN GEOCENTRIC 2020 (GDA2020)
 Azimuth/Bearing: 155° S25E 2756mils True ($\pm 11^\circ$)
 Elevation Angle: +01.7°
 Horizon Angle: -00.6°
 Zoom: 0.5X
 Q17e

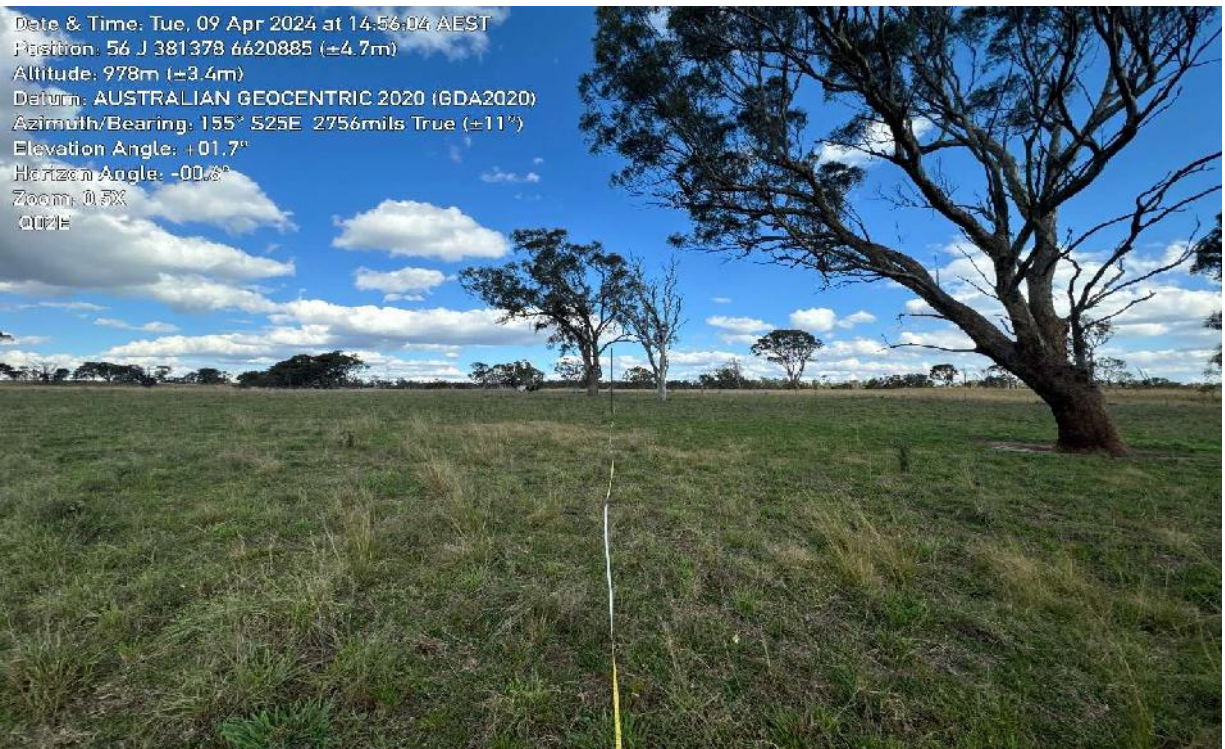


Plate 4 PCT 3359 - VZ04 Low Condition Woodland within the Study Area



Plate 5 PCT 3359 - VZ05 Low Condition Woodland within the Study Area



Plate 6 Exotic grassland within the Study Area



Plate 7 Conifer Pines and Blackberry occurring near the large, constructed dam



Plate 8 Dominant exotic groundcover from grazing activities and derived native grassland in the background



Plate 9 Conifer Pine (*Cupressus* sp.) along the eastern boundary of the Study Area

4.3.8 Assessment of Patch Size

A patch is defined in the BAM as an area of intact native vegetation that occurs on the Subject Land. The patch may extend onto adjoining land beyond the proposed footprint, and for woody ecosystems, includes native vegetation separated by less than or equal to 100 meters from the next area of intact native vegetation.

Based on aerial imagery and regional vegetation mapping, the patches of derived native grassland and native woodland either side of the Subject Land are contiguous for large distances which create patches greater than 100 ha in size. As such, native vegetation within the Subject Land is contiguous with similar condition vegetation that is extensively represented within the locality. As such, all vegetation zones were assigned to a patch size class of greater than 100 ha.

4.3.9 Threatened Ecological Communities (BC Act)

The vegetation assessment revealed that all good to moderate condition vegetation zones (VZ01, VZ02, and VZ03) have floristic and structural characteristics that are consistent with the Critically Endangered Ecological Community (CEEC) listed under the NSW BC Act as 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 Riverina Bioregions.

Justification based on the Final Determination (NSW Scientific Committee 2020) is discussed below:

- The Study Area is located within the New England Tableland Bioregion where the CEEC is known to occur
- The woodlands and native grasslands within the vegetation zones (VZ01, VZ02, and VZ03) are recognized as the typical forms of the CEEC in environments that have been subjected to long-term agricultural impacts, as the CEEC typically contains a lower floristic diversity but often retains a moderate to high coverage of native groundcover species, such as native grasses, forbs and sedges
- The presence of key diagnostic canopy species throughout the vegetation zones (VZ01, VZ02, and VZ03), including *Eucalyptus melliodora* (Yellow Box) and to a lesser extent *Eucalyptus blakelyi* (Blakely's Red Gum). *Eucalyptus caliginosa* (New England Stringybark) is also commonly associated with the CEEC as a co-dominant or sub-dominant canopy species
- Although vegetation zones (VZ01, VZ02, and VZ03) have been somewhat degraded by long-term agricultural impacts. The Final Determination (NSW Scientific Committee 2020) recognises that highly disturbed remnants of the CEEC, with few to any native species in the understorey, are specifically included in the community provided that the vegetation would, under management, respond to assisted natural regeneration, such as where the natural soil and associated seed bank are still at least partially intact. The woodlands and native grasslands within the Study Area (VZ01, VZ02, and VZ03) each contain a moderate to high coverage of native groundcover species (mainly grasses, forbs and ferns) and a partially reduced or absent canopy and shrub layer. Given that the integrity of the vegetation has been adversely affected by historical agricultural impacts and the current land use (grazing), cessation of current agricultural land management practices are likely to allow the vegetation to naturally regenerate via recruitment of existing native plant species and the natural colonization of these areas by other native species likely to occur in better-quality woodland remnants in the surrounding locality
- The low condition woodlands mapped within VZ04 and VZ05 contain a relatively low diversity of native trees, shrubs, and groundcover species. The groundcover is predominantly exotic throughout these areas, suggesting that both areas have been subjected to intensive agricultural practices, such as fertiliser application, soil tilling, the sowing of non-native perennial grasses, and stock grazing. Little to no recruitment of native trees and shrubs was observed and many of the mature trees show signs of poor health such as senescent foliage, dead limbs, insect damage (borers and foliar pests).
- Tree decline is likely to be due to adverse soil conditions caused by pasture improvement. Although soil nutrification is generally beneficial to the establishment of non-native pasture species, including various non-native perennial grasses and legumes, these conditions can adversely affect native plant species which have evolved in association with lower fertility soils.

Based on the justifications provided above, VZ01, VZ02 and VZ03 meet the listing criteria for the CEEC. Based on the conservation value of the CEEC, VZ04 and VZ05 have the potential to regenerate under appropriate management and therefore also meet the listing criteria for the CEEC. The extent of the CEEC within the Study Area is illustrated on **Figure 7**.

4.3.10 Threatened Ecological Communities (EPBC Act)

The vegetation assessment revealed that all good to moderate condition vegetation zones within the Study Area (VZ01, VZ02, and VZ03) have floristic and structural characteristics that are consistent with the Critically Endangered Ecological Community (CEEC) listed under the EPBC Act as White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

Justification based on condition thresholds for the CEEC in accordance with the Approved Conservation Advice (Commonwealth Scientific Committee 2016) are provided below:

- The Study Area occurs within the known range of the CEEC that is distributed along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW and ACT, to Victoria
- Key diagnostic canopy species were identified throughout each vegetation zones (VZ01, VZ02, and VZ03), including *Eucalyptus melliodora* (Yellow Box) and to a lesser extent *Eucalyptus blakelyi* (Blakely's Red Gum). *Eucalyptus caliginosa* (New England Stringybark) is also commonly associated with the CEEC as a co-dominant or sub-dominant canopy species. Additionally, a moderate to high cover of most of the key diagnostic genera of native grasses was observed in most areas, including *Austrostipa*, *Bothriochloa*, *Chloris*, *Cymbopogon*, *Dichanthium*, *Microlaena*, *Poa*, *Themeda*, *Rytidosperma*, *Themeda* and *Poa*
- The woodlands and native grasslands within the vegetation zones (VZ01, VZ02, and VZ03) are recognized as the typical forms of the CEEC in environments that have been subjected to long-term agricultural impacts.

The Approved Conservation Advice (Commonwealth Scientific Committee 2016) provides minimum condition thresholds to assist with the accurate identification of the CEEC and assess the conservation value based on condition class. Application of the minimum condition thresholds demonstrate that the woodlands and native grasslands within each of the moderate condition vegetation zones (VZ01, VZ02, and VZ03) represent the CEEC, meeting the good condition classes (Class A or Class B), as defined by the criteria. Application of the criteria for each vegetation zone is provided in **Table 6**.

Table 6 EPBC Act condition criteria - Box Gum Grassy Woodland CEEC

EPBC Act Condition Criteria	Response
Criteria 1: The Study Area occurs within an IBRA Bioregion where the CEEC is known to occur (as listed in Section 2.1 of the Advice).	• The Study Area is located within the New England Tablelands IBRA Bioregion
Criteria 2 - Dominant or co-dominant overstorey species include <i>E. albens</i> (White Box), <i>E. melliodora</i> (Yellow Box) or <i>E. blakelyi</i> (Blakely's Red)	• Vegetation Zone 01 - <i>E. blakelyi</i> (Blakely's Red Gum) is a co-dominant species within VZ01 (refer to Q06). • Vegetation Zone 02 - <i>E. blakelyi</i> (Blakely's Red Gum) and <i>E. melliodora</i> (Yellow Box) were recorded as co-dominant canopy species in VZ02 (refer to Q01, Q18, Q19) • Vegetation Zone 03 - saplings of <i>E. blakelyi</i> (Blakely's Red Gum) were recorded within Vegetation Zone 03 (refer to Q15 and Q16).

EPBC Act Condition Criteria	Response
Criteria 3 -The vegetation has a predominantly native understory.	- Vegetation Zone 01 - The vegetation has a predominantly native understory. Response: The total coverage of native ground cover species in Vegetation Zone 01 is 93.7% (refer to Q06). - Vegetation Zone 02 - The total coverage of native ground cover species in VZ02 ranges from 77.4% (refer to Q19) to 92.6% (See Q01) - Vegetation Zone 03 - The total coverage of native ground cover species in Vegetation Zone 03 ranges from 54.9% (refer to Q16) to 94.6% (refer to Q17)
Criteria 4: The vegetation patch is at least 0.1 ha or greater in area	- Vegetation Zone 01 - VZ01 has a patch size >0.1 ha given that the ground coverage across the vegetation zone is comprised of >50% native species, thereby representing a contiguous patch. - Vegetation Zone 02 - VZ02 has a patch size >0.1 ha given that the ground coverage across the vegetation zone is comprised of >50% native species, thereby representing a contiguous patch. - Vegetation Zone 03 - VZ03 has a patch size >0.1 ha given that the ground coverage across the vegetation zone is comprised of >50% native species, thereby representing a contiguous patch.
Criteria 5: A total of twelve or more native understory species are present (excluding grasses), and at least one 'important species' present in the understory.	- Vegetation Zone 01 - A total of 15 native perennial groundcover species (excluding grasses) were recorded during the sampling of VZ01 (refer to Q06). Several important species, including native forbs, grasses and sedges, were also recorded. - Vegetation Zone 02 – Sampling via BAM Plot Transects identified >12 non-grassy natives were recorded in Q10 and Q19, including several important species, including native forbs, grasses and sedges. - Vegetation Zone 03 - Sampling via BAM Plot Transects identified >12 non-grassy natives were recorded in Q12, Q15 and Q16. Several important species, including native forbs, grasses and sedges, were also recorded.

Based on the justifications provided in **Table 6** above, vegetation zones VZ01, VZ02 and VZ03 meet the listing criteria for the CEEC. The extent of the CEEC within the Study Area is illustrated on **Figure 7**.

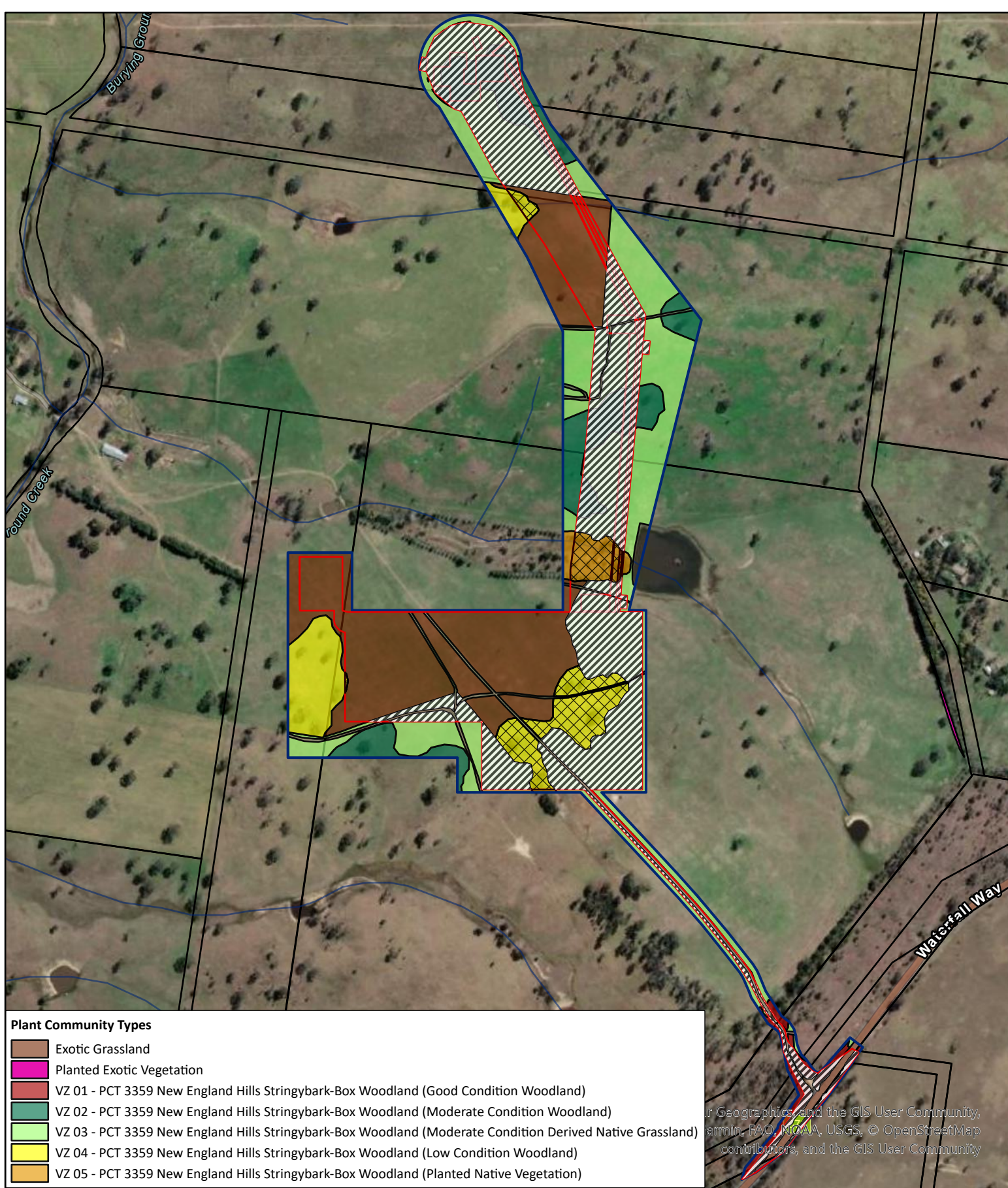
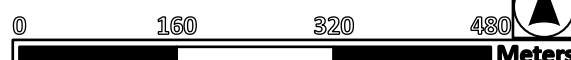


Figure 7 - Threatened Ecological Communities



Legend

- Study Area - Buffer Area
- Subject Land (development footprint)
- BC Act Box Gum Grassy Woodland - CEEC
- EPBC Act and BC Act Box Gum Grassy Woodland - CEEC
- Cadastral Boundary
- Mapped Waterway (SIXMaps 2024)



5 Threatened Species

5.1 Habitat Assessment

The results of the desktop assessment were used to identify threatened species, populations, and ecological communities listed under the NSW BC Act and Commonwealth EPBC Act with the potential to occur or use habitat within the Study Area (refer to **Section 4.1.1**). Results of the database search and likelihood of occurrence assessment are provided in **Appendix C**.

A habitat assessment was undertaken throughout the Study Area on 09 April 2024 and on 24 and 25 July 2024. The survey aimed to identify hollows and their attributes (height, diameter, position), nests, dead standing stags, leaf litter and geological features to inform habitat suitability for threatened flora and fauna.

5.1.1 Habitat Trees

A total of 13 hollow-bearing trees and two stags were recorded within the Study Area. Of the habitat trees identified, eleven contain small hollows (< 5 cm in diameter), three contain medium hollows (>10 to <20 cm in diameter) and one dead stag tree contained a large hollow (>20 cm in diameter).

Although hollows are low in abundance and diversity of hollow size, they may provide habitat for small to medium sized hollow-dependent fauna species including microbats, gliders and possums. The large hollow associated with the dead stag represents suitable breeding habitat for various species of large forest owls. The location of each hollow-bearing tree is presented on **Figure 8**.

5.1.2 Habitat Assessment – Threatened Flora

The Study Area is predominantly cleared and has been subjected to historic and current grazing. Most of the site is characterized by scattered mature native trees, a sparse to absent shrub layer and exotic and native grassland. Exotic areas have very low cover and diversity of native grasses, forbs and ferns. These areas are regularly grazed and only the hardier and relatively grazing-tolerant native species persist, such as Slender Rat's Tail Grass (*Sporobolus creber*) and some Lovegrasses (*Eragrostis* spp.). The poor condition of these areas has resulted in a low habitat suitability for all threatened flora species known to occur locally.

Derive native grassland and scattered woodland areas (VZ01, VZ02, VZ03, VZ04) are subject to grazing, but are in better condition than the exotic grassland. These vegetation zones support a predominantly native understorey, including a sparse cover of shrubs and regenerating trees in some areas. A higher diversity and cover of the more grazing-sensitive species, such as *Poa* spp. (Snow Grasses), *Themeda triandra* (Kangaroo Grass) and *Sorghum leiocladum* (Wild Sorghum). These areas provide potentially suitable habitat for locally occurring threatened forb and grass species, such as *Thesium australe* (Austrole Toadflax) and *Dichanthium setosum* (Bluegrass).

The vegetation (VZ01) within the road reserve along Waterfall Way contains moderate to good condition woodland with a high diversity and cover of native species. This area contains an open Eucalypt canopy, a sparse to moderately dense shrub layer, and a predominantly native groundcover. The vegetation forms part of a larger patch of native roadside vegetation that extends along Waterfall

Way. This vegetation zone (VZ01) provides suitable habitat for the threatened shrub *Callistemon pungens*.

Threatened flora species returned from the NSW BioNet and EPBC Act PMST database search, that are considered to have a moderate likelihood of occurring within the vegetation zones VZ01, VZ02, VZ03, VZ04 include:

- *Dichanthium setosum* (Bluegrass) - listed as a vulnerable under the BC Act and EPBC Act
- *Thesium australe* (Austrole Toadflax) - listed as a vulnerable under the BC Act and EPBC Act
- *Callistemon pungens* - listed as a vulnerable under the EPBC Act.

5.1.3 Habitat Assessment – Threatened Fauna

The exotic grassland areas of the site have limited biodiversity value due to the lack of key habitat features such as a complex vegetation structure, limited hollow-bearing trees, aquatic habitat, fallen logs and other forms of refugia (shelter or protective features).

The areas containing derived native grassland and scattered woodland vegetation (VZ01, VZ02, VZ03, VZ04) have a higher biodiversity, as they may provide foraging habitat for mobile threatened fauna, including arboreal mammals and woodland birds, such as Brown Treecreeper (*Climacteris picumnus victoriae*) and the Speckled Warbler (*Chthonicola sagittate*). Better quality habitat occurs in VZ01, as it contains a greater diversity of shrub species and mature trees containing hollows.

The large, constructed dam is likely to hold water on a semi-to permanent basis and may represent foraging habitat for waterbirds and for amphibians, however it is isolated from remnant vegetation limiting the importance of the dam as a water resource for native fauna species. The dam is unlikely to provide suitable breeding habitat for any locally occurring threatened amphibian species.

The nectar producing Eucalypts and other plant species produce foraging resources such as foliage, seeds, fruit, nectar, and pollen supports insect communities, which are an important resource for insectivorous species such as microchiropteran bats and a variety of other mobile fauna species. Additionally, five small stick nests were identified in the central and north of the site, however, based on the size and nesting material they are unlikely to be the nests of threatened raptors (refer to **Figure 9**).

Threatened fauna species returned from the NSW BioNet and EPBC Act PMST search, that are considered to have a moderate likelihood of foraging or intermittently using the habitats present within the Study Area, as part of a broader network of habitats within the locality, are detailed in **Appendix C**, and are listed below:

- Koala (*Phascolarctos cinereus*) potential foraging habitat present - listed endangered under the BC Act and the EPBC Act (further discussed in **Section 5.1.4**)
- Grey-headed Flying-fox (*Pteropus poliocephalus*) potential foraging habitat present within VZ01 - listed vulnerable under the BC Act and the EPBC Act
- Brown Treecreeper (*Climacteris picumnus victoriae*) potential foraging habitat present within VZ01 - listed vulnerable under the BC Act and EPBC Act
- Diamond Firetail (*Stagonopleura guttata*) potential foraging habitat present within VZ01 - listed vulnerable under the BC Act and the EPBC Act

- Painted Honeyeater (*Grantiella picta*) potential foraging habitat present within VZ01 - listed vulnerable under the BC Act and the EPBC Act
- South-eastern Hooded Robin (*Melanodryas cucullata cucullata*) potential foraging habitat present within VZ01 – migratory listed endangered under the BC Act and the EPBC Act
- Southern Whiteface (*Aphelocephala leucopsis*) potential foraging habitat present within VZ01-listed vulnerable under the BC Act and the EPBC Act
- White-throated Needletail (*Hirundapus caudacutus*) potential foraging habitat present within VZ01 - migratory listed vulnerable under the BC Act and the EPBC Act

5.1.4 Koala Habitat Assessment

Chapter 3 Koala SEPP 2020

The definition of potential Koala habitat under the Koala SEPP 2020 refers to areas of native vegetation where species of trees listed under Schedule 1 of the SEPP constitute at least 15% of the total number of trees in the upper or lower strata. The definition of core Koala habitat under the SEPP refers to an area of land with a resident population of Koalas, evidenced by attributes (breeding females, being females with young), recent sightings and historical records of a population.

No Koala use tree species, as listed under Schedule 1 of the SEPP, were recorded within the Study Area during the assessment. The native vegetation within the Study Area does not meet the definition of potential Koala habitat under the Koala SEPP 2020. A review of historical Koala records (DPE 2023g) was also undertaken. The review identified seven Koala records within a five km radius of the site.

The most recent Koala records are from 2017 -2019 (one Koala) and 2010-2011 (four Koalas). The 2017-2019 record is located approximately three kms north-west of the Study Area, near Yina Nature Reserve, and the 2010-2011 record is located approximately two kms to the west of the Study Area. One historical Koala record from 1991, occurs within the southern portion of Lot 1 DP246878, approximately 550 meters south of the Study Area.

Targeted Koala surveys were undertaken in accordance with the Koala (*Phascolarctos cinereus*) BAM Survey Guide (DPE 2022) as part of this assessment (refer to **Section 5.2.4**). No Koalas or evidence of Koalas were identified. A resident population of Koalas is not considered to be present within the Study Area. The native vegetation within the Study Area does not meet the definition of core Koala habitat as defined under the Koala SEPP 2020.

Armidale Koala Management Strategy 2021

The Study Area lies just past the boundary of Precinct 1a, within Precinct 2, as defined in the Armidale Strategy (Ecosure 2021). Koala habitat mapping undertaken for the strategy classifies PCT 3359 - New England Hills Stringybark-Box Woodland (present with the Study Area), as a community which contains core Koala habitat and maps (refer to Figure 7 of the Armidale Strategy) the vicinity of the Study Area as potential core Koala habitat.

In accordance with Section 4 of the Armidale Strategy (Ecosure 2021), a Tier 2 assessment is provided in **Table 7**.

Table 7 **Section 4 - Tier 2 Development Assessment**

Performance criteria	Assessment
1. Is site established as core Koala habitat, suitable habitat, or Koala corridor habitat on the Core Koala Habitat Map and the Koala Corridor Map of the Strategy?	The Study Area is mapped as core Koala habitat (as defined by the Armidale Strategy), but it is not mapped as a Koala Corridor. The site does not contain core Koala habitat as defined by the Koala SEPP 2020.
2. What are the broader values of the core Koala habitat?	Given the lack of recent Koala records within the locality and the lack of Koalas detected during targeted surveys, there is little evidence that a Koala population occupies the site. The most recent records of Koala are concentrated within Precinct 1 of the Armidale Strategy (near the township). The native vegetation within the Study Area exists in a modified state. Most areas of the site lack canopy vegetation and only contain isolated mature trees and fragmented woodland remnants, which are generally small within the landscape. The habitat in these areas is unlikely to be important to the long-term survival of Koalas within the locality. Although moderate habitat connectivity occurs within areas of native vegetation within the road reserve (VZ01) the extent of vegetation proposed (0.41 ha) to be removed is unlikely to impede the movements of Koalas that may utilise this area as part of a broader network of habitats.
3. Does the site selection considers Koala habitat values?	Yes, the site was selected given that potential impacts would be limited to the removal of grassland vegetation and low condition woodland (mainly isolated mature trees). Most of the trees to be removed are unlikely to provide habitat for Koalas given their isolated location within the landscape. The access upgrade would impact only a small area of roadside vegetation located around an existing access. The location of the proposed access reduces the impact to native vegetation and to Koala movements through the local area.
4. Does the development avoid the direct loss of Koala habitat within the site area and avoids fragmentation?	Yes, better quality areas of native vegetation (and potentially Koala habitat) would be avoided within the landholding. Figure 2 shows that larger patches of vegetation in the far west of the landholding would be retained, along with a moderate sized patch which occurs to the west of the access. No areas of native vegetation would be fragmented by the project.
5. Is Koala habitat excluded from the development footprint?	Currently, there are no impacts to Koala habitat, as the assessment has identified that the Study Area does not contain 'potential' or 'core' Koala habitat as defined by Chapter 3 of the Biodiversity and Conservation SEPP. Furthermore, no Koala habitat has been mapped in accordance with the BAM, as no Koalas were detected during targeted surveys.
6. Does the development avoid direct impacts to Koala habitat within the site area?	See the response to criteria 5 above.
7. Where some loss of habitat cannot be avoided (and providing it is consistent with all other criteria set out here), is the development designed in a way that retains higher value areas across the site and avoids fragmentation of habitat within the site area and more broadly within the region?	No Koala habitat is proposed to be impacted; however, the roadside vegetation has the potential to help facilitate the movement of Koalas through the area. The project has been designed to mostly avoid this area of vegetation, as the proposed access upgrade is centered around the existing access track. The limited impact to the roadside vegetation (0.41 ha) will not further fragment or disconnect patches of vegetation. Higher-quality patches of vegetation within the landholding will be retained.

Performance criteria	Assessment
8. Is development undertaken in a way that maintains the potential function of the Koala habitat?	No impacts to important linkage corridors are proposed.
9. Are all relevant indirect impacts to Koalas and Koala habitat associated with the development identified?	Koala exclusion fencing and escape mechanisms are proposed to limit the potential of Koalas access the BESS infrastructure once active. Reducing speed limits will reduce the risk of impact strike along the access. The project is unlikely to facilitate any other indirect impacts such as disease, bushfire risk, human induced climate change, dog attacks, drownings in swimming pools or injuries from livestock.

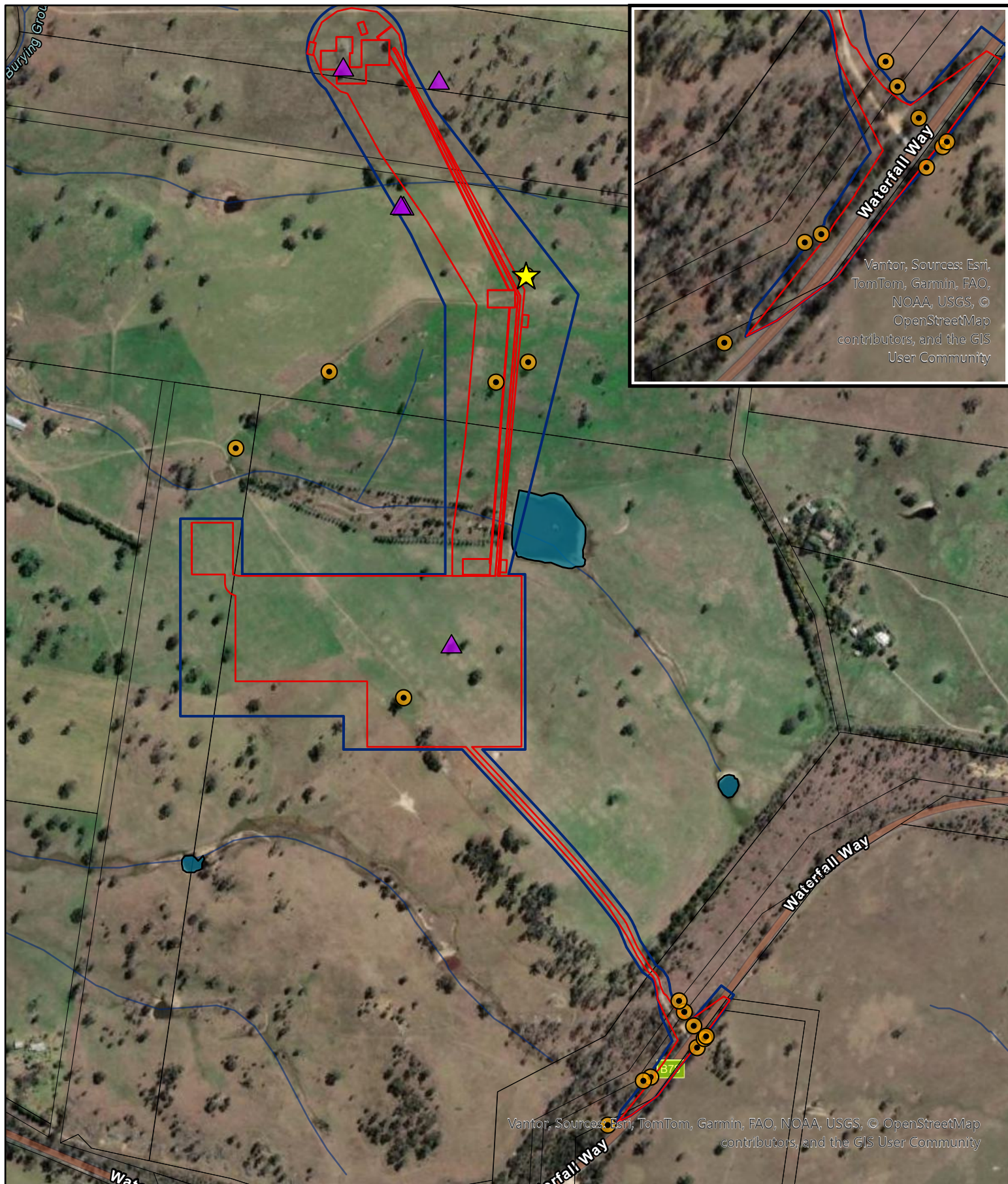
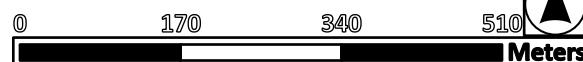


Figure 8 - Habitat Features



Legend

- | | |
|---|---|
| Study Area - Buffer Area | ▲ Stick Nest |
| Subject Land (development footprint) | Constructed Dam |
| Hollow Bearing Trees | Cadastral Boundary |
| ★ Stag with large hollow | — Mapped Waterway (SIXMaps 2024) |



5.1.5 Ecosystem Credit Species

The following assessment of habitat suitability for ecosystem credit species was conducted in accordance with Section 6.2 of the BAM. Ecosystem credits represent threatened species that can be predicted to occur based on the type and condition of vegetation within the Subject Land. Targeted surveys are not required for ecosystem credit species.

Step 1: Identify threatened species for assessment

The BAM-C was used to generate a list of the predicted ecosystem credit species. The predicted species report is provided within **Appendix D**.

Step 2: Assessment of the habitat constraints and vagrant species on the subject land

The potential for ecosystem credit species to occur on the Subject Land was assessed according to species-specific habitat requirements, as detailed in **Table 8**. Where habitat features were not present due to the degraded condition of the vegetation within the Subject Land, ecosystem credit species were determined to not be predicted species, and no further assessment was required.

Table 8 Ecosystem credit species

Scientific name	Common name	Confirmed	Sensitivity to gain	Justification
<i>Anthochaera phrygia</i>	Regent Honeyeater	Yes	High	Suitable habitat present
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	Yes	Moderate	Suitable habitat present
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black Cockatoo (Foraging)	No	High	Lack of Allocasuarina and Casuarina species
<i>Chthonicola sagittata</i>	Speckled Warbler	Yes	High	Suitable habitat present
<i>Circus assimilis</i>	Spotted Harrier	Yes	Moderate	Suitable habitat present
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	Yes	High	Suitable habitat present
<i>Daphoenositta chrysoptera</i>	Varied Sittella	Yes	Moderate	Suitable habitat present
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Yes	High	Suitable habitat present
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Yes	Moderate	Suitable habitat present
<i>Falco subniger</i>	Black Falcon	Yes	Moderate	Suitable habitat present
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Yes	High	Suitable habitat present
<i>Glossopsitta pusilla</i>	Little Lorikeet	Yes	High	Suitable habitat present
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Yes	High	Suitable habitat present
<i>Hieraaetus morphnoides</i>	Little Eagle	Yes	Moderate	Suitable habitat present
<i>Hirundapus caudacutus</i>	White-throated Needletail	Yes	High	Suitable habitat present
<i>Lathamus discolor</i>	Swift Parrot	Yes	Moderate	Suitable habitat present
<i>Lophoictinia isura</i>	Square-tailed Kite	Yes	Moderate	Suitable habitat present
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	Yes	Moderate	Suitable habitat present
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged	Yes	High	Suitable habitat present

Scientific name	Common name	Confirmed	Sensitivity to gain	Justification
<i>Petaurus australis</i>	Bat	Yes	High	Suitable habitat present
<i>Petroica boodang</i>	Yellow-bellied Glider	Yes	Moderate	Suitable habitat present
<i>Petroica phoenicea</i>	Scarlet Robin	Yes	Moderate	Suitable habitat present
<i>Pseudomys oralis</i>	Flame Robin	Yes	High	Suitable habitat present
<i>Pteropus poliocephalus</i>	Hastings River Mouse	Yes	High	Suitable habitat present
<i>Saccolaimus flaviventris</i>	Grey-headed Flying-fox	Yes	High	Suitable habitat present
<i>Stagonopleura guttata</i>	Yellow-bellied Sheath-tail-bat	Yes	High	Suitable habitat present

5.1.6 Species Credit Species

Threatened species for which their occurrence, or elements of suitable habitat for the species, cannot be confidently predicted by vegetation surrogates and/or landscape features, but can be reliably detected by survey are species-credit species.

Step 1: Identify threatened species for assessment

A preliminary list of candidate species credit species for the Subject Land was reviewed in the BAM-C. Species credits pertain to threatened species that cannot be reliably predicted by the vegetation type. A candidate species report is presented within **Appendix D**.

Step 2: Assessment of the habitat constraints and vagrant species on the subject land

The potential for candidate species credit species to occur within the Subject Land was assessed according to species-specific habitat requirements (refer to **Table 9**).

Step 3: Identify candidate species credit species for further assessment

A total of 29 species credit species were returned by the BAM-C. Ten of these species were excluded as candidate species for further assessment due to habitat constraints, species vagrancy, geographical constraints, or the absence of suitable habitat. No species credit species were manually added as candidate species for further assessment. A summary of justifications for inclusion or exclusion of candidate species based on site constraints is presented in **Table 9**.

Table 9 Species credit species

Scientific name	Common name	Confirmed	Justification
<i>Adelotus brevis</i> - endangered population	Tusked Frog population Nandewar and NE Tableland Bioregions	No	Habitat unsuitable/degraded - The species is only known to inhabit areas within the vicinity of Enfield and Riamukka State Forest approximately 90kms to the south, or within the vicinity of Mann River National Park approximately 100kms to the north.
<i>Anthochaera phrygia</i>	Regent Honeyeater	No	Habitat constraints - The Subject Land is not within an area mapped as "important habitat" for this species (NSW DCCEEW 2024i).
<i>Burhinus grallarius</i>	Bush Stone-curlew	Yes	Potential habitat present.
<i>Caladenia amnicola</i>		No	Habitat unsuitable/degraded - The known occurrence of this species is restricted to a single

Scientific name	Common name	Confirmed	Justification
			location west of Armidale on the NE Tablelands. The preferred habitat of the species is comprised of rocky areas supporting shallow soils that are prone to prolonged dry periods. Suitable habitat for the species was not identified within any areas of the site and the habitats present have been degraded via long-term agricultural grazing and are unlikely to support a population of this species.
<i>Callistemon pungens</i>		Yes	Potential habitat present.
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	Yes	Potential habitat present.
<i>Cercartetus nanus</i>	Eastern-Pygmy possum	Yes	Potential habitat for the species is present within VZ01. Other VZ's lack a complex shrub layer and are comprised of isolated trees with limited to no arboreal connectivity. While the BioNet profile (2022) for the species states that species can sometimes occur in grassy woodlands and the presence of Eucalypts alone may support the species at a low density, a reasonable canopy would be required to maintain arboreal connectivity. The species is not known from the locality, as only three BioNet records for the species occur within the IBRA subregion and are located between 35 to 45 kms to the east within dense remnant vegetation of the Styx River State Forest. Within the IBRA subregion there are no records of the species within woodland or disturbed habitats. Targeted surveys were limited to VZ01.
<i>Chalinolobus dwyeri</i>	Large-eared Bat	Pied No	Habitat constraints - no suitable breeding habitat within 2kms i.e. caves and cliffs.
<i>Dichanthium setosum</i>	Bluegrass	Yes	Potential habitat present.
<i>Eucalyptus magnificata</i>	Northern Blue Box	Yes	Potential habitat present.
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	Yes	Potential habitat present.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Yes	Potential habitat present.
<i>Hieraaetus morphnoides</i>	Little Eagle	Yes	Potential habitat present.
<i>Haloragis exalata subsp. velutina</i>	Tall Velvet Sea-berry	Yes	Potential habitat present.
<i>Lathamus discolor</i>	Swift Parrot	No	Habitat constraints – The Subject Land is not within an area mapped as “important habitat” for this species (NSW DCCEEW 2024i).
<i>Litoria piperata</i>	Peppered Frog	Tree No	Habitat unsuitable/degraded – Habitat within the Subject Land does not contain appropriate habitat for the species. The species is found south of Armidale in streamside vegetation and under rocks and fallen timber along rocky streams flowing eastward. Species is believed to be extinct with the

Scientific name	Common name	Confirmed	Justification
			closest record being from over 6km south from 1984.
<i>Lophoictinia isura</i>	Square-tailed Kite	Yes	Potential habitat present.
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat (breeding)	No	Habitat constraints - Subject Land or Property does not contain caves, tunnels, mines or culverts which may provide breeding habitat.
<i>Myotis macropus</i>	Southern Myotis	No	Habitat unsuitable/degraded - The Southern Myotis is distributed along the coastal band of NSW, rarely being found more than 100 km inland unless along a major river (DCCEEW 2025). forages in aquatic habitats containing waterways and permanent pools with stretches of open water that are 3m or greater in dense foliage (BioNet 2020). While the Subject Land contains a dam, there are no waterways or stream pools present, it is located >100 km from the NSW coast and there is limited evidence to support the occurrence of the species using isolated dams distant from intact, dense vegetation. Historical records of the species in sparsely vegetated sites are uncommon, as the species is often misidentified when recorded by Anabat detection, as the call signature is very close to Nyctophilus species. Further justification for the exclusion of the species from targeted survey is provided in Section 5.1.7 below.
<i>Ninox connivens</i>	Barking Owl (breeding)	Yes	Potential habitat present.
<i>Ninox strenua</i>	Powerful Owl (breeding)	Yes	Potential habitat present.
<i>Petauroides volans</i>	Southern Greater Glider	Yes	Potential habitat present.
<i>Petaurus norfolcensis</i>	Squirrel Glider	Yes	Potential habitat present.
<i>Petrogale penicillata</i>	Brush-tailed Rock Wallaby	No	Habitat constraints - Subject Land is not within 1 km of rocky escarpments, gorges, steep slopes, boulder piles, rock outcrops or cliff lines.
<i>Phascolarctos cinereus</i>	Koala	Yes	Potential habitat present
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	No	Habitat constraints - No breeding camps were identified.
<i>Swainsona sericea</i>	Silky Swainson-pea	Yes	Potential habitat present
<i>Thesium australe</i>	Austral Toadflax	Yes	Potential habitat present
<i>Tyto novaehollandiae</i>	Masked Owl (breeding)	Yes	Potential habitat present

5.1.7 Candidate Species – Further Justifications

In accordance with Section 5.2.3 of the BAM (DPIE 2020a) a candidate species credit species is considered unlikely to occur on the Subject Land (or specific vegetation zones) if one of the following applies:

- After carrying out a field assessment:
 - The assessor determines that microhabitats required by a species are absent from the subject land (or specific vegetation zone). The assessor must include a description of the microhabitats assessed as being required by the species in the BAR. This must be based on evidence such as published literature, or
 - The assessor determines that the habitat constraints or microhabitats are degraded to the point that the species is unlikely to use the subject land (or specific vegetation zones), or
- An expert report (prepared as per Box 3 of the BAM) states that the species is unlikely to be present on the Subject Land or specific vegetation zones.

A total of ten candidate species credit species were identified as not requiring further assessment due to the absence of breeding habitat or the unsuitable/degraded condition of habitat. Justifications for exclusion of each candidate threatened species are provided below:

- The Subject Land is too degraded and does not contain rocky areas required for *Caladenia Amnicola*. The species is restricted to a single location west of Armidale on the New England Tableland, northern NSW
- The Subject Land does not contain significant geological features such as caves, rock outcrops, large culverts, mines or tunnels that are known to be utilized for breeding by the Large-eared Pied Bat or the Large Bent-winged Bat
- The Subject Land does not contain significant geological features such as cliffs or escarpments that are known to represent suitable habitat for the Brush-tailed Rock Wallaby
- The Subject Land is not mapped 'important habitat' for the Regent Honeyeater or the Swift Parrot
- The Subject Land does not contain a Grey-headed Flying-fox roost or camp
- The Subject Land does not contain habitats such as waterbodies, dense vegetation with coarse woody debris adjacent to waterbodies (creeks, ditches or ponds) that would otherwise provide habitat for the Peppered Tree Frog or the Tusked Frog.

Southern Myotis - Habitat unsuitable/degraded

The Southern Myotis is a species of fishing bat, that specialising in foraging for aquatic insects and small fish, by raking their feet across the water surface. The species is known to forage within 200 metres of the bank of any medium, to large, permanent creek, river, lake or waterway with pools stretching three metres or wider. The species generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, wharves, bridges and in dense foliage.

Records for the Southern Myotis are limited to the coastal band of NSW, as the species is rarely recorded more than 100 kilometres inland, except for along major rivers (DCCEE 2025). Published literature on the preferred habitat of the Southern Myotis refers to large rivers, creeks, lakes and estuaries that are supported by riparian vegetation (Anderson et al 2006; Campbell, 2009; Churchill 2008; Dwyer 1970; Thompson and Fenton 1982). While the species has been observed foraging over

farm dams or open dams; the dams are either proximate to a maternity roost and / or riparian vegetation. There is limited evidence that the species inhabits isolated dams distant from dense foliage or intact riparian vegetation.

There are limited records of the species within the IBRA subregion (only three). One of the records is from 2024 and is approximately ten kilometres east of the Subject Land, one is from 2019 and is approximately 18 kilometres northwest and the other is from 1997 and approximately 12 kilometres north of the Subject Land.

The 2024 record is based on Anabat acoustic recording and the other two indicate that they were observed, no specific survey method has been provided. Identification of the species solely based on acoustic analysis, particularly when the habitat is unsuitable, is not commonly supported as it is difficult to discern the call signature of the Southern Myotis from *Nyctophilus* species. Positive identifications usually require harp trapping and/or mist netting for species validity.

While the Subject Land contains a dam, it does not contain roosting habitat or a waterway or stream pool greater than three meters and there is no adjacent maternity roost or dense foliage with mature vegetation (other than immature planted vegetation). The Subject Land is not within 100 kilometres of the coast and the nearest waterway containing riparian or dense vegetation is the Gara River, located approximately 2.5 kilometres to the east.

In consideration of the information above, the Subject Land does not contain the preferred habitat of the Southern Myotis and is determined to be unsuitable for the species.

5.1.8 EPBC Act Protected Matters – Further Justification

Commonwealth listed EPBC Act MNES, not identified by the BAM-C as ecosystem credit species or species credit species, that are considered to have a moderate likelihood of foraging or intermittently using the habitats present within the Subject Land are listed below:

- Diamond Firetail (*Stagonopleura guttata*)
- Painted Honeyeater (*Grantiella picta*)
- South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)
- Southern Whiteface (*Aphelocephala leucopsis*)

5.2 Targeted Threatened Species Surveys

Step 4: Determine presence or absence of candidate species credit species.

5.2.1 Candidate Threatened Flora Surveys

Candidate threatened flora species were surveyed in accordance with the Surveying threatened plants and their habitats - NSW survey guide for the Biodiversity Assessment Method (DPIE 2020h) and prescribed survey timing as stipulated in the BioNet TBDC. Surveys targeted the most suitable habitat and were conducted across the Study Area to allow for an assessment of indirect impacts and design changes.

A summary of the survey effort and survey requirements for each candidate flora species is provided in **Table 10**. Targeted threatened flora surveys tracks are displayed on **Figure 9**, **Figure 10** and **Figure 11**.

Table 10 Candidate threatened flora species surveys

Scientific/ Common Name	Growth Form	Max distance (m)		Survey Requirements	Survey Timing			Survey met
<i>Callistemon pungens</i>	Shrub	20	10	September to February	Targeted traverses on 10/09/2024 and 11/09/2024 and 14/11/2025	parallel and 13,	field 13,	Yes
<i>Dichanthium setosum</i> Bluegrass	Tussock Grass	10	5	November to May	Targeted traverses 13, 14 and 15/11/2024 and 14/11/2025	parallel and 13,	field and 13,	Yes
<i>Eucalyptus magnificata</i> Northern Blue Box	Tree	40	20	All year	Targeted traverses 24 and 25/07/2024, 15/08/2024 and 14/11/2025	parallel and 13,	field and 13,	Yes
<i>Eucalyptus nicholii</i> Narrow-leaved Black Peppermint	Tree	40	20	All Year	Targeted traverses 24 and 25/07/2024, 15/08/2024 and 14/11/2025	parallel and 13,	field and 13,	Yes
<i>Haloragis exalata</i> subsp. <i>velutina</i> Tall Velvet Sea- berry	Shrub	20	10	All year	Targeted traverses 24 and 25/07/2024, 15/08/2024 and 14/11/2025	parallel and 13,	field and 13,	Yes
<i>Swainsona sericea</i> Silky Swainson- pea	Forb	10	5	September to November	Targeted traverses 10/09/2024 and 11/09/2024	parallel	field and	Yes
<i>Thesium australe</i> Austral Toadflax	Forb	10	5	November to February	Targeted traverses 13, 14 and 15/11/2024 and 14/11/2025	parallel and 13,	field and 13,	Yes

5.2.2 Inspection of Reference Populations

Reference populations of *Thesium australe* (Austral Toadflax) and *Dichanthium setosum* (Bluegrass) were inspected to confirm that each of these cryptic species was flowering and therefore detectable prior to undertaking targeting surveys. The inspection dates for each reference population are presented in **Table 11**.

Table 11 Candidate flora reference population inspection

Scientific name	Common name	Reference Population	Date inspected	Flowering
<i>Thesium australe</i>	Austral Toadflax	335149E 6637761N	14/11/2023	Yes
<i>Dichanthium setosum</i>	Bluegrass	369089 E 6569324N	18/08/2023	Yes



Plate 10 *Thesium australe* (left image) and *Dichanthium setosum* (right image) reference population

5.2.3 Candidate Threatened Flora Survey Results

Callistemon pungens is myrtaceous shrub species that is listed as a vulnerable species under the EPBC Act. Four mature individual plants were detected within the Study Area during field surveys. Three of the individuals were identified within the road reserve adjacent to Waterfall Way (VZ01) and one individual was identified within a narrow patch of planted vegetation near the eastern lot boundary (refer to **Figure 12**). Note that most of the woody vegetation within the patch is comprised of non-native tree and shrub plantings.

The distribution of *Callistemon pungens* extends from the Stanthorpe area in Queensland, south to the Tamworth district and the Oxley Wild Rivers National Park. Interestingly, according to the NSW BioNet Atlas, the species has not been previously recorded within a five-kilometre radius of the Study Area. *Callistemon pungens* is also a commonly cultivated species. It is known in the horticultural industry by various names, such as *Callistemon* ‘Lana’, *C.* ‘Gilesii’, *C.* ‘Armidale’ and *C.* ‘Severn River’ (DECCW 2008).

Given that the individuals were detected outside the natural geographical range of the *Callistemon pungens*, it is likely that the individuals may have been introduced as plantings. Regardless of the origin of the individuals, no *Callistemon pungens* individuals would be directly impacted/removed to facilitate the project.

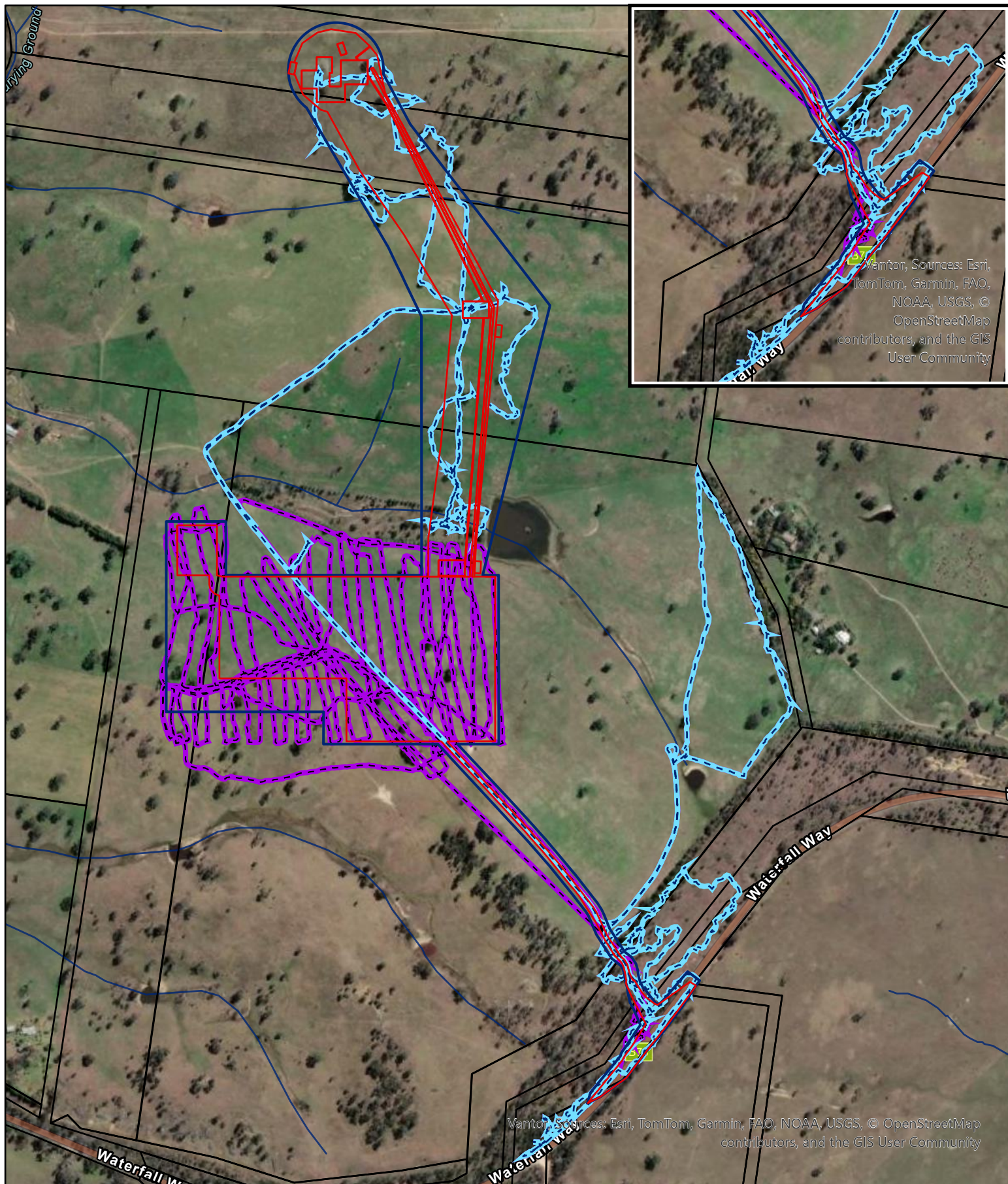
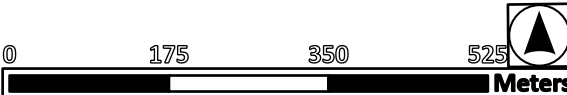


Figure 9 - Threatened Flora Survey Effort (July - August 2024)



- Legend**
- Study Area - Buffer Area
 - Subject Land (development footprint)
 - Survey Track (24 and 25/07/2024)
 - Survey Track (15/08/2024)
 - Cadastral Boundary
 - Mapped Waterway (SIXMaps 2024)



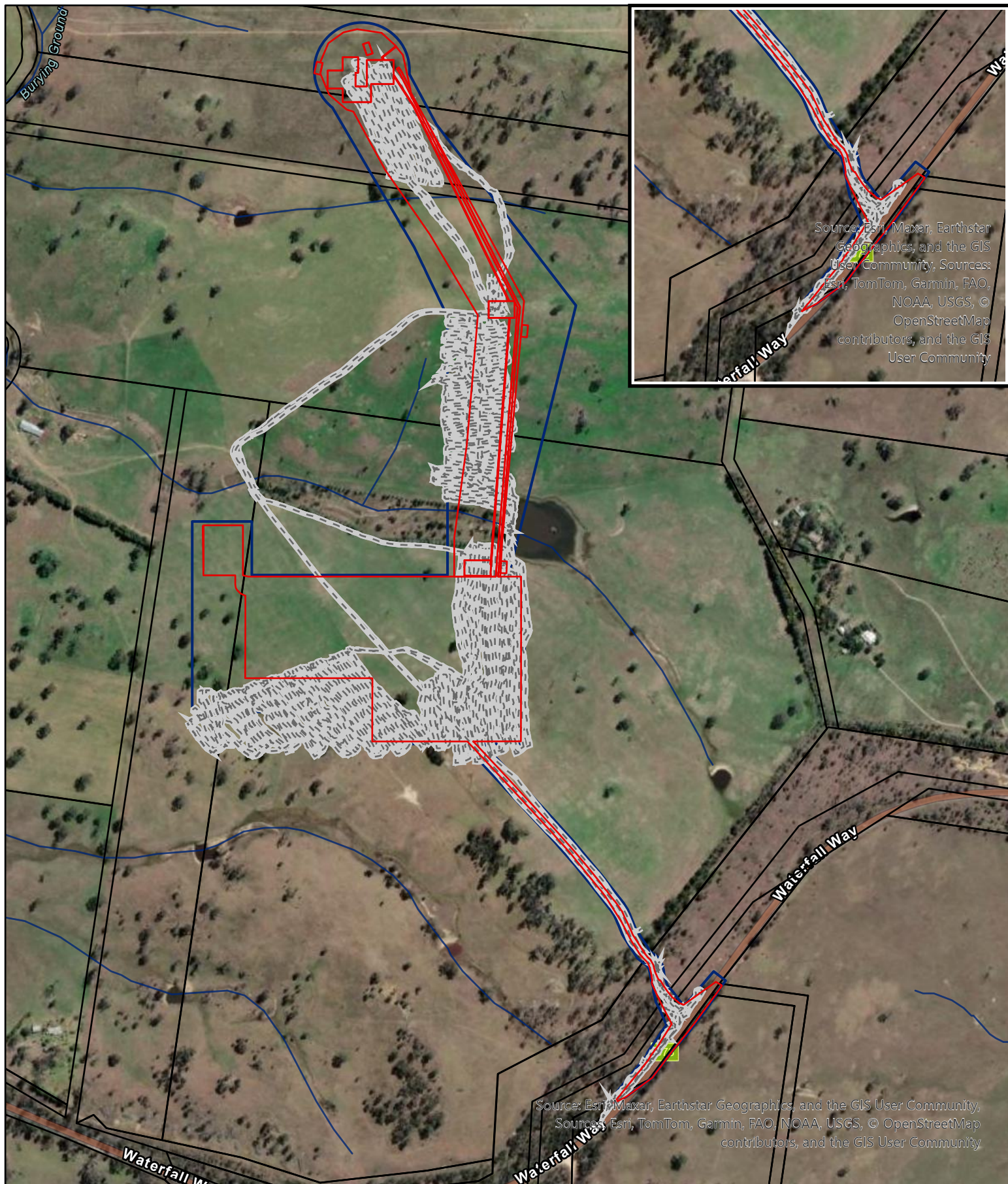


Figure 10 - Threatened Flora Survey Effort (September 2024)



Legend

- Study Area - Buffer Area
- Subject Land (development footprint)
- Cadastral Boundary
- Mapped Waterway (SIXMaps 2024)
- Survey Track (10 and 11/09/2024)



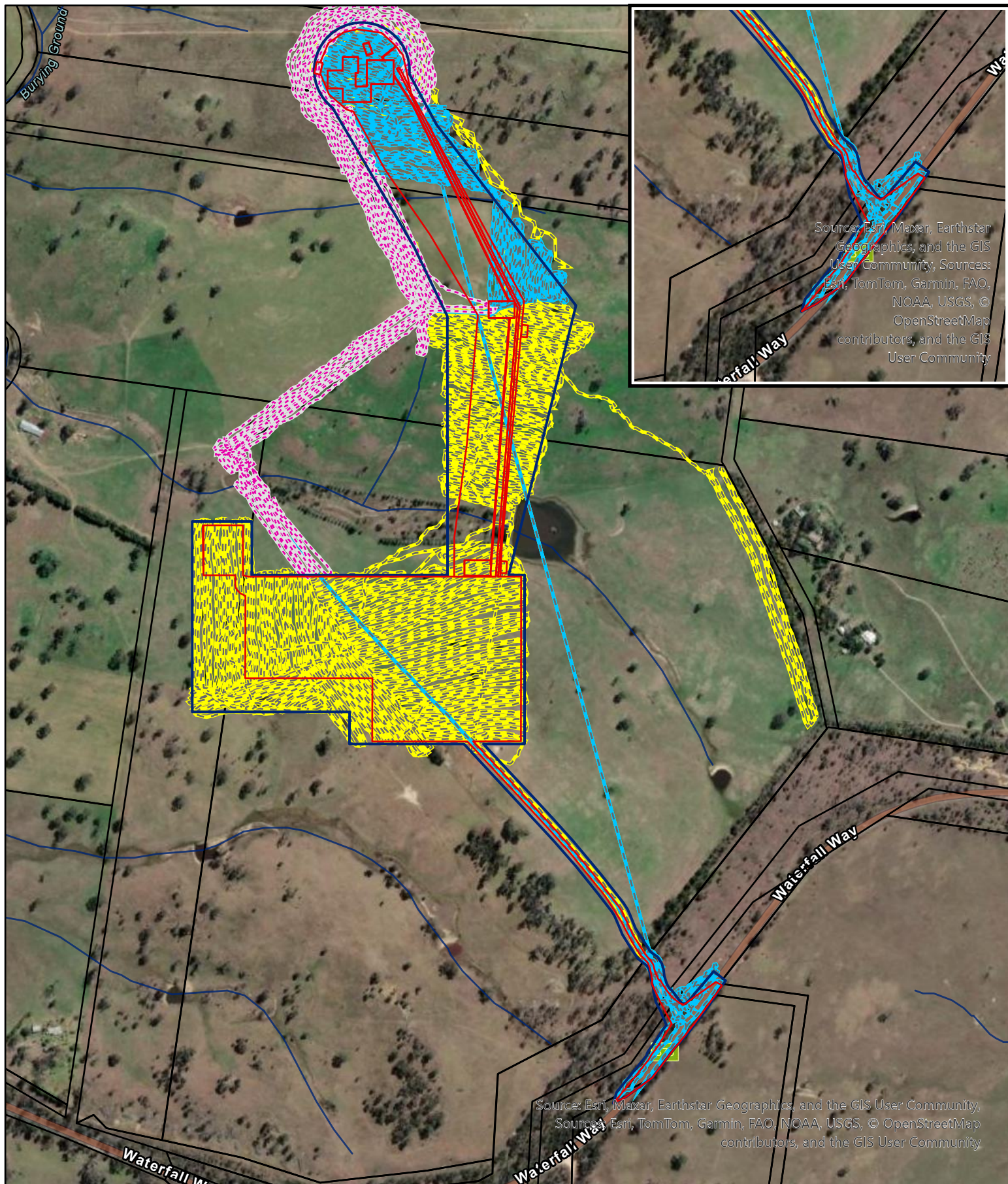


Figure 11 - Threatened Flora Survey Effort (November 2024 and February 2025)



Legend

- | | |
|---|---|
| Study Area - Buffer Area | - - - Survey Track (13 and 14/02/2025) |
| Subject Land (development footprint) | Cadastral Boundary |
| — Survey Track (13 and 14/11/2024) | — Mapped Waterway (SIXMaps 2024) |
| - - - Survey Track (14 and 15/11/2024) | |

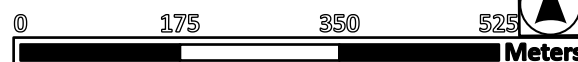




Figure 12 - Threatened Flora Locations



Legend

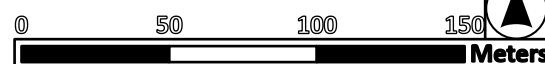
 Study Area - Buffer Area

 Subject Land (development footprint)

 Callistemon pungens listed vulnerable under the EPBC Act

 Cadastral Boundary

 Mapped Waterway (SIXMaps 2024)



5.2.4 Candidate Threatened Fauna Surveys

Candidate threatened fauna species were surveyed in accordance with the BAM survey guidelines, including the Koala (*Phascolarctos cinereus*) BAM Survey Guide (DPE 2022) (refer to **Appendix A, Table A-5**), and/ or the prescribed survey timing as stipulated in the BioNet TBDC. Surveys targeted the most suitable habitat and were conducted across the Study Area to allow for an assessment of indirect impacts and design changes.

A summary of the survey effort and survey requirements for each candidate fauna species is summarised in **Table 12**. Threatened fauna surveys are shown on **Figure 13**. Weather data is provided in **Appendix F**.

Table 12 Candidate threatened fauna species surveys

Scientific name	Common name	Survey Requirements	Survey method and timing
<i>Burhinus grallarius</i>	Bush Stone-curlew	All year	Nocturnal surveys (24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024)
<i>Calyptorhynchus lathamii lathamii</i>	South-eastern Glossy Black-Cockatoo	January to September	Bird surveys 24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024. On these dates, dusk survey locations were located in proximity to the dam to detect individuals prior to returning to roost.
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	October to March	Nocturnal surveys (24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024), Remote cameras (25/07/2024 – 11/09/2024)
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	July-December Positive identification of breeding habitat – “Breeding habitat is live large old trees within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines AND the presence of a large stick nest within tree canopy; or an adult with nest material; or adults observed duetting within breeding period.”	Nest searches in conjunction with targeted flora surveys on 14 and 15/08/2024 and on 10 and 11/09/2024 using binoculars.
<i>Hieraaetus morphnoides</i>	Little Eagle	August – October Positive identification of breeding habitat ‘Breeding habitat is large old trees within suitable vegetation AND the presence of a male and female; or any adult with nesting material; or an individual on a large stick nest in the top half of the tree canopy; or pairs displaying (soaring, diving, engaging in chases, or a male observed calling in flight with a female begging from tree)’.	Nest searches in conjunction with targeted flora surveys on 14 and 15/08/2024 and on 10 and 11/09/2024 using binoculars.
<i>Lophoictinia isura</i>	Square-tailed Kite	September - January Positive identification of breeding habitat ‘Kites will need be in attendance to confirm breeding sites. Breeding habitat is live large old trees within suitable vegetation AND the presence of a male	Nest searches in conjunction with targeted flora surveys on 10 and 11/09/2024 using binoculars.

Scientific name	Common name	Survey Requirements	Survey method and timing
		and female; or female with nesting material; or an individual on a large stick nest in the top half of the tree canopy.'	
<i>Petaurus norfolcensis</i>	Squirrel Glider	All Year	Nocturnal surveys (24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024), Remote cameras (25/07/2024 – 11/09/2024) 9 x arboreal – 48 consecutive nights (432 trap nights total)
<i>Petauroides volans</i>	Southern Greater Glider	All Year	Nocturnal surveys (24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024), Remote cameras (25/07/2024 – 11/09/2024) 9 x arboreal – 48 consecutive nights (432 trap nights total)
<i>Phascolarctos cinereus</i>	Koala	All Year	Nocturnal surveys (24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024), Remote cameras (25/07/2024 – 11/09/2024) 9 x arboreal – 48 consecutive nights (432 trap nights total), 3 x scat search (SAT). Surveys were undertaken in accordance with the BAM Koala Survey Guide; however, some methods were adapted due to the potential habitat being comprised of scattered trees rather than defined patches.
<i>Tyto novaehollandiae</i>	Masked Owl	January to August	6 x nights of nocturnal surveys, stag watching and call playback (24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024)
<i>Ninox connivens</i>	Barking Owl	January to August	6 x nights of nocturnal surveys, stag watching and call playback (24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024)
<i>Ninox strenua</i>	Powerful Owl	January to August	6 x nights of nocturnal surveys, stag watching and call playback (24 and 25/07/2024, 14 and 15/08/2024, and 22 and 23/08/2024)

Arboreal Mammals

Nine arboreal remote trigger cameras were installed to target threatened arboreal mammal species. Cameras were placed at heights of between three meters above the ground and were active for 48 nights from 25 July 2024 to 11 September 2024, totalling 432 trap nights. Cameras were baited with a mixture of honey, oats, peanut butter, and treacle in a mesh canister. The tree trunk and surrounding area were sprayed with honey water mixture. Images were analysed in-house to identify species captured on camera. Nocturnal spotlighting surveys were also undertaken on 24 and 25 July 2024.

Koala

The Koala BAM Survey Guide (DPE 2022) requires an accredited assessor to assess impacts on koalas and their habitat by using a combination of two standard survey methods: a scat detection method and a non-scat detection method. In accordance with the guideline Koala surveys incorporated a combination of remote camera trapping, spotlighting and call playback, and three scat searches (SAT) (refer to **Figure 13**).

As discussed above, nine remote trigger cameras were placed three meters above the ground and were active for 48 nights from 25 July 2024 to 11 September 2024, totalling 432 trap nights. Cameras were baited and the tree trunk and surrounding area were sprayed with honey water mixture. Images were analysed in-house.

Nocturnal spotlighting surveys were undertaken on 24 and 25 July 2024 targeting areas of mature Myrtaceous feed trees using high-powered head torches. Call playback was undertaken on 24 and 25 July 2024, 14, 15, 22 and 23 August 2024 for five minutes at the end of each spotlighting transect to elicit a response, followed by a ten-minute listening period. Three Koala SAT survey (as per Phillips and Callaghan 2011) were undertaken throughout the Subject Land.

Birds

Stag-watching and call playback surveys were undertaken on 24 and 25 July 2024, 14 and 24 and 25 2024, 14, 15, 22 and 23 August 2024 targeting threatened forest owls (in proximity to the single dead stag that contained a suitably sized breeding hollow). Diurnal bird surveys and nest searches were undertaken on 14 and 15 August 2024 to identify large stick nests. Large predatory bird surveys and woodland bird surveys were undertaken in conjunction with threatened flora searches on 10 and 11 September 2024. Searches were aided with the use of high-powered binoculars.

5.2.5 Candidate Threatened Fauna Survey Results

No candidate threatened fauna species were identified within the Study Area during targeted surveys.

5.3 EPBC Act listed MNES Surveys

Commonwealth EPBC Act listed MNES, not predicted by the BAM-C as ecosystem credit species or species credit species, that are considered to have a moderate likelihood of foraging or intermittently using the habitats present within the Study Area were surveyed in accordance with the with the BAM survey guidelines or, the prescribed survey timing as stipulated in the BioNet TBDC. A summary of the survey effort and survey requirements for Commonwealth EPBC Act MNES are summarised in **Table 13**.

Table 13 EPBC Act MNES species surveys

Scientific name	Common name	Survey Requirements	Survey method and timing
<i>Stagonopleura guttata</i>	Diamond Firetail	All year	Bird surveys 24 and 25/07/2024, surveys and nest searches in conjunction with targeted flora surveys on 14 and 15/08/2024 and on 10 and 11/09/2024 using binoculars.
<i>Grantiella picta</i>	Painted Honeyeater	All year	Bird surveys 24 and 25/07/2024, surveys and nest searches in conjunction with targeted flora surveys on 14 and 15/08/2024 and on 10 and 11/09/2024 using binoculars.
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin	All year	Bird surveys 24 and 25/07/2024, surveys and nest searches in conjunction with targeted flora surveys on 14 and 15/08/2024 and on 10 and 11/09/2024 using binoculars.
<i>Aphelocephala leucopsis</i>	Southern Whiteface	All year	Bird surveys 24 and 25/07/2024, surveys and nest searches in conjunction with targeted flora surveys on 14 and 15/08/2024 and on 10 and 11/09/2024 using binoculars.

5.4 Survey Limitations

The desktop assessment and field survey undertaken for this BDAR provide a limited view of the biodiversity values of the Study Area. The diversity of flora and fauna species recorded from this assessment should not be seen to be comprehensive. It is unlikely that every species present within the Study Area has been recorded. Targeted surveys for candidate species is still required to be undertaken in November.

To sample a comprehensive inventory of species a period of several seasons or years is often needed to identify all the species present in an area, especially as some species are only apparent at certain times of the year (orchids or migratory birds) and require specific weather conditions for optimum detection (breeding and flowering periods).

The conclusions of this report are based upon available data and are indicative of the environmental conditions of the Study Area at the time of the survey. It should be recognised that site conditions,

including the presence of threatened species, can change with time. To address this limitation, the assessment has aimed to identify the presence and suitability of the habitat for threatened species. All surveys have been conducted in accordance with the BAM and best practice guidelines.



Figure 13 - Threatened Fauna Survey Effort (April - September 2024)



- Legend**
- Study Area - Buffer Area
 - Subject Land (development footprint)
 - + Call playback (24, 25/07/24 and 14, 15, 22, 23/08/24)
 - Stagwatch
 - Survey Track (09/04/2024)
 - Bird Survey Track (24, 25/07/2024)
 - Habitat Survey Track (24/07/2024)
 - Nocturnal Survey Track (24/07/2024)
 - + Remote Cameras (24/07/2024 to 11/09/2024)
 - SAT test (24/07/2024)
 - Cadastral Boundary
 - Mapped Waterway (SIXMaps 2024)

5.5 Identified Threatened Species

Step 5: Determine the area or count, and location of suitable habitat for Species Credit species and Step 6: Determine the habitat condition within the species polygon for species assessed by area

5.5.1 Threatened Flora

As discussed in **Section 5.2.3**, four individuals of *Callistemon pungens*, an EPBC Act listed vulnerable species, were detected within the Study Area, however they are located outside of the Subject Land. In accordance with Section 5.2.5 of the BAM, a 30-meter buffer was applied to each individual to delineate the extent of the species polygon.

As shown on **Figure 14**, the area of suitable habitat for each individual would not be directly impacted by the project.

5.5.2 Threatened Fauna

A total of 33 common fauna species were detected within the Study Area during field surveys (refer to **Appendix B**). These species were comprised of 26 birds, three mammals, three amphibians and one reptile. No threatened species listed under the NSW BC Act or the Commonwealth EPBC Act were detected during the assessment.

Targeted surveys for the Eastern Pygmy-possum, a listed vulnerable species under the BC Act, were undertaken outside the prescribed survey window, therefore presence has been assumed for areas of the Subject Land considered to be potential habitat for the species (VZ01). Vegetation zone 01 (0.41 ha) forms the species polygon for the Eastern Pygmy-possum (refer to **Figure 15**), all other vegetation zones are considered unsuitable due to lack of vegetation complexity and degradation.

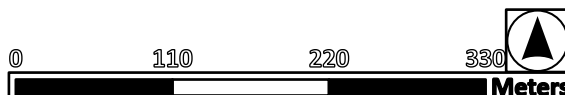


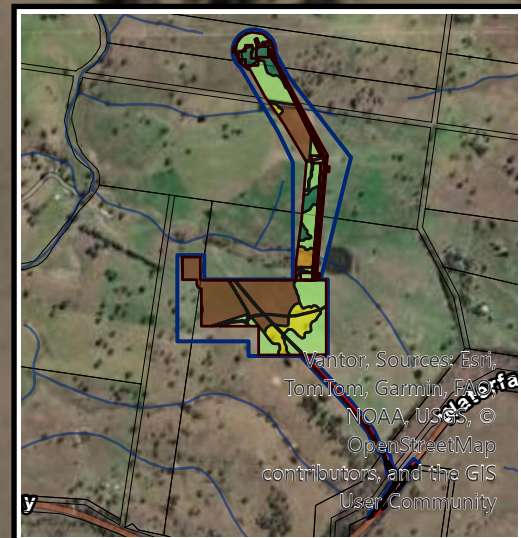
Figure 14 - Species Polygon - *Callistemon pungens* (no offset required)



Legend

- Study Area - Buffer Area
- Subject Land (development footprint)
- Cadastral Boundary
- Callistemon pungens listed vulnerable under the EPBC Act
- Species Polygon - Callistemon pungens (No Offset Required)
- Mapped Waterway (SIXMaps 2024)





 Species Polygon - Eastern Pygmy-possum



6 Avoiding and Minimising Impacts

Steps to avoid, minimise and mitigate impacts to native vegetation, threatened species and their habitat in the planning stage were informed by an initial vegetation and habitat assessment for the preparation of the preliminary Biodiversity Assessment (Habitat 2024). After the initial assessment, several meetings with ACEnergy and Habitat ecologists have been held to discuss the project and potential design options to minimise the impacts to biodiversity values within the Study Area.

The current project design (refer to **Figure 3**) has been developed after recommending that the BESS infrastructure be slightly adjusted (north/east) to sit predominantly within the exotic grassland vegetation. It was also recommended that a buffer be applied to the unsealed access, and the connection route, to ensure that the retained vegetation within the buffer (comprised of EPBC Act and BC Act listed CEEC) is conserved and managed and that potential indirect impacts are minimised.

Key avoidance and mitigation measures that have been implemented to lessen impacts to native vegetation and threatened fauna habitat are outlined below:

- The Subject Land was selected as it is already impacted by grazing and contains predominantly exotic grassland vegetation
- The impact footprint has been significantly reduced from 22.43 ha to 20.97 ha including:
 - A total of 13.58 (reduced from 15.10 ha) to be directly impacted by ground disturbance
 - A total of 7.39 ha (reduced from 7.78 ha) to be partially impacted by the overhead sub-transmission line connection route
- The BESS compound, access and overhead sub-transmission connection route have been redesigned to reduce the area of direct impact to native vegetation and threatened species habitat (by approximately 1.95 ha) to ensure the total retention of 9.96 ha and the partial retention of 5.81 ha (transmission line easement) of the EPBC Act and BC Act listed CEEC White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland
- The ground layer of the EPBC Act and BC Act listed CEEC White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland within the easement would be retained and managed by TransGrid in accordance with their ISO 14001 certified Environmental Management System (EMS) and an approved Vegetation Management Plan (VMP)
- The current VI, of the partially impacted vegetation would be retained by implementing management strategies during construction and operation, including a staged approach to the clearing of the mid and upper strata vegetation to ensure the protection of the retained ground stratum of the CEEC
- The proposed access from Waterfall Way already exists as an unsealed track. Upgrades to this access will therefore require minimal vegetation removal to accommodate for the increase in heavy vehicle traffic for construction and BESS maintenance
- A 1.8-meter-high fauna friendly fence will be installed around the perimeter of the BESS compound to ensure that animals and/or the public are prevented from injury or entering the compound area
- Vegetated screening would be planted around the BESS compound to ensure the neighbouring properties are not visually impacted
- The township of Armidale is a major regional centre and has been identified as an essential area within the New England REZ for renewable energy infrastructure

- New network infrastructure, including transmission lines and energy hubs are required to transfer renewable power.

Overall, the current project design for the future Gara BESS has limited the potential for impact to native vegetation and threatened species habitat. Mitigation measures detailed in **Section 7.6**, including the management of weed species, would further minimise direct and indirect impacts to retained native vegetation and threatened species habitat within the site and the surrounding environment.

7 Assessment of Impacts

7.1 Impacts to Native Vegetation

The Subject Land includes areas in which complete ground disturbance would occur for the BESS and transmission line infrastructure and areas in which only partial disturbance (the transmission line easement) would occur. The ground disturbance would impact approximately 6.65 ha of native vegetation, and the partial disturbance would impact approximately 5.81 ha of native vegetation that is above four meters (mid and upper strata). All native vegetation within the transmission line easement that is below four meters would be retained and subject to ongoing management.

The transmission line easement is mainly comprised of grassland and woodland patches with a relatively sparse tree canopy. Impacts would be largely limited to the selective removal of individual trees and shrubs and would allow for the retention of native groundcover species (mainly comprised of grasses, forbs and sedges) within this area.

The Draft Guideline for Assessing Partial Loss of Biodiversity Values (DCCEE 2024) released in August 2024 was developed to support the BAM (DPE 2020) and aims to provide guidance to accredited assessors when applying the BAM to assess partial loss of biodiversity values. Although the guideline is applicable to transmission line easements, it is only applicable to major projects for which SEARS were issued after 01 October 2024.

The SEARs for the current project (SSD-71680710) were issued on 19 June 2024, impacts to native vegetation were therefore assessed in accordance with Stage 2 of the BAM (DPE 2020) with reference to the BAM 2020 Operational Manual – Stage 2 (DPE 2023), which provides similar guidance on how vegetation impacts are to be assessed in circumstances where partial loss is proposed. A summary of key information relevant to how partial clearing impacts were assessed is provided below.

7.1.1 Partial Loss Justification

The woodlands and derived native grassland vegetation within the Study Area has been subjected ongoing agricultural management that has reduced the integrity of the vegetation. This is evident throughout the site by the low cover of trees and shrub, the low to moderate diversity of native plant species and the abundance of non-native plant species, including weeds.

Despite ongoing agricultural practices, there are areas of the Study Area that contain a moderate to high diversity and the coverage of native groundcover species. The resilience of the assemblages of native grasses, sedges, and forbs, despite agricultural impacts, indicates that improvement in floristic structure, composition and functionality may be achieved via appropriate management actions, such

as the removal of grazing pressure and other measures developed as part of a site-specific Vegetation Management Plan (VMP) (refer to **Section 7.6**).

7.1.2 Partial Loss Application

Most of the native vegetation proposed to be impacted by the project will require complete removal to allow for construction of the BESS and associated infrastructure. The Partial Loss Assessment is therefore applicable only to areas of woodland and native grasslands within the transmission line easement where native groundcover can be retained and managed, including:

- Vegetation Zone 02 - PCT 3359 (Moderate Condition Woodland) – 1.28 ha
- Vegetation Zone 03 - PCT 3359 (Moderate Condition Derived Native Grassland) – 3.93 ha
- Vegetation Zone 04 - PCT 3359 (Low Condition Woodland) – 0.10 ha
- Vegetation Zone 05 - PCT 3359 (Planted Native Vegetation) – 0.51 ha.

7.1.3 Scoring of Partial Loss in the BAM-C

A summary of the composition and structure attributes recorded during the sampling of BAM Plots and the benchmark data for both vegetation zones is presented in **Table 14**. Changes to the future VI were made via the allocation of management zones in the BAM-C for each vegetation zone where partial impacts are proposed.

The future VI within each management zone was then modified via changes made to the future compositional and structural scores of three growth form groups: grasses, forbs and ferns. Note that these groups form the largest proportion of groundcover species to be retained and were selected due to their greater apparent resilience evidenced by their presence despite the disturbance history of the site (long-term agricultural use). All other condition attributes values were unchanged.

Table 14 Condition attributes of vegetation zones (changes made in the BAM-C)

Growth Forms	Composition Attribute Scores						Structural Attribute Scores					
	Tree	Shrub	Grass	Forb	Fern	Other	Tree	Shrub	Grass	Forb	Fern	Other
Benchmark Data	4	6	10	15	1	3	48	6	71	12	0	1
Vegetation Zone 02 - PCT 3359 (Moderate Condition Woodland) - 1.28 ha												
Q01	4	1	12	6	0	1	18.0	0.1	91.7	0.8	0.0	0.1
Q10	1	0	7	12	0	0	2.0	0.0	60.4	20.5	0.0	0.0
Q11	1	2	9	7	1	0	0.5	0.3	80.8	4.7	0.2	0.0
Q18	2	0	6	8	0	0	6.0	0.0	58.5	1.1	0.0	0.0
Q19	1	0	9	11	0	0	1.0	0.0	63.6	13.8	0.0	0.0
Current Mean	1.8	0.6	8.6	8.8	0.2	0.2	5.5	0.1	71.0	8.2	0.0	0.0
Future Mean	0.0	0.0	8.6	8.8	0.0	0.0	0.0	0.0	71.0	8.2	0.0	0.0
Vegetation Zone 03 - PCT 3359 (Moderate Condition Derived Native Grassland) - 3.93 ha												
Q05	0	1	10	2	0	0	0.0	0.5	66.1	0.6	0.0	0.0
Q12	0	3	10	12	0	0	0.0	0.4	85.6	4.9	0.0	0.0
Q13	0	0	10	4	1	0	0.0	0.0	88.1	0.9	0.2	0.0
Q15	1	1	7	9	1	0	0.5	0.1	86.4	4.2	0.2	0.0
Q16	0	0	6	7	0	0	0.0	0.0	53.5	1.4	0.0	0.0

Growth Forms	Composition Attribute Scores						Structural Attribute Scores					
	Tree	Shrub	Grass	Forb	Fern	Other	Tree	Shrub	Grass	Forb	Fern	Other
Benchmark Data	4	6	10	15	1	3	48	6	71	12	0	1
Q17	1	0	9	11	0	0	0.1	0.0	92.2	2.4	0.0	0.0
Current Mean	0.3	0.8	8.7	7.5	0.3	0.0	0.1	0.2	78.7	2.4	0.1	0.0
Future Mean	0.0	0.0	8.7	7.5	0.0	0.0	0.0	0.0	78.7	2.4	0.1	0.0
Vegetation Zone 04 - PCT 3359 (Low Condition Woodland) - 0.10 ha												
Q02	1	0	0	2	0	0	10.0	0.0	0.0	0.3	0.0	0.0
Q14	1	0	2	3	0	0	3.0	0.0	5.2	0.3	0.0	0.0
Current Mean	1.0	0.0	1.0	2.5	0.0	0.0	6.5	0.0	2.6	0.3	0.0	0.0
Future Mean	0.0	0.0	1.0	2.5	0.0	0.0	0.0	0.0	2.6	0.3	0.0	0.0
Vegetation Zone 05 - PCT 3359 (Planted Native Vegetation) - 0.51 ha												
Q07	5	0	7	4	1	0	14.0	0.0	40.2	0.6	0.2	0.0
Current Mean	5.0	0.0	7.0	4.0	1.0	0.0	14.0	0.0	40.2	0.6	0.2	0.0
Future Mean	0.0	0.0	7.0	4.0	1.0	0.0	0.0	0.0	40.2	0.6	0.2	0.0

A summary of impacts and the future VI of each vegetation zone, including direct and partial impacts within the Subject Land is presented in **Table 15**.

Table 15 Impacts on native vegetation

VZ	PCT	Condition Class	Study Area	Subject Land	Direct Impact	Partial Impact	Retained	Current VI	Future VI
01	PCT 3359	Good Condition Woodland	0.74	0.41	0.41	0.00	0.33	79.8	0.0 - Subject Land
02	PCT 3359	Moderate Condition Woodland	3.63	1.81	0.53	1.28	1.82	52.9	0.0 - BESS Area 14.6 - Powerline
03	PCT 3359	Moderate Condition Grassland	14.23	8.13	4.20	3.93	6.10	36.6	0.0 - BESS Area 13.6 - Powerline
04	PCT 3359	Low Condition Woodland	3.15	1.58	1.48	0.10	1.57	6.1	0.0 - BESS Area 1.4 - Powerline
05	PCT 3359	Planted Vegetation	0.68	0.54	0.03	0.51	0.14	47.3	0.0 - BESS Area 10.5 - Powerline
Total			22.4	12.46	6.65	5.81	9.96		

7.2 Threatened Ecological Communities

The project would directly impact on a 6.65 ha and partially impact on 5.81 ha of native woodland and native grassland vegetation (VZ01, VZ02, VZ03, VZ04 and VZ05) commensurate with a moderate condition form of the NSW BC Act listed critically endangered White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Vegetation zones VZ01, VZ02 and VZ03 (direct impact to 5.14 ha and partial impact to 5.21 ha) are also commensurate with the Commonwealth EPBC Act listing for this CEEC. Approximately 9.96 ha of the critically endangered community would be retained within the Study Area.

7.3 Removal of Fauna Habitat

The future development of the Subject Land would remove 0.41 ha of potential foraging habitat for mobile threatened fauna species and would impact on three stick nests, four habitat trees containing three small hollows (< 5 cm in diameter), and one containing a medium hollow (>15 cm in diameter). Compensatory habitat in the form of nestboxes would be implemented at a ratio of 2:1 within the retained land.

While the Eastern Pygmy-possum was not detected during the assessment, surveys were undertaken outside of the prescribed survey window for the species. Although potential habitat for the Eastern Pygmy-possum occurs within VZ01, it is moderately degraded and disconnected from other areas of habitat where the species has been recorded (35 to 45 kms to the east of the Subject Land). Presence has been assumed for the species within VZ01 (0.41 ha).

7.4 Indirect Impacts

Section 8.2 of the BAM lists potential indirect impacts that may result from construction and/or operation of the project. The potential indirect impacts that are applicable to this proposal are discussed below. Though indirect impacts cannot be quantified, the potential for indirect impacts can be minimised through the application of stringent mitigation measures and monitoring (refer to **Table 16**).

Potential indirect impacts include:

- Increased edge effects can change abiotic conditions when new edges are created through previously intact vegetation
- Introduction of rubbish and debris to adjoin native vegetation during the construction phase (for future development) and the operation phase (following development).
- Increased weed invasion and potential spread or introduction of pathogens from the site to adjacent vegetation.
- Accidental incursions during clearing or earthworks.
- There is potential for mobilized sediments and contaminants to enter the waterways or downstream aquatic environments, particularly in the event of heavy rainfall during construction.
- Increase in rubbish dumping and the potential for flow into downstream aquatic environments.
- Increase noise, vibration, light spill, and dust during construction activities which can cause negative changes to the structure and function of adjoining vegetation.
- Changes to hydrological processes during and post earthworks and associated works to improve stormwater drainage along the boundaries of the site.

Provided the appropriate mitigation measures and management plans (refer to **Section 7.6**) are enforced, indirect impacts are unlikely to be significant to threatened species, ecological communities, and their habitats during construction and operational phases.

7.5 Prescribed Biodiversity Impacts

The following are prescribed impacts which need to be considered as per Section 8.3 of the BAM (DPIE 2020a).

Impacts of the development on the habitat of threatened species or ecological communities associated with significant geological features, human made structure or non-native vegetation.

The construction and operation of the Gara BESS would not result in impacts to significant geological features, human-made structures and non-native vegetation that constitute threatened species habitat. Mitigation measures to minimise any indirect impacts to biodiversity values within and surrounding the Subject Land are detailed in **Section 7.6**.

Impacts of the development on the connectivity of different habitats which facilitates movement of threatened species.

The Subject Land is situated within an already fragmented landscape and is already predominantly cleared to support grazing activities. Native vegetation occurs in a modified state, which is typical of rural areas that support agricultural activities. The habitat within the Subject Land is unlikely to be used as a habitat linkage to facilitate fauna movement. A tract of woodland vegetation is located along Waterfall Way within the road reserve which retains connectivity east and west. Habitat connectivity to these areas would be retained and minimally impacted by the construction and operation of the project.

Impact of the development on movement of threatened species that maintains their life cycle.

As discussed above, the project would have limited impact on the movement of threatened species in the local area. While areas of native vegetation would be removed, important movement corridors and higher quality vegetation would be retained.

Impacts of the development on water quality, bodies and hydrological processes that sustain threatened species or ecological communities.

The project has been designed to directly avoid the mapped waterways and the constructed dam. Consideration of indirect impacts to water quality and surrounding aquatic/riparian habitats are detailed in **Section 7.6**.

Impact of wind turbine strikes on protected animals.

Not applicable to the current application.

Impacts of vehicle strikes on threatened species or on animals that are part of a TEC

Given the nature of the project, it is likely that there will be an increase in vehicle movement within and proximate to the Subject Land, however this would occur during construction and only during maintenance activities during operation. Nevertheless, the ground disturbance areas would be

clearly delineated and separate from retained native vegetation. The implementation of mitigation measures outlined in **Section 7.6** would help to ensure that impacts (such as vehicle strikes, erosion and impacts to retained and surrounding vegetation) during construction and operation are minimised.

7.6 Mitigation Measures

The measures outlined in **Table 16** are proposed to minimise and avoid potential impacts associated with the project.

Table 16 Mitigation Measures

Impact	Action and Outcome	Responsibility	Timing
Direct impacts			
Clearing of native vegetation	- Avoid and minimise clearing impacts to native vegetation where possible. - Clearly delineate the boundaries of the project footprint to prevent any unnecessary clearing beyond its extent. This includes the installation of appropriate fencing along the eastern extent of the Subject Land. Fencing should prohibit entry into the retained vegetation area and minimise indirect impacts during construction such as the movement of dust and rubbish into the forest and wetland. - Ensure vehicle and equipment parking areas and stockpile areas are identified and positioned to avoid areas containing ecological value. Stockpiling must not occur within, or in proximity (5m) to, areas of native vegetation retained under the project. - Appropriate signage such as 'no go zone' or 'environmental protection area' should be installed surrounding the area of retained native vegetation and wetlands. - Clearly identify and communicate the location of any 'no go zones' in site inductions. - Tree protection measures will be implemented to protect retained trees surrounding the Subject Land. Tree protection measures should consider allowances for Tree Protection Zones in accordance with AS4970 (Standards Australia, 2009).	Construction manager	site Prior to and during vegetation clearing
Removal of hollow-bearing trees / habitat trees, nests, woody debris, leaf litter, resulting in fauna injury and mortality	- Limit removal of trees to that required within the Subject Land where possible. - Pre-clearance surveys will be undertaken to determine if any inhabiting fauna or habitat features (nests or hollows) are present 24 hours prior to clearing. - A staged habitat removal process is required for removal of habitat (hollow-bearing trees and nests) to minimise direct impacts on fauna by providing them with an opportunity to vacate hollows and relocate naturally. - If possible, avoid clearing during breeding seasons for hollow-dependent fauna and non-hollow dependent fauna, specifically nesting birds. - Contact vets and wildlife carers before construction activities commence. - Ensure a licensed wildlife carer and/or ecologist is present during vegetation clearing/habitat removal.	Construction manager / Ecologist	site Prior to and during vegetation clearing

Impact	Action and Outcome	Responsibility	Timing
	- Adopt a two staged habitat removal strategy, for example clearing non-habitat trees first (shrubs, regrowth, ground cover) followed by habitat trees. Allow at least 24 hours for fauna to vacate habitat before removing habitat trees. - Fell habitat trees carefully using equipment that allows habitat trees to be lowered to the ground with minimal impact (claw extension). Do not fell trees towards exclusion zones. - Ensure a wildlife carer and/or ecologist inspects trees before and after felling. Capture and relocate non-injured fauna that are found in any felled trees to pre-determined habitat identified for fauna release to be undertaken by a licensed ecologist or wildlife carer.		
Vegetation Management Plan – partially impacted and retained vegetation	- A VMP is to be prepared and implemented prior to construction of the project. The VMP is to be in accordance with TransGrid ISO 14001 certified EMS and is to specify clearing protocols and the management of weeds prior to clearing, particularly in the partially impacted areas containing CEEC Box Gum Grassy Woodland to ensure the ground strata VI is retained or improved - Clearing of habitat trees must follow the two staged approach, as described in the section above, and must be undertaken by a qualified arborist with an ecologist present - Clearing and maintenance of the mid and upper strata vegetation within the easement should be undertaken by a slasher and the cutting height adjusted to ensure the protection of the retained ground stratum of the CEEC - The maintenance regime is to be for a period of five years, with review and a process for certifying completion of works at critical stages of the process - Monitoring by BAM plot/transect must be undertaken prior to clearing, after construction and annually for a period of five years to monitor the VI of the partially impacted CEEC - CEEC Box Gum Grassy Woodland is considered likely to naturally regenerate by reducing grazing pressure via fencing and allowing native grass to establish, controlling invasive weeds, managing pests, and reducing further clearing. These management actions foster native plant recruitment by improving habitat conditions, increasing seed dispersal, and restoring the health and structure of the ecological community over time.	Proponent / Ecologist	Prior to clearing and post construction
Compensatory Habitat	- The implementation of compensatory measures prior to construction activities including: - Koala friendly fencing and signage around the BESS infrastructure - Replacement of hollows at a ratio of 2:1 in the retained land	Proponent / Ecologist	Prior to clearing and construction
Impacts to surface and groundwater quality and quantity due to sediment run-off and/or	- Source controls such as sediment fences, mulching and jute matting will be utilized where appropriate, especially along the eastern boundary of the project area that runs adjacent to a first-order stream. - Site-based vehicles will carry spill kits.	Construction manager	During vegetation clearing, construction and operation

Impact	Action and Outcome	Responsibility	Timing
contaminant runoff into adjacent watercourses	- Erosion and sediment control will be required for the development in accordance with Managing Urban Stormwater: Soils and Construction (Landcom, 2004) prior to commencement of construction. - Limit the use of pesticides in the project footprint where possible to avoid contamination of nearby watercourses/wetland areas.		
Vehicle collision with fauna	- Speed limits within the Subject Land should be limited to 40 km/hr. - This limit should be clearly signed at all entry points to site. - The Subject Land should be separated from vegetated areas throughout the construction and operational phases of the development. This separation should be achieved through physical barriers including fencing and appropriate signage.	Construction manager	site During construction and operation
Indirect Impacts			
Transfer of weeds and pathogens to and from site	- The fungal pathogens <i>Phytophthora cinnamomi</i> and Myrtle Rust (<i>Puccinia psidii</i>) are known to occur along the entire east coast of NSW, however, it is unknown if they occur within the Subject Land. These pathogens can have devastating impacts on native plant communities and inhabiting fauna if not effectively managed. - Appropriate washdown facilities will be available to clean vehicles and equipment prior to arrival on-site and prior to departure. - Ensure soil and seed material is not transferred	Construction manager	site During vegetation clearing, construction, and operation
Noise, vibration, lighting, waste and air pollution impacts to adjacent sensitive habitat areas	- Increased human activity (from workers and traffic levels) directly adjacent to sensitive habitat areas may cause disturbance to flora and fauna species in adjoining habitat. - Impacts from construction and operational activities, such as disturbance to an animal's normal behavior patterns due to noise, vibration, lighting, or dust may cause areas of previously suitable habitat to become sub-optimal and may cause fauna species to vacate areas of previously suitable habitat. - Measures to mitigate impacts on flora and fauna from noise, vibration, waste, light, and air pollution such as: - Enforce 'carry-out' policy regarding rubbish and waste materials generated on-site during construction to avoid waste materials entering adjacent vegetation. - Restriction of public access and associated impacts from domestic pets, waste dumping and damage to adjoining vegetation must be enforced pre, during and post construction. - Fence sensitive areas to delineate 'no go' zones.	Construction manager	site During construction and operation

Impact	Action and Outcome	Responsibility	Timing
	- Levels of lighting associated with the project (during construction and operation) will be reduced to a minimal level and directed away from retained vegetation areas to reduce any adverse effects upon the essential behavioral patterns of light-sensitive fauna. Lighting design and utilization during construction and operational phases of the development should be based on principles detailed in Appendix A of the National Light Pollution Guidelines for Wildlife (DEE 2020). This includes consideration of adaptive controls, and measures to reduce light intensity and inappropriate light spill into retained vegetation and fauna habitat. - Lighting should also comply with Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting. - Noise minimization practices in accordance with DPIE recommendations. - Dust control measures such as covering loads where required; amending operations under excessive wind conditions including ceasing operations if required; use of water tankers as required, to control dust; rehabilitation through vegetation of surfaces to be left unsealed; and truck wheel washes or other dust removal measures.		

8 Impact Summary

8.1 Serious and Irreversible Impacts

White Box - Yellow Box - Blakely's Red Grassy Woodland (Box Gum Grassy Woodland CEEC) is listed as an ecological community at risk of Serious and Irreversible Impact (SAII entity). An SAII Assessment in accordance with Section 9.1.1 of the BAM (DPIE 2020a) is presented in **Appendix H**.

8.2 Impacts Requiring Offset

The determination of impacts on the Subject Land which requires an offset was undertaken in accordance with Section 10.1 of the BAM.

8.2.1 Impacts on Native Vegetation

In accordance with Section 9.2.1 of the BAM assessors must determine an offset for all impacts on PCTs that are associated with a vegetation zone that have a VI Score of:

- ≥ 15 , where the PCT is representative of an EEC or a CEEC
- ≥ 17 , where the PCT is associated with threatened species habitat (as represented by ecosystem credits) or represents a vulnerable ecological community
- ≥ 20 , where the PCT does not represent a TEC and is not associated with threatened species habitat.

Native vegetation impacts requiring offset, and the ecosystem credit requirements are provided in **Table 17**.

Table 17 Ecosystem credit requirements

VZ	PCT	Condition Class	Direct/Partial Impact	Impact (ha)	Current VI	Future VI	Credits Required
01	3359	Good condition woodland	Direct	0.41	79.8	0.0	20
02	3359	Moderate condition woodland	Direct	0.53	52.9	0.0	48
			Partial	1.28	52.9	14.6	
03	3359	Moderate condition grassland	Direct	4.20	36.6	0.0	153
			Partial	3.93	36.6	13.6	
04	3359	Low Condition Woodland	Direct	1.48	6.1	0.0	0
			Partial	0.10	6.1	1.4	
05	3359	Planted Native Vegetation	Direct	0.03	47.3	0.0	13
			Partial	0.51	47.3	10.5	
Total				12.46			234

8.2.2 Impacts on Threatened Species

Impacts to threatened species habitats would be offset through the retirement of ecosystem credits and the management and maintenance of retained and partially retained native vegetation and habitat features. Impacts to the Eastern Pygmy-possum would be offset via the retirement of species credits provided in **Table 18**.

Table 18 Species Credit species requirements

VZ	PCT	Condition Class	Impact (ha)	Credits Required
01	3359	Good condition woodland	0.41	16

8.2.3 Impacts Not Requiring Offsets

Impacts to non-native vegetation and low condition vegetation do not require biodiversity offsets under the BAM, or are offsets generated for indirect impacts resulting from the construction and operation of a project. The implementation of mitigation measures has been presented to reduce the potential for indirect impacts to areas of retained and partially retained native vegetation (refer to **Section 7.6**). Impacts requiring offset and partial offset are shown on **Figure 16**.



Figure 16 - Impacts Requiring Offset and Partial Offset



Legend

Study Area - Buffer Area

Subject Land (development footprint)

Impacts Requiring Offset

Impacts Requiring Partial Offset

Exotic Grassland

VZ 01 - PCT 3359 New England Hills
Stringybark-Box Woodland (Good Condition Woodland)

VZ 02 - PCT 3359 New England Hills
Stringybark-Box Woodland (Moderate Condition Woodland)

VZ 03 - PCT 3359 New England Hills
Stringybark-Box Woodland (Moderate Condition Derived Native Grassland)

VZ 04 - PCT 3359 New England Hills
Stringybark-Box Woodland (Low Condition Woodland)

VZ 05 - PCT 3359 New England Hills
Stringybark-Box Woodland (Planted Native Vegetation)



9 Legislative Review

9.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act requires that developments that are likely to have a significant impact on MNES be referred for a determination as to whether they are a controlled action that requires approval under the EPBC Act. A project referral (EPBC 2025/10102) was submitted to the Commonwealth Minister for the Environment and Water on 17 January 2025 for potentially significant impacts to:

- Listed threatened species and communities (sections 18 and 18A).

The Commonwealth Minister determined the project as a 'controlled action' on 01 April 2025 due to likely significant impacts to:

- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – critically endangered ecological community

Consequently, the project is being assessed under the Assessment Bilateral Agreement and requires approval under the EPBC Act. To compensate for the residual impacts of the project on the biodiversity values within the site, biodiversity offsets will be retired under the NSW BOS.

Options for controlled actions to meet their biodiversity offset requirements under the NSW BOS are summarised below:

- Retire biodiversity credits based on the like-for-like provisions under the BC Regulation
- Fund biodiversity conservation actions that are listed in the Ancillary rules - biodiversity conservation actions and directly benefit the threatened entity impacted
- Commit to deliver mine site ecological rehabilitation that creates the same ecological community or threatened species habitat
- Pay into the Biodiversity Conservation Fund, noting it is the proponent's responsibility to notify the Biodiversity Conservation Trust that their payment is for a controlled action.

The preferred method of biodiversity offset credit retirement will be decided in consultation with consent authorities.

9.1.1 Threatened Ecological Communities

The project would directly impact on a 5.14 ha and partially impact on 5.21 ha of native woodland and native grassland vegetation (VZ01, VZ02, and VZ03) commensurate with a moderate condition form of EPBC Act listed White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC. Approximately 8.25 ha of the critically endangered community would be retained within the buffer area.

An assessment of significance in accordance with the EPBC Act Significant Impact Guidelines 1.1 (DotE 2013) for EPBC Act listed White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC is provided in **Appendix G**. In accordance with the Commonwealth Ministers determination, significant impacts to the CEEC as a result of the project are considered likely.

Impacts to the CEEC would be offset through the retirement of ecosystem credits (refer to **Table 17**) under the NSW BOS and the ongoing management of the retained and partially retained areas of the CEEC via a VMP. The VMP would aim to improve the future condition of the ground strata of the CEEC

vegetation through management of weed species and clearing protocols. The partially retained areas would also be monitored pre and post construction for a period of five years to ensure the current VI of the ground strata is retained. Additional details and mitigation measures are provided in **Table 16**.

9.1.2 Threatened Species

One EPBC Act listed flora species was identified during the assessment. Four individuals of *Callistemon pungens* were identified within the Study Area, however no individuals will be directly impacted by the project. No other EPBC Act listed threatened species were identified during the assessment.

Based on the condition and extent of habitat within the Subject Land, impacts are to be limited to the removal of approximately 0.41 ha (VZ01) of suitable foraging habitat for the following mobile threatened fauna species:

- Koala (*Phascolarctos cinereus*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Brown Treecreeper (*Climacteris picumnus victoriae*)
- Diamond Firetail (*Stagonopleura guttata*)
- Painted Honeyeater (*Grantiella picta*)
- South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)
- Southern Whiteface (*Aphelocephala leucopsis*)
- White-throated Needletail (*Hirundapus caudacutus*)

An assessment of significance for each of the above listed species has been prepared in accordance with the EPBC Act Significant Impact Guidelines 1.1 (DotE 2013) (refer to **Appendix G**). Each of the assessments determined that significant impacts are unlikely to occur based on the condition and extent of habitat to be impacted.

Impacts to threatened species habitats would be offset through the retirement of ecosystem credits (refer to **Table 17**) under the NSW BOS and the management of the retained and partially retained land. Additional compensatory habitat in the form of nestboxes would also be implemented. Potential indirect impacts such as erosion, edge effects and the adverse effects of habitat degradation via the spread of weeds would be minimised via the implementation of mitigation measures provided in **Table 16**.

9.2 Biosecurity Act

Three listed priority weeds under the *Biosecurity Act 2015* for the Northern Tablelands region were identified during the assessment. Each species are also listed WoNS under the EPBC Act (refer to **Table 19**). Although the incidence of priority and WoNS are relatively low, mitigation measures to reduce the potential for the spread of weed species is presented in **Table 16**.

Table 19 **Weed species requiring control**

Family	Scientific Name	Common Name	WoNS (EPBC Act)	Priority weed
Poaceae	<i>Nassella neesiana</i>	Chilean Needle Grass	Yes	Yes
Poaceae	<i>Nassella trichotoma</i>	Serrated Tussock	Yes	Yes
Rosaceae	<i>Rubus anglocandicans</i>	Blackberry	Yes	Yes

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Appendix A – Assessment Summary



Table A-1 Study Area and Subject Land assessment summary

Details		Area (ha)
Date of report issue	13 November 2025	-
Document number	HBT0229_BDAR_V17.0	-
Client	ACEnergy Pty Ltd	
Report type	Biodiversity Development Assessment Report	-
Site address	86 Woodlands Road, 67 and 280 Argyle-Mining Vale Road, Armidale, NSW 2350	
Study Area	Lot 1 DP246878, Lot 1 DP573787, Lot 7003 DP1060212, Lot 7009 DP1060213 and Lot 145 DP755826, Lot 144 DP755826, Lot 153 DP755826	32.97 ha
Subject Land	Area within the Study Area to be directly impacted by the project	20.97 ha
	Area within the Study Area to be directly impacted (ground disturbance)	13.58 ha
	Area within the Study Area to be partially impacted (transmission line easement)	7.39 ha
Assessor	Dr. Gilbert Whyte	
BAAS	00051433/BAAS18041/24/00051434	

Table A-2 Summary of Armidale Council Advice

Armidale Council Advice	Section of the BDAR where it is addressed
Koala sightings have been recorded on Lot 1 DP 246878, and the site directly adjoins land identified as potential Koala habitat linkage in Council's Koala Management Strategy. Given this, any proposed development on the site and its connection to the grid, should be located well clear of any areas of potential/core Koala habitat, to be considered as part of any future BDAR.	Refer to Section 5.1.4
The development lots as well as Lots 7003 and 7009, have all been identified as containing areas of High Environmental Value (HEV) land and must be considered in the BDAR.	Refer to Section 4.3.2
Given the proximity of the development to potential Koala habitat and possibly core habitat, any security fencing to be installed around the facility must also have wildlife barriers to exclude Koalas from being able to climb fencing and getting caught. Such fencing should also exclude any barbed wire to prevent entanglement of fauna.	Refer to Section 5.1.4

Table A-3 Summary of Environmental Assessment Requirements (19/06/2024)

Environmental Assessment Requirements (SSD-71680710) 19 June 2024	Section of the BDAR where it is addressed
Identifying, describe, and map the extent of woodland EECs/CEECs in accordance with the NSW Threatened Species Scientific Committee's final determinations. All condition states of woodland EEC must be mapped appropriately using the BCS North East Branch guidelines for: - White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland - Ribbon Gum - Mountain Gum - Snow Gum Grassy Forest/Woodland has several condition states.	Refer to Section 4.3.9
Target surveys in accordance with relevant survey guidelines must be undertaken early in the assessment process for threatened species known to occur in the locality and particularly for: - Narrow-leaved black peppermint (<i>Eucalyptus nicholii</i>) - Bluegrass (<i>Dichanthium setosum</i>) - Little eagle (<i>Hieroaetus morphnoides</i>) - Koala (<i>Phascolarctos cinereus</i>).	Refer to Section 5.2.1
Confirmation of the location and extent of Category 1 Exempt Land within the site verifying the presence or absence of threatened species and communities.	Refer to Section 2.1.4 and Figure 6

Table A-4 Summary of Schedule 4 of the EPBC Regulation/ Supplementary Environmental Assessment Requirements (29/03/ 2025)

Supplementary Environmental Assessment Requirements (SSD-71680710) 29 March 2025	
General requirements	Section of the BDAR where it is addressed
Relevant Regulations 5. The EIS must address all matters outlined in Schedule 4 of the EPBC Regulations and all matters outlined below in relation to the controlling provisions.	EPBC Regulations are discussed in Sections 2.1.1 Section 2.1.2 and 2.1.3. Section 9.1. Appendix G provides details relating to the controlling provision: • listed threatened species and communities (sections 18 and 18A).
Project Description 6. The title of the action, background to the action and current status 7. The precise location and description of all works to be undertaken (including associated offsite work and infrastructure), structures to be built or elements of the action that may have impacts on MNES	The project title, the project background and the current status of the project are provided in Section 1.1. • The project location and a description of project works are detailed in Section 1.1, Section 1.4 and Section 1.5. • The project location and design are also illustrated on Figure 1 and Figure 3. • Project impacts (direct and indirect) to MNES are discussed in Section 7 and Section 9.1.
8. How the action relates to any other actions that have been, or are being taken in the region affected by the action	The PMST search identified three other referrals within the locality of the Subject Land, however, only one was determined a controlled action: • Armidale Regional Landfill (2007/3646) for likely to significant impacts on World Heritage Properties (Sections 12 and 15A) and National Heritage places (Sections 15B and 15C). • Information detailing the locality and the surrounding environment of the Subject Land is provided in Section 1.3. • Additional information regarding cumulative impacts are provided in the EIS.
9. How the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts on MNES.	• The project works are detailed in Section 1.5 and are illustrated on Figure 3. • Details regarding design parameters undertaken by the proponent to avoid and minimise impacts to MNES are provided in Section 6.
Impacts 10. The EIS must include an assessment of the relevant impacts of the action on the matters protected by the controlling provisions, including: • a description and detailed assessment of the nature and extent of the likely direct, indirect and consequential impacts, including short term and long term relevant impacts • a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible • analysis of the significance of the relevant impacts • any technical data and other information used or needed to make a detailed assessment of the relevant impacts.	• Details relating to the assessment and analysis of relevant impacts of the action on MNES are discussed in Section 4.3.10, Section 5.1.8, Section 5.3, Section 7 and Section 9.1. • Impact assessments, in accordance with the EPBC Act Significant Impact Guidelines 1.1 MNES (DEWHA 2013), for matters known or likely to use habitat within the site are provided in Appendix G. • Technical data used to assist in the assessment, is provided in Section 10 and for likely impacted matters, species specific references are provided in Appendix G.

Supplementary Environmental Assessment Requirements (SSD-71680710) 29 March 2025

General requirements	Section of the BDAR where it is addressed
Avoidance, Mitigation and Offsetting 11. For each of the relevant matters protected that are likely to be significantly impacted by the action, the EIS must provide information on proposed avoidance and mitigation measures to manage the relevant impacts of the action including: - a description, and an assessment of the expected or predicted effectiveness of the mitigation measures - any statutory policy basis for the mitigation measures - the cost of the mitigation measures - an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action including any provisions for independent environmental auditing - the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.	- Although the project has been designed to avoid and minimise impacts to biodiversity (refer to Section 6), one MNES would be likely significantly impacted by the project (refer to Section 9.1). - The project would directly impact 4.24 ha and partially impact on 5.21 ha of the EPBC Act listed CEEC White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland. - The critically endangered community is also commensurate with the State listed CEEC and therefore would be offset (like for like) under the NSW BOS. - The Australian Government has endorsed the NSW BOS via the EPBC Act Condition-setting Policy to assess and meet a projects biodiversity offset requirements and therefore it is an adequate mitigation measure. - The retained CEEC and partially impacted CEEC would also be subject to ongoing management via a VMP. The VMP would be implemented over five years (then reviewed) and would aim to improve the retained CEEC. - Additional compensatory and mitigation measures are detailed Table 16. - The fee to retire the credits under the NSW BOS and to implement the project VMP and other compensatory/mitigation measures detailed in Table 16 is currently unknown. As the preferred method of credit retirement has not yet been determined by the proponent and the cost of implementing the mitigation measures has not been determined. - Offset retirement and mitigation measures for the project will be determined/confirmed in consultation with State and Commonwealth consent authorities. - The agency responsible for endorsing the mitigation measures will likely be the NSW DCCEW.
12. Where a significant residual adverse impact to a relevant protected matter is considered likely, the EIS must provide information on the proposed offset strategy, including discussion of the conservation benefit associated with the proposed offset strategy.	- Refer to point 11. - Likely significant impacts to the protected matter and information on the proposed offset strategy are detailed in Section 9.1.1 and Appendix G.
13. For each of the relevant matters likely to be impacted by the action the EIS must provide reference to, and consideration of, relevant Commonwealth guidelines and policy statements including any:	Assessments of significance in accordance with EPBC Act significant impact guidelines for relevant matters likely to be impacted by the action, including relevant Commonwealth guidelines and policies, for each matter are detailed in Appendix G.

Supplementary Environmental Assessment Requirements (SSD-71680710) 29 March 2025

General requirements	Section of the BDAR where it is addressed
- conservation advice or recovery plan for the species or community - relevant threat abatement plan for the species or community - wildlife conservation plan for the species - any strategic assessment.	
14. Specific information is required with respect to each of the determined controlling provisions. These requirements are outlined in itemised numbers 15 and 17.	Refer to item numbers 15 and 17 below.
Key Issues	
15. Identify EPBC Act listed threatened species and community and migratory species that are likely to be impacted, provide a description of the nature, quantum and consequences of the impacts. For species and communities potentially located in the project area or in the vicinity that are not likely to be impacted, provide evidence why they are not likely to be impacted and detail the nature of the impacts or provide evidence why they are not likely to be impacted.	EPBC Act listed matters that are likely to be impacted by the project are provided in Section 5.1.2, 5.1.3 and Section 9.1. - One EPBC Act listed flora species was identified during the assessment; however, the four individuals occur outside the Subject Land and would not be directly impacted - No other EPBC Act listed threatened species were identified during the assessment - The project would remove 0.30 ha of suitable foraging habitat for eight EPBC Act listed mobile threatened fauna species - These species are considered to have a low to moderate likelihood of foraging or intermittently using the habitats present within the site. No direct impacts will occur to EPBC Act listed species and therefore a significant impact is unlikely. - Impacts to EPBC Act listed species habitats would be offset through the retirement of ecosystem credits. Additionally, the installation of nestboxes at a ratio of 2:1 in retained vegetation will minimise the loss of potential foraging habitat for these matters (refer to Section 7.3 and Table 16). - Listed matters returned from the EPBC Act PMST search, that are considered to have a moderate likelihood of foraging or intermittently using the habitats present within the Subject Land are detailed in Appendix C. - Assessment of significance in accordance with EPBC Act guidelines, for each listed matter likely to be impacted by the action, are provided in Appendix G
16. For each of the EPBC Act listed MNES that are likely to be impacted by the action provide a separate: description of habitat relevant impacts of the action in relation to the national extent of	EPBC Act listed MNES likely to be impacted by the action are provided in Appendix G and include: The preferred habitats and the potential for impacts to matters national extent

Supplementary Environmental Assessment Requirements (SSD-71680710) 29 March 2025

General requirements	Section of the BDAR where it is addressed
- species and reference to any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plans - description of the relevant impacts of the action in regard to the full national extent of the MNES - details of the scope, timing and the survey methodology in accordance with the BAM	- Relevant Commonwealth guidelines and policy statements - Listing and conservation advice, and recovery plans that
description of avoidance, mitigation measures and significant residual adverse impacts likely to occur after the proposed activities to avoid and mitigate all impacts are considered	- The EPBC Act listed CEEC was sampled in accordance with the BAM (by collecting BAM plot transect) (refer to Section 4.2). - The floristic and structural characteristics of the plot data was then compared to the Approved Conservation Advice (Commonwealth Scientific Committee 2016). The advice provides minimum condition thresholds to assist with the accurate identification of the CEEC and assess the conservation value based on the condition class. - EPBC Act listed matters, not returned by the BAM-C, were surveyed in accordance with the prescribed survey timing as stipulated in the BioNet TBDC and applicable BAM guidelines (refer to Section 5.2). - Surveys targeted the most suitable habitat and were conducted throughout the Study Area to allow for an assessment of indirect impacts and design changes. - The survey effort and survey requirements for each listed matter likely to occur or use habitats within the Subject Land are provided in Table 10, Table 12 and Table 13. - Steps to avoid, minimise and mitigate impacts to native vegetation, EPBC Act listed matters and NSW BC Act listed entities, were initiated at the planning stage to help inform potential design options and to minimise the impacts to biodiversity values within the site (refer to Section 6). - While reducing the extent of the CEEC, the project would also retain 9.09 ha in the Buffer Area and the groundcover/shrub species below four meters within the easement (5.21 ha). The implementation of the VMP would help to improve the condition of the retained CEEC and would maintain connectivity to a larger patch of the CEEC (refer to Section 7.1) - Potential indirect impacts such as erosion, edge effects and the adverse effects of habitat degradation via the spread of weeds would be minimised via the implementation of mitigation measures provided in Table 16.

Supplementary Environmental Assessment Requirements (SSD-71680710) 29 March 2025

General requirements	Section of the BDAR where it is addressed
- description of the offsets proposed to address residual adverse significant impacts and how these offsets will be established in accordance with the EPBC Act - details of how the NSW BAM has been applied in accordance with the objectives of the EPBC Act to offset significant residual adverse impacts - Provide the credit requirements in accordance with the BAM	- Details regarding direct and indirect impacts resulting from the project are provided in Section 7 and Section 8. - The EPBC Act listed CEEC is commensurate with the BC Act listed CEEC. The offset requirements for the CEEC under both State and Commonwealth legislation are like-for like. - An ecosystem credit obligation under the NSW BOS will be incurred for impacts to the EPBC Act listed CEEC. - The ecosystem credit requirements are provided in Table 18. - Details regarding the application of the BAM in accordance with the objectives of the EPBC Act is provided in Section 2.
17. Any significant residual impacts not addressed by the BAM may need to be addressed in accordance with the EPBC Act 1999 Environmental Offset Policy.	There are no significant residual impacts that have not been addressed by the BAM, that may need to be addressed under the EPBC Act Environmental Offset Policy. The
18. Information in relation to any other approvals or conditions required must include the information prescribed in Schedule 4 Clause 5 (a) (b) (c) and (d) of the EPBC Regulations.	There are no known additional approvals or conditions for the project at this time.
19. Information in relation to the environmental record of a person proposing to take the action must include details as prescribed in Schedule 4 Clause 6 of the EPBC Regulations.	Proponent details are provided in the EIS.
20. For information given in an EIS, the EIS must state the source of the information, how recent the information is, how the reliability of the information was tested; and what uncertainties (if any) are in the information.	A complete list of references is provided in Section 10 and the references used for the significant impact assessment to MNES are provided in Appendix G . All sources of information are scientifically credible and/or provided through State and Commonwealth online sources and databases.

Table A-5 Key biodiversity issues raised by CPHR (DOC25/665097-8)

Key Biodiversity Issues raised by CPHR (DOC25/665097-8) 10 September 2025	
General requirements	Section of the BDAR where it is addressed
1. The extent of proposed clearing and partial clearing assessment requires revision. Assess all temporary impacts as full loss and provide additional information to support the proposed assessment of partial loss. - Update the BDAR to include an assessment of all vegetation that will be temporarily removed as full loss, including access tracks to the proposed tower sites. - Ensure that the final vegetation integrity values for partial clearing documented in the BDAR align with the values assessed in the BAM-C and a conservative, justifiable approach to partial clearing. - Provide the above additional information requested to support the proposed assessment of partial clearing.	- The Subject Land footprint has been reduced, and all direct and partial impacts have been revised accordingly (refer to Section 7.1 and Table 14) - The final VI scores for partial clearing in this BDAR align with the BAM-C (refer to Table 15). - Additional information to support the request has also been provided in Section 7.1. - A VMP is to be prepared and implemented prior to construction of the project. The VMP is to be in accordance with TransGrid ISO 14001 certified EMS and is to specify clearing protocols and the management of weeds throughout construction and operation, particularly in the partially impacted areas containing CEEC Box Gum Grassy Woodland to ensure the ground strata VI is retained or improved (refer to Table 16).
2. SAIL assessment requires revision to accord with the BAM. Update the SAIL assessment in the BDAR to fully address Section 9.1.1 of the BAM.	The SAIL assessment provided in Appendix H has been updated in accordance with Section 9.1.1 of the BAM.
3. Vegetation mapping requires review in relation to vegetation zone boundaries and extent of Threatened Ecological Communities - Review the native vegetation extent mapping in Figure 5 and update the BDAR and BAM-C accordingly. - The vegetation mapping be reviewed to ensure vegetation zones accurately map areas in the same broad condition state in accordance with section 4.3.1 of the BAM and the remaining sections of the BDAR and the BAM-C amended as required. - The identification of Threatened Ecological Communities be reviewed for vegetation zones 04 and 05.	- Native vegetation extent has been updated, from 33% (500 ha) to 85% (1,285 ha), to include native grassland vegetation within the 1,500 m landscape buffer (1,496 ha). Native Vegetation Cover is classed as >70% (refer to Table 2). - The vegetation mapping has been updated to amended in accordance with CPHR recommendation (from native grassland VZ03 to native woodland VZ04) (refer to Figure 6 and Table 4). - Vegetation zones VZ04 and VZ05 have been included as BC Act listed CEEC White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland (refer to Section 4.3.9 and Figure 7)
4. Exclusion of some candidate species does not accord with the BAM. The assessor provides further evidence (such as published literature) to support the exclusion of eastern pygmy possum and southern myotis as candidate species, and if not available the species be retained in the assessment.	- Targeted surveys for the Eastern Pygmy-possum were undertaken outside the prescribed survey window, therefore, presence has been assumed for areas of the Subject Land considered to be potential habitat for the species (VZ01). An species credit species requirement has been incurred for impacts to 0.41 ha of potential habitat (refer to Section 5.1.6, Section 7.3 and Table 18). - While the Subject Land contains a dam, there are no waterways or stream pools greater than three meters wide within the Subject Land and there is

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General requirements	Section of the BDAR where it is addressed
	no adjacent intact mature vegetation (other than immature planted vegetation). The Subject Land is not within 100 kilometers of the coast and the nearest waterway fringed by mature vegetation is the Gara River, located approximately 2.5 kilometers to the east. In consideration of the information on the preferred habitat of the Southern Myotis, the Subject Land is determined to be unsuitable for the species. Further information to support this is provided in Section 5.1.7 .
5. The BDAR does not demonstrate surveys for koala have complied with published guidelines. The BDAR be revised to demonstrate the surveys completed for koala comply with published guidelines.	The Koala BAM Survey Guide (DPE 2022) requires an accredited assessor to assess impacts on koalas and their habitat by using a combination of two standard survey methods: a scat detection method and a non-scat detection method. In accordance with the guideline Koala surveys incorporated a combination of remote camera trapping, spotlighting and call playback, and three scat searches (SAT) (refer to Section 5.2.4).
6. The southern access portion of the subject land requires survey and assessment	The design has been revised, and the southern access has been excluded.

Appendix B – Flora and Fauna Species Lists



Table B1 **Flora List**

Form	ScientificName	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Exotic	<i>Arrhenatherum elatius</i>		5																
Exotic	<i>Avena barbata</i>						0.2												
Exotic	<i>Briza minor</i>																		2
Exotic	<i>Bromus catharticus</i>		5	5	2									5				30	
Exotic	<i>Bromus hordeaceus</i>																		2
Exotic	<i>Centaurium erythraea</i>																		0.2
Exotic	<i>Cirsium vulgare</i>	0.1	0.1		0.1				0.1	0.2	0.1					0.1	0.2	1	0.1
Exotic	<i>Conyza bonariensis</i>		0.1											0.1					
Exotic	<i>Cyclospermum leptophyllum</i>																		1
Exotic	<i>Dactylis glomerata</i>		75	80	60	1	1		50	5	0.2		1	70					0.5
Exotic	<i>Eleusine tristachya</i>		0.1	0.1	0.1														
Exotic	<i>Eragrostis lugens</i>	0.2			0.5	1	10	20			5	5		2					
Exotic	<i>Erodium cicutarium</i>																		0.5
Exotic	<i>Gamochaeta americana</i>								0.1	0.2									0.5
Exotic	<i>Hypochaeris radicata</i>					0.1	0.2				0.1				0.1	0.2	0.2	0.2	1
Exotic	<i>Lepidium bonariense</i>	0.1	1	1	0.3				0.5			0.1		0.2		0.1		1	
Exotic	<i>Linaria pelisseriana</i>																		0.1
Exotic	<i>Lolium rigidum</i>						2							5					
Exotic	<i>Lysimachia arvensis</i>									0.1									
Exotic	<i>Malva parviflora</i>																	0.1	
Exotic	<i>Marrubium vulgare</i>	0.1	0.2	0.1					0.2										
Exotic	<i>Medicago sp.</i>																	3	
Exotic	<i>Modiola caroliniana</i>		0.1		0.1				0.2										
Exotic	<i>Oxalis corniculata</i>															0.2			
Exotic	<i>Paronychia brasiliiana</i>	0.2			0.2				0.1		0.1		0.2	0.2		0.1	0.1	0.2	1
Exotic	<i>Plantago lanceolata</i>	1	0.5	0.2			0.2	2	0.5	0.2	0.2	0.1		1	0.1	0.2		5	2
Exotic	<i>Petrorrhagia dubia</i>																		0.5
Exotic	<i>Richardia humistrata</i>														0.1				

Form	ScientificName	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Exotic	<i>Rumex acetosella</i>									0.2	0.2	0.2					0.5		0.5
Exotic	<i>Setaria parviflora</i>		5	5	25	30		20	5					2					
Exotic	<i>Silybum marianum</i>							0.1											
Exotic	<i>Solanum nigrum</i>		0.1																
Exotic	<i>Sonchus oleraceus</i>		0.1																
Exotic	<i>Stellaria media</i>											0.1					0.1		
Exotic	<i>Stellaria pallida</i>							0.2											
Exotic	<i>Tagetes minuta</i>	0.2																	
Exotic	<i>Taraxacum officinale</i>							0.1	0.1	0.1	0.1		0.1						
Exotic	<i>Trifolium arvense</i>																	0.2	
Exotic	<i>Trifolium dubium</i>																		1
Exotic	<i>Trifolium repens</i>		0.5	0.1	0.2			1	15	1	5								1
Exotic	<i>Trifolium subterraneum</i>							15	10	2	5	10	2		40	2			
Exotic	<i>Urtica urens</i>																	0.1	
Exotic	<i>Verbascum thapsus subsp. thapsus</i>							0.1									0.1		
Exotic	<i>Vulpia bromoides</i>																		10
Fern (EG)	<i>Cheilanthes sieberi</i>						0.2			0.2		0.2		0.2					
Fern (EG)	<i>Marsilea spp.</i>							0.2											
Forb (FG)	<i>Acaena novae-zelandiae</i>						0.1	0.1		0.1	0.1				0.1	0.1			
Forb (FG)	<i>Ajuga australis</i>						0.2												
Forb (FG)	<i>Asperula conferta</i>	0.1					0.1	0.2		10	2	0.5			0.1	0.5	1	0.2	
Forb (FG)	<i>Calotis cuneifolia</i>	0.1			0.1													0.2	
Forb (FG)	<i>Centella asiatica</i>						0.1												0.2
Forb (FG)	<i>Chrysocephalum apiculatum</i>					0.5				2	2	2	0.5		3	0.2	0.1	0.1	0.5
Forb (FG)	<i>Chrysocephalum semipapposum</i>						1												
Forb (FG)	<i>Coronidium scorpioides</i>										0.1								
Forb (FG)	<i>Cotula australis</i>							0.2	0.2					0.1			0.1		
Forb (FG)	<i>Crassula sieberiana</i>									0.1		0.1		0.1			0.1	0.1	1

Form	ScientificName	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Forb (FG)	<i>Cymbonotus lawsonianus</i>							0.1	0.1	0.1		0.1				0.1		0.1	
Forb (FG)	<i>Daucus glochidiatus</i>									0.1	0.1		0.1						
Forb (FG)	<i>Dianella longifolia</i>						2												
Forb (FG)	<i>Dichondra repens</i>									5									5
Forb (FG)	<i>Dichondra sp. A</i>																0.2		
Forb (FG)	<i>Dysphania pumilio</i>	0.2	0.2		0.2									0.1					
Forb (FG)	<i>Dysphania pumilio</i>						0.1												
Forb (FG)	<i>Einadia nutans</i>																	0.1	
Forb (FG)	<i>Euchiton involucratus</i>																		1
Forb (FG)	<i>Geranium solanderi</i>	0.1					0.1			2	0.2	1				0.2	0.2	0.1	
Forb (FG)	<i>Gonocarpus tetragynus</i>											0.1							
Forb (FG)	<i>Goodenia rotundifolia</i>						1												
Forb (FG)	<i>Haloragis heterophylla</i>				0.2			0.2		0.2	0.2	0.5			0.2	0.2	0.2		5
Forb (FG)	<i>Hypericum gramineum</i>									0.2		0.1	0.2		0.2		0.1		0.5
Forb (FG)	<i>Leptorhynchos squamatus subsp. squamatus</i>														0.1				
Forb (FG)	<i>Leucochrysum albicans</i>														0.1				
Forb (FG)	<i>Lythrum hyssopifolia</i>											0.1							
Forb (FG)	<i>Mentha diemenica</i>	0.2								0.1		0.1							
Forb (FG)	<i>Opercularia diphylla</i>						0.2												
Forb (FG)	<i>Oreomyrrhis eriopoda</i>														0.2				
Forb (FG)	<i>Oxalis perennans</i>	0.1	0.1				0.1			0.5		0.2					0.1	0.2	
Forb (FG)	<i>Pimelea linifolia</i>																		0.1
Forb (FG)	<i>Plantago gaudichaudii</i>														0.2				
Forb (FG)	<i>Portulaca oleracea</i>				0.1														
Forb (FG)	<i>Rumex brownii</i>											0.1				0.1			
Forb (FG)	<i>Swainsona galegifolia</i>						0.5												
Forb (FG)	<i>Tricoryne elatior</i>																		0.2
Forb (FG)	<i>Tricoryne simplex</i>																		0.2

Form	ScientificName	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Forb (FG)	<i>Vittadinia cuneata</i>						0.5								0.1				
Forb (FG)	<i>Wahlenbergia gracilis</i>					0.1											0.2		0.1
Grass & grasslike (GG)	<i>Anthosachne scabra</i>				3	0.2											0.2		
Grass & grasslike (GG)	<i>Aristida calycina</i>			5		0.2													
Grass & grasslike (GG)	<i>Aristida ramosa</i>	2					20				1		1	0.2					
Grass & grasslike (GG)	<i>Aristida vagans</i>														0.1				
Grass & grasslike (GG)	<i>Austrostipa scabra</i>																	1	
Grass & grasslike (GG)	<i>Bothriochloa macra</i>	0.2				0.1	0.5												0.2
Grass & grasslike (GG)	<i>Carex appressa</i>							10											
Grass & grasslike (GG)	<i>Carex inversa</i>	5			0.5					2	0.5	0.2	0.2				10	10	0.5
Grass & grasslike (GG)	<i>Chloris truncata</i>					0.1	0.1												
Grass & grasslike (GG)	<i>Cymbopogon refractus</i>												1						
Grass & grasslike (GG)	<i>Cynodon dactylon</i>	20			5													30	
Grass & grasslike (GG)	<i>Dichelachne micrantha</i>	0.1																	0.5
Grass & grasslike (GG)	<i>Digitaria brownii</i>					0.1	0.2												
Grass & grasslike (GG)	<i>Eragrostis brownii</i>					20					0.5	2	15						
Grass & grasslike (GG)	<i>Eragrostis leptostachya</i>	1		0.5		0.1			1				5						0.5
Grass & grasslike (GG)	<i>Eragrostis trachycarpa</i>								2				5			3			
Grass & grasslike (GG)	<i>Fimbristylis dichotoma</i>	0.1			0.1	0.1		0.1			0.1	0.2	0.2		0.1	0.2			
Grass & grasslike (GG)	<i>Juncus filicaulis</i>	0.3			0.1	0.2				1		0.1	0.2			0.2	0.2		0.2
Grass & grasslike (GG)	<i>Juncus homalocalis</i>							0.1		0.2							0.2		
Grass & grasslike (GG)	<i>Juncus subsecundus</i>							5											
Grass & grasslike (GG)	<i>Juncus usitatus</i>																		0.5
Grass & grasslike (GG)	<i>Lomandra filiformis subsp. filiformis</i>									0.2	0.2				0.2		0.5	0.5	
Grass & grasslike (GG)	<i>Lomandra multiflora</i>						0.2												
Grass & grasslike (GG)	<i>Microlaena stipoides</i>	35						5										2	
Grass & grasslike (GG)	<i>Panicum effusum</i>				0.5		0.5					2							
Grass & grasslike (GG)	<i>Poa labillardieri</i>									50	60	10				45	75		

Form	ScientificName	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Grass & grasslike (GG)	<i>Poa sieberiana</i>	1						5							40				60
Grass & grasslike (GG)	<i>Rytidosperma racemosum</i>	2						5				0.1				0.1	0.1		
Grass & grasslike (GG)	<i>Schoenus apogon</i>																		0.2
Grass & grasslike (GG)	<i>Sorghum leiocladum</i>									2	0.5	1	0.5		1		1		1
Grass & grasslike (GG)	<i>Sporobolus creber</i>	25				45		15	2	5	15	60	60	5	10	5	5	15	
Grass & grasslike (GG)	<i>Themeda triandra</i>						60				3	10			35				
HTW	<i>Bromus diandrus</i>																		2
HTW	<i>Cyperus eragrostis</i>			0.1				2											
HTW	<i>Eragrostis curvula</i>				0.2														
HTW	<i>Nassella neesiana</i>	5																	
HTW	<i>Nassella trichotoma</i>																0.2		
HTW	<i>Paspalum dilatatum</i>							2											
HTW	<i>Rosa rubiginosa</i>																		0.2
HTW	<i>Rubus anglocandicans</i>						0.5	5											
HTW	<i>Xanthium spinosum</i>				0.1														
Other (OG)	<i>Glycine tabacina</i>	0.1																	
Other (OG)	<i>Hardenbergia violacea</i>							1											
Shrub (SG)	<i>Acacia falciformis</i>																		
Shrub (SG)	<i>Acacia filicifolia</i>							0.2											
Shrub (SG)	<i>Acacia ulicifolia</i>					0.5													
Shrub (SG)	<i>Brachyloma daphnoides subsp. pubescens</i>											0.1							
Shrub (SG)	<i>Bursaria spinosa var. spinosa</i>							2											
Shrub (SG)	<i>Callistemon citrinus</i>																		
Shrub (SG)	<i>Callistemon pungens</i>																		
Shrub (SG)	<i>Cassinia quinquefaria</i>							10											
Shrub (SG)	<i>Daviesia latifolia</i>							10											
Shrub (SG)	<i>Grevillea rosmarinifolia</i>														0.1				
Shrub (SG)	<i>Hibbertia obtusifolia</i>							0.5											

Form	ScientificName	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q09	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Shrub (SG)	<i>Lissanthe strigosa</i>	0.1									0.2	0.2							
Shrub (SG)	<i>Melichrus urceolatus</i>										0.1	0.1							
Tree (TG)	<i>Angophora floribunda</i>													3					
Tree (TG)	<i>Callistemon viminalis</i>							2											
Tree (TG)	<i>Casuarina cunninghamiana</i>							5											
Tree (TG)	<i>Eucalyptus acaciiformis</i>																		
Tree (TG)	<i>Eucalyptus blakelyi</i>	1	10				0.2								0.5		0.1	1	1
Tree (TG)	<i>Eucalyptus bridgesiana</i>	2																	
Tree (TG)	<i>Eucalyptus caliginosa</i>	10					10				0.5							5	
Tree (TG)	<i>Eucalyptus camphora subsp. humeana</i>							2											
Tree (TG)	<i>Eucalyptus cinerea subsp. cinerea</i>							2											
Tree (TG)	<i>Eucalyptus melliodora</i>									2									
Tree (TG)	<i>Eucalyptus pauciflora</i>							3											
Tree (TG)	<i>Eucalyptus prava</i>	5																	

Table B2 **Fauna List**

Class	Scientific Name	Common Name
Amphibian	<i>Crinia signifera</i>	Eastern Common Froglet
Amphibian	<i>Limnodynastes tasmaniensis</i>	Spotted Marsh Frog
Amphibian	<i>Litoria verreauxii</i>	Whistling Tree Frog
Ave	<i>Cracticus tibicen</i>	Australian Magpie
Ave	<i>Chenonetta jubata</i>	Australian Wood Duck
Ave	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike
Ave	<i>Elseyornis melanops</i>	Black-fronted Dotterel
Ave	<i>Elanus axillaris</i>	Black-shouldered Kite
Ave	<i>Falco berigora</i>	Brown Falcon
Ave	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater
Ave	<i>Platycercus elegans</i>	Crimson Rosella
Ave	<i>Platycercus eximius</i>	Eastern Rosella
Ave	<i>Eolophus roseicapillus</i>	Galah
Ave	<i>Cracticus torquatus</i>	Grey Butcherbird
Ave	<i>Anas gracilis</i>	Grey Teal
Ave	<i>Colluricincla harmonica</i>	Grey-shrike Thrush
Ave	<i>Falco cenchroides</i>	Nankeen Kestrel
Ave	<i>Philemon corniculatus</i>	Noisy Friarbird
Ave	<i>Manorina melanocephala</i>	Noisy Miner
Ave	<i>Cracticus nigrogularis</i>	Pied Butcherbird
Ave	<i>Psephotus haematonotus</i>	Red-rumped Parrot
Ave	<i>Cacatua galerita</i>	Sulphur-Crested Cockatoo
Ave	<i>Malurus cyaneus</i>	Superb Fairy-wren
Ave	<i>Podargus strigoides</i>	Tawny Frogmouth
Ave	<i>Aquila audax</i>	Wedge-tailed Eagle
Ave	<i>Hirundo neoxena</i>	Welcome Swallow
Ave	<i>Acanthiza nana</i>	Yellow Thornbill
Ave	<i>Caligavis chrysops</i>	Yellow-faced Honeyeater
Ave	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill
Mammal	<i>Trichosurus vulpecula</i>	Common Brushtail Possum
Mammal	<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum
Mammal	<i>Petaurus breviceps</i>	Sugar Glider
Reptile	<i>Hemiergis talbingoensis</i>	Eastern three-toed skink

Appendix C – Likelihood of Occurrence

A list of threatened species, populations and ecological communities that have been reported or modelled to occur from within a five-kilometre radius of the Study Area was obtained from the DPIE BioNet Atlas: (<http://www.bionet.nsw.gov.au/>).

The table below summarises the likelihood of threatened species occurring within the Subject Land based on the habitat requirements of each species.

Definition of the likelihood of occurrence criteria are provided below:

- Known – species identified within the site during surveys
- High – species known from the area (DPIE BioNet Atlas records), suitable habitat (such as roosting and foraging habitat) present within the site
- Moderate – species may be known from the area, potential habitat is present within the site
- Low – species not known from the area and/or marginal habitat is present within the site
- Nil – habitat requirements not met for this species within the site.



Table 1 Likelihood of Occurrence (Study Area)

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
EPBC Act - New England Peppermint (<i>Eucalyptus nova-anglica</i>) Grassy Woodlands BC Act - New England Peppermint (<i>Eucalyptus nova-anglica</i>) Woodland on Basalts and Sediments in the New England Tableland Bioregion	E	CE	PMST	On the eastern Australian mainland, temperate eucalypt woodlands occupy a transitional zone between the higher rainfall forested margins, associated with the ranges and slopes of the Great Dividing Range, and the shrublands and grasslands on the plains of the arid interior. The grassy woodlands are dominated or co-dominated by <i>Eucalyptus nova-anglica</i> (New England Peppermint), in NSW and Queensland. The occurrence of the ecological community extends beyond the New England Tableland Bioregion, into adjacent areas of the NSW North Coast and the Nandewar bioregions.	Nil	The ecological community does not occur within the Study Area.
EPBC Act - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland BC Act - 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 Riverina Bioregions.	CE	CE	PMST	The Box – Gum Grassy Woodland and Derived Grassland ecological community occurs in an arc along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria. It occurs in the Brigalow Belt South, Nandewar, New England Tableland, South Eastern Queensland, Sydney Basin, NSW North Coast, South Eastern Highlands, South East Corner, NSW South Western Slopes, Victorian Midlands and Riverina Bioregions. Characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees. In the Nandewar Bioregion, Grey Box (<i>Eucalyptus microcarpa</i> or <i>E. moluccana</i>) may also be dominant or codominant. The tree-cover is generally discontinuous and consists of widely spaced trees of medium height in which the canopies are clearly separated.	Known	The vegetation zones 01, 02 and 03 meet the listing criteria for the BC Act and EPBC Act CEEC. A total of 10.47 ha of this community occur within the Subject Land, of which 5.22 ha would be directly impacted and 5.25 ha would be partially impacted by the over transmission easement.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Arthraxon hispidus</i> Hairy-joint Grass	V	V	PMST	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	The species is primarily a rainforest/wet forest/coastal species. No habitat within the site.
<i>Bertya</i> sp. Clouds Creek (M.Fatemi 4)	E	E	PMST	Endemic to north-eastern New South Wales where it occurs from the Gibraltar Range, east of Glen Innes, to the Macleay Gorges, south-east of Armidale. Records east of the Great Divide detailed within the Recovery Plan for <i>Bertya</i> sp. Cobar-Coolabah refer to this taxon. The species typically occurs within heath or low shrubland vegetation surrounded by stunted eucalypts at altitudes from 300-1000 m above sea level. Grows on steep, rocky slopes in shallow soil. The parent material is either granitic or metasedimentary. The Gibraltar Range habitat is recorded as a ridge crest immediately above the cliff, with <i>Eucalyptus campanulata</i> , <i>Eucalyptus notabilis</i> and <i>Allocasuarina littoralis</i> woodland.	Low	The species primarily occurs in steep rocky sites at high altitudes. No habitat within the site.
<i>Callistomen pungens</i>	-	V	PMST	<i>Callistemon pungens</i> occurs in south-east Queensland and the northern tablelands of northeast NSW from near Inverell to the eastern escarpment in New England, along rocky watercourses usually with sandy granite (or occasionally basalt) creek beds, and generally among naturalised species. This species occurs within Border Rivers and Maranoa–Balonne (Queensland), and Border Rivers–Gwydir, Namoi and Northern Rivers (NSW) Natural Resource Management Regions. The distribution of this species overlaps with the following EPBC Act-listed threatened ecological communities: • White Box–Yellow Box–Blakely's Red Gum Grassy Woodland and Derived Native Grassland, and • Upland Wetlands of the New England Tablelands and the Monaro Plateau.	Known	Four individuals were identified within the Study Area. All <i>C. pungens</i> individuals are located outside of the Subject Land.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Cynanchum elegans</i> White-flowered Wax Plant	E	E	PMST	Restricted to eastern NSW where it is distributed from Brunswick Heads on the north coast to Gerroa in the Illawarra region. The species has been recorded as far west as Merriwa in the upper Hunter River valley. The White-flowered Wax Plant usually occurs on the edge of dry rainforest vegetation. Other associated vegetation types include littoral rainforest; Coastal Tea-tree <i>Leptospermum laevigatum</i> – Coastal Banksia <i>Banksia integrifolia</i> subsp. <i>integrifolia</i> coastal scrub; Forest Red Gum <i>Eucalyptus tereticornis</i> aligned open forest and woodland; Spotted Gum <i>Corymbia maculata</i> aligned open forest and woodland; and Bracelet Honeymyrtle <i>Melaleuca armillaris</i> scrub to open scrub.	Nil	The species is restricted to habitat east of the Escarpment and ranges. Not known to occur on the northern tablelands. No habitat on site.
<i>Dichanthium setosum</i> Bluegrass	V	V	1	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. Often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. Often collected from disturbed open grassy woodlands on the northern tablelands, where the habitat has been variously grazed, nutrient-enriched and water-enriched. Associated species include <i>Eucalyptus albens</i> , <i>Eucalyptus melanophloia</i> , <i>Eucalyptus melliodora</i> , <i>Eucalyptus viminalis</i> , <i>Myoporum debile</i> , <i>Aristida ramosa</i> , <i>Themeda triandra</i> , <i>Poa sieberiana</i> , <i>Bothriochloa ambigua</i> , <i>Medicago minima</i> , <i>Leptorhynchus squamatus</i> , <i>Lomandra</i> aff. <i>longifolia</i> , <i>Ajuga australis</i> , <i>Calotis hispidula</i> and <i>Austrodanthonia</i> , <i>Dichopogon</i> , <i>Brachyscome</i> , <i>Vittadinia</i> , <i>Wahlenbergia</i> and <i>Psoralea</i> species.	Low	Potential habitat within the Study Area (VZ01, VZ02 and VZ03). Inspection of a reference population was undertaken close to the Subject Land. Targeted surveys were undertaken during the species prescribed survey window (November 2024). The species was not recorded during site assessment.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Diuris eborensis</i>	E	E	PMST	Found mainly in damp grassland and woodland sites or in areas of sedge and swampy sites. Main locations are higher altitude sites in the eastern New England Plateau, with known locations in the Ebor, Yarrowitch and Backwater areas. Typically, in brown clay loam soil over an igneous substrate (basalt most commonly in the sites visited, but not always), but the soil may have large amounts of organic matter.	Low	Rare species that grows in high altitude native grassland and grassy woodland around Ebor and mountainous areas east of Armidale. No habitat on the site.
<i>Eucalyptus nicholii</i> Narrow-leaved Black Peppermint	V	V	1	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. Seedling recruitment is common, even in disturbed soils, if protected from grazing and fire. Tends to grow on lower slopes in the landscape.	Low	Likely suitable habitat, however, it is a readily detectible species that was not recorded during site assessment. Only one record for the species within the locality.
<i>Euphrasia arguta</i>	CE	CE	PMST	<i>Euphrasia arguta</i> was rediscovered in the Nundle area of the NSW north western slopes and tablelands in 2008. Prior to this, it had not been collected for 100 years. Historically, <i>Euphrasia arguta</i> has only been recorded from relatively few places within an area extending from Sydney to Bathurst and north to Walcha. The Royal Botanic Gardens Specimen Register records an additional location reported and vouchered in 2002 from near the Hastings River; and <i>Euphrasia arguta</i> was also recorded from the Barrington Tops in 2012. Historic records of the species noted the following habitats: 'in the open forest country around Bathurst in sub humid places', 'on the grassy country near Bathurst', and 'in meadows near rivers'	Low	Historically a very rare species inhabiting grassy forest post-disturbance. Previously known from near Bathurst and recently discovered around Nundle. Unlikely to occur on site

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Haloragis exalata</i> subsp. <i>Velutina</i> Tall Velvet Sea-berry	V	V	PMST	This subspecies of Tall Sea-berry occurs on the north coast of NSW and southeastern Queensland. It is plentiful in inaccessible areas of the upper Macleay River. Grows in damp places near watercourses. This subspecies also occurs in woodland on the steep rocky slopes of gorges	Low	Although recorded around the Garra River, this species occupies damp areas in steep gorge country. Unsuitable habitat on site.
<i>Pterostylis metcalfei</i> Metcalf's Greenhood	E	E	PMST	Known only from three locations on the New England Tablelands: north of Wollomombi at Wongwibinda, near Hernani west of Dorrigo and at Ebor. Grows in gently sloping, moist depressions or gullies in tall eucalypt forest, often with a shrubby or Snowgrass understorey, on rich loam soils on basalt or granite. Climate is cool and wet	Low	A very rare species confined to damp, wet forests in rugged terrain around Ebor. Unsuitable habitat on site.
<i>Picris evae</i> Hawkweed	V	V	PMST	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. All recent collections appear to come from modified habitats such as weedy roadside vegetation and paddocks. The flowering and fruiting period is mainly October to January, with a few plants collected in flower or fruit until May.	Low	Predominantly known from north of Inverell but has been collected around Oxley Wild Rivers south-east of Armidale in the past. Broadly suitable habitat within the site - disturbed woodland with clay soils. Surveys were conducted within the appropriate period and no individuals were recorded.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Thesium australe</i> Austral Toadflax	V	V	PMST	Austral Toadflax 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. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (<i>Themeda australis</i>). A root parasite that takes water and some nutrient from other plants, especially Kangaroo Grass.	Low	Potential habitat within the Study Area (VZ01, VZ02 and VZ03). Inspection of a reference population was undertaken close to the Subject Land. Targeted surveys were undertaken during the species prescribed survey window (November 2024). The species was not recorded during site assessment.
<i>Vincetoxicum woollsii</i> - listed as <i>Tylophora woollsii</i>	E	E	PMST	The Cryptic Forest Twiner is found from the NSW north coast and New England Tablelands to southern Queensland but is very rare within that range. Known on the Tablelands from the Bald Rock and Boonoo Boonoo areas north of Tenterfield. Plants appear to persist as a network of stems under leaf litter when aerial stems are absent. This species grows in moist eucalypt forest, moist sites in dry eucalypt forest and rainforest margins	Nil	A wet sclerophyll forest and rainforest species. No habitat within the site.
<i>Anthochaera phrygia</i> Regent Honeyeater	CE	CE	1	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 very few breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley, Mudgee/Wollar, Lower Hunter Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests. The species inhabits dry open forest and woodland, particularly Box-Ironbark	Low	No mistletoe was identified within the site and the majority of the vegetation is open with a sparse canopy (excluding VZ01). The site is not mapped as important habitat for the species and there is only one record within a 10km radius of the site, and two within the local region. Not recorded during site assessment.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				woodland, and riparian forests of River She oak. 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.		
<i>Aphelocephala leucopsis</i> Southern Whiteface	V	V	PMST	The Southern Whiteface is known or predicted to occur in the following sub-regions of the New England Tablelands Interim Biogeographic Regionalisation of Australia Region. Associated with Northern Hinterland Wet Sclerophyll Forests, Western Slopes Grassy Woodlands.	Moderate	Moderate potential foraging habitat within the road reserve along Waterfall Way (VZ01). Not recorded during site assessment.
<i>Aprasia parapulchella</i> Pink-tailed Legless Lizard	V	V	PMST	The Pink-tailed Legless Lizard is primarily known from the Central and Southern Tablelands and the South Western Slopes, with a confirmed outlier record on the Hay Plains north of Hay. There is a concentration of populations in the Canberra/Queanbeyan Region. Other populations have been recorded near Cooma, Yass, Bathurst, Albury and West Wyalong. This species is also found in the Australian Capital Territory. Inhabits sloping, open woodland areas with predominantly native grassy ground layers, particularly those dominated by Kangaroo Grass (<i>Themeda australis</i>). Sites are typically well-drained, with rocky outcrops or scattered, partially buried rocks. Commonly found beneath small, partially embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants and termites.	Low	No rocky outcrops within the site, potential habitat is unsuitable due to lack of preferred habitat features. No records within the locality
<i>Artamus cyanopterus cyanopterus</i> Dusky Woodswallow	V,P	-	2	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. It has also been recorded in shrublands, heathlands and very occasionally in moist	Low	Marginal habitat within the Study Area. Few records for the species within the locality. Not recorded during surveys.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.		
<i>Botaurus poiciloptilus</i> Australasian Bittern	E	E	PMST	Australasian Bitterns are widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spike rushes (<i>Eleocharis</i> spp.). Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Breeding occurs from October to January.	Low	Marginal potential foraging habitat within the Study Area. No records for the species within the locality. Not recorded during surveys.
<i>Calidris ferruginea</i> Curlew sandpiper	CE	CE, M	PMST	The Curlew Sandpiper is distributed around most of the Australian coastline (including Tasmania). It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. The Curlew Sandpiper breeds in Siberia and migrates to Australia (as well as Africa and Asia) for the non-breeding period, arriving in Australia between August and November, and departing between March and mid-April. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts	Low	The species may aerially/intermittently forage within the dam located just north of the BESS infrastructure under the proposed easement and would not be directly impacted by ground disturbance. Not recorded during surveys.
<i>Calidris acuminata</i> Sharp-tailed Sandpiper		V, M	PMST	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. They are widespread in most regions of New South Wales (NSW) and Victoria, especially in coastal areas, but they are sparse in the south-central Western Plain and east Lower Western Regions of NSW, and north-east and north-central Victoria. In Australasia, the Sharp-tailed Sandpiper	Low	The species may aerially/intermittently forage within the dam located just north of the BESS infrastructure under the proposed easement and would not be directly impacted by ground disturbance. Not recorded during surveys.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				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 salt lakes inland. The Sharp-tailed Sandpiper forages on seeds, worms, molluscs, crustaceans and insects		
<i>Calyptrorhynchus lathamii lathamii</i> South-eastern Glossy Black-Cockatoo	V	V	PMST	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 (<i>Allocasuarina littoralis</i>) and Forest Sheoak (<i>A. torulosa</i>) are important foods.	Low	Limited large hollows present (only one in a stag). No feed trees present (<i>Allocasuarina</i> sp.). Not recorded during surveys.
<i>Chalinolobus dwyeri</i> Large-eared Pied-bat	E	E	PMST	Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. There are scattered records from the New England Tablelands and North West Slope. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Petrochelidon ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in caves, overhangs, mine adits and concrete structures such as derelict buildings. They remain loyal to the same cave over many years. Found in well-timbered areas containing gullies	Low	Marginal potential foraging habitat only. No roosting (caves or cliffs) habitat present onsite. Not recorded during surveys.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Climacteris picumnus victoriae</i> Brown Treecreeper (eastern subspecies)	V,P	V	7	Small grey-brown bird with black streaking on the lower breast/belly and black bars on the undertail. Inhabits Box-Gum woodlands and dry open forest of inland slopes and plains. Preferred woodlands dominant by stringybarks or other rough-barked eucalypts. Forages in trees and on the ground. Endemic to eastern Australia, occurring from the coast to inland plains and western slopes of the great dividing range. Nests in tree or stump hollows greater than 6 cm.	Moderate	Moderate potential foraging habitat within the road reserve along Waterfall Way (VZ01). Not recorded during site assessment.
<i>Chthonicola sagittate</i> Speckled Warbler	V	-	2	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria. The species is 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, 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.	Low	Potential foraging habitat within the Study Area. Not recorded during surveys.
<i>Dasyurus maculatus</i> Spotted-tailed Quoll	V,P	E	1	Found in eastern NSW, eastern Victoria, south-east and north-eastern Queensland, and Tasmania the species has been 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	Low	Unlikely to occur within the Study Area. Only one record within the locality.
<i>Erythroriorchis radiatus</i> Red Goshawk	E	E	PMST	This unique Australian endemic raptor is distributed sparsely through northern and eastern Australia, from the western Kimberley Division of northern Western Australia to north-eastern Queensland and south to far north-eastern NSW, and with scattered records in central	Low	Rare species preferred habitats include mixed subtropical rainforest and <i>Melaleuca</i> swamp forest and riparian

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				Australia. The species is very rare in NSW, extending south to about 30°S, with most records north of this, in the Clarence River Catchment, and a few around the lower Richmond and Tweed Rivers. Formerly, it was at least occasionally reported as far south as Port Stephens. Red Goshawks inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, <i>Melaleuca</i> swamp forest and riparian <i>Eucalyptus</i> forest of coastal rivers.		<i>Eucalyptus</i> forest on the coast. No habitat on the site.
<i>Falco hypoleucos</i> Grey Falcon	V	V	PMST	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. The breeding range has contracted since the 1950s with most breeding now confined to arid parts of the range. There are possibly less than 5000 individuals left. Population trends are unclear, though it is believed to be extinct in areas with more than 500mm rainfall in NSW. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Like other falcons it utilises old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse; peak laying season is in late winter and early spring; two or three eggs are laid.	Low	Sparsely distributed species in NSW. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions. Not recorded during surveys.
<i>Gallinago hardwickii</i> Latham's Snipe	V	V, M	PMST	Latham's Snipe breed in Japan and far eastern Russia during the northern hemisphere summer. They migrate south after the breeding season, travelling across Papua New Guinea to winter in eastern Australia. In Australia, Latham's Snipe occurs in a wide variety of permanent and ephemeral wetlands. They usually occur in open, freshwater wetlands that have some form of shelter (usually low and dense vegetation) nearby. The species	Low	The species may aerially/intermittently forage within the dam located just north of the BESS infrastructure under the proposed easement and would not be directly impacted by ground

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				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 Wales		disturbance. Not recorded during surveys.
<i>Glossopsitta pusilla</i> Little Lorikeet	V,P	-	1	The species occurs from the coast to western slopes of the Great Dividing Range and inhabits dry, open eucalypt forests and woodlands. Occurrence is positively associated with patch size, and with components of habitat complexity including canopy cover, shrub cover, ground cover, logs, fallen branches and litter. Feed primarily on profusely flowering eucalypts and a variety of other species including melaleucas and mistletoes. On the western slopes and tablelands <i>Eucalyptus albens</i> and <i>E. melliodora</i> are particularly important food sources for pollen and nectar respectively. Mostly nests in small (opening approx. 3cm) hollows in living, smooth-barked eucalypts, especially <i>Eucalyptus viminalis</i> , <i>E. blakelyi</i> and <i>E. dealbata</i> . Most breeding records are from the western slopes.	Low	Broadly suitable foraging habitat within the Study Area. Only one record in the locality. Not recorded during the site assessment.
<i>Grantiella picta</i> Painted Honeyeater	V	V	PMST	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 (<i>Acacia pendula</i>), Brigalow (<i>A. harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus <i>Amyema</i> .	Moderate	Moderate potential foraging habitat within the road reserve along Waterfall Way (VZ01). Not recorded during site assessment

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Hieraaetus morphnoides</i> Little Eagle	V,P	-	21	Occurs throughout NSW except most densely forested parts of the Dividing Range escarpment. Occupies habitats rich in prey within open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used. For nest sites it requires a tall living tree within a remnant patch, where pairs build a large stick nest in winter and lay in early spring.	Moderate	Potential habitat within the Study Area. Several records for the species within the locality. Not recorded during targeted surveys.
<i>Hirundapus caudacutus</i> White-throated Needletail	V	V, M	PMST	Migratory and usually seen in eastern Australia from October to April. Breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan June-August. Most often seen in eastern Australia before storms, low pressure troughs and approaching cold fronts and occasionally bushfire. These conditions are often used by insects to swarm (eg termites and ants) or tend to lift insects away from the surface which favours sighting of White-throated Needletails as they feed. More common in coastal areas, less so inland. As the Needletails that occur in Australia migrate from breeding areas in the Northern Hemisphere. The species has been recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows. In Australia, White-throated Needletails almost always forage aerially, at heights up to 'cloud level', above a wide variety of habitats ranging from heavily treed forests to open habitats, such as farmland, heathland or mudflats.	Moderate	The species use the Study Area to aerially/ intermittently forage. Not recorded during the site assessment
<i>Lathamus discolor</i> Swift Parrot	E	CE	PMST	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	Low	The site is not mapped as important habitat for the species and there is only one record within a 10km radius of the site. Marginal potential foraging habitat only. Not recorded during site assessment.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				Mahogany <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Forest Red Gum <i>E. tereticornis</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> . Commonly used lerp infested trees include Inland Grey Box <i>E. microcarpa</i> , Grey Box <i>E. moluccana</i> , Blackbutt <i>E. pilularis</i> , and Yellow Box <i>E. melliodora</i> .		
<i>Litoria subglandulosa</i> Glandular Frog	V	V		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. Breeding occurs in summer, and possibly in spring	Nil	The species require streams in rainforest, moist and dry eucalypt forest or in subalpine swamps. No suitable habitat onsite. Not recorded during surveys.
<i>Litoria piperata</i> Peppered Tree Frog	CE	V		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.	Nil	Rare species has only been found timber along rocky streams flowing eastward from the Tablelands. No suitable habitat within the Study Area. Not recorded during surveys.
<i>Litoria castanea</i> Yellow-spotted Tree Frog	CE	CE		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.	Nil	The species require large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation. No suitable habitat within the Study Area. Not recorded during surveys.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				Move and forage at night on grassy banks or float on the water's surface. Males call at night from the open water and breeding generally occurs during or following rain.		
<i>Melanodryas cucullata cucullata</i> South-eastern Hooded Robin, Hooded Robin (south-eastern)	E	E		The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. 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 <i>cucullata</i>) 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 <i>picata</i> . 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.	Moderate	Moderate potential foraging habitat within the road reserve along Waterfall Way (VZ01). Not recorded during site assessment.
<i>Miniopterus orianae oceanensis</i> 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. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. Maternity caves have very specific temperature and humidity regimes. At other times of the year, populations disperse within about 300 km range of maternity caves.	Low	Foraging habitat only. No roosting habitat present within the Study Area. Only one record in the locality.
<i>Melithreptus gularis gularis</i> Black-chinned Honeyeater (eastern subspecies)	V,P	-	1	The 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. It is	Low	Broadly suitable foraging habitat within the Study Area. Only one record within the locality.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. It has also been recorded at a few scattered sites in the Hunter, Central Coast and Illawarra regions, though it is very rare in the latter. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (<i>Eucalyptus sideroxylon</i>), White Box (<i>E. albens</i>), Inland Grey Box (<i>E. microcarpa</i>), Yellow Box (<i>E. melliodora</i>), Blakely's Red Gum (<i>E. blakelyi</i>) and Forest Red Gum (<i>E. tereticornis</i>).		
<i>Phascolarctos cinereus</i> Koala	E2,P	E	7	Fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. Inhabit eucalypt woodlands and forests feeding on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species.	Low	The Study Area lacks Koala feed trees and has limited connectivity to areas of remnant vegetation. The Study Area is mapped as Core Koala habitat under the Draft Armidale Strategy (2021), however, the definition of core Koala Habitat is not applicable to RU1 zoned land within the Armidale Regional LGA.
<i>Petaurus australis australis</i> Yellow-bellied Glider (South-eastern)	V	V		The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Feed primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein.	Low	Lack of medium sized hollows and tall mature forest. Not recorded during the site assessment.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Petrogale penicillata</i> Brush-tailed Rock-wallaby	E	V		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. Browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees.	Nil	The species requires rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north.
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox	V	V		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.	Moderate	Foraging habitat only. No camps present within the Study Area. Not recorded during the survey.
<i>Pseudomys novaehollandiae</i> New Holland Mouse	V	V		The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. Genetic evidence indicates that the New Holland Mouse once formed a single continuous population on mainland Australia and the distribution of recent subfossils further suggest that the species has undergone a large range contraction since European settlement. Total population size of mature individuals is now estimated to be less than 10,000 individuals although, given the number of sites from which the species is known to have disappeared between 1999 and	Nil	The species inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes. Not recorded during the site assessment.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
				2009, it is likely that the species' distribution is smaller than current estimates. Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes.		
<i>Rostratula australis</i> Australian Painted Snipe	E	E		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.	Low	The species may aerially/intermittently forage within the dam located just north of the BESS infrastructure under the proposed easement and would not be directly impacted by ground disturbance. Not recorded during surveys.
<i>Stagonopleura guttata</i> Diamond Firetail	V,P	V	1	The Diamond Firetail is endemic to SE Australia, extending from central Queensland to the Eyre Peninsula in SA. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and SW Slopes and the NW Plains and Riverina. Not commonly found in coastal districts. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum <i>Eucalyptus pauciflora</i> Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Nests are globular structures built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests.	Low	Broadly suitable foraging habitat within the Study Area, albeit degraded. Only one record within the locality.

Species / Community	BC Act	EPBC Act	BioNet/PMST	Habitat	LoO	Summary
<i>Tringa nebularia</i> Common Greenshank, Greenshank	E	E, M		The species has been recorded in most coastal regions. It is widespread west of the Great Dividing Range, especially between the Lachlan and Murray Rivers and the Darling River drainage basin, including the Macquarie Marshes, and north-west regions. The Common Greenshank does not breed in Australia; however, the species occurs in all types of wetlands and has the widest distribution of any shorebird in Australia. It occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass. In Australia, the Common Greenshank is reserved in the Coorong and Lower Lakes Ramsar Wetlands	Low	No suitable habitat within the site, the species occurs in wetlands. Not recorded during the survey.

Appendix D – Biodiversity Credit Reports





BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00051433/BAAS18041/24/00051434	Gara Battery Energy Storage System	05/08/2025
Assessor Name	Assessor Number	BAM Data version *
Gilbert Whyte	BAAS18041	Current classification (live - default) (82)
Proponent Names	Report Created	BAM Case Status
Jane Bai	02/11/2025	Finalised
Assessment Revision	BOS entry trigger	Assessment Type
5		Major Projects
Date Finalised	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	
02/11/2025		

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
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 Highla	Critically Endangered Ecological Community	3359-New England Hills Stringybark-Box Woodland

BAM Biodiversity Credit Report (Like for like)

Species

Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT

No Changes

Predicted Threatened Species Not On Site

Name

Calyptrorhynchus lathami lathami / South-eastern Glossy Black-Cockatoo

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Like for like)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3359-New England Hills Stringybark-Box Woodland	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	10.4	68	153	221
3359-New England Hills Stringybark-Box Woodland	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 Highla	2.1	0	13	13

3359-New England Hills Stringybark-Box Woodland	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland This includes PCT's: 74, 75, 83, 101, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367,	-	3359_VZ_01	Yes	20	Armidale Plateau, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland This includes PCT's: 74, 75, 83, 101, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280,	-	3359_VZ_02	Yes	48	Armidale Plateau, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland This includes PCT's:	-	3359_VZ_03	No	153	Armidale Plateau, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

	74, 75, 83, 101, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					

BAM Biodiversity Credit Report (Like for like)

3359-New England Hills Stringybark-Box Woodland	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	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 Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563,	-	3359_VZ_04	Yes	0	Armidale Plateau, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

	567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	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 Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276,	-	3359_VZ_05	No	13	Armidale Plateau, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
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Species Credit Summary

BAM Biodiversity Credit Report (Like for like)

Species	Vegetation Zone/s	Area / Count	Credits
Cercartetus nanus / Eastern Pygmy-possum	3359_VZ_01	0.4	16.00

Credit Retirement Options

Like-for-like credit retirement options

Cercartetus nanus / Eastern Pygmy-possum	Spp	IBRA subregion
	Cercartetus nanus / Eastern Pygmy-possum	Any in NSW

BAM Candidate Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00051433/BAAS18041/24/00051434	Gara Battery Energy Storage System	05/08/2025
Assessor Name	Report Created	BAM Data version *
Gilbert Whyte	02/11/2025	Current classification (live - default) (82)
Assessor Number	Assessment Type	BAM Case Status
BAAS18041	Major Projects	Finalised
Assessment Revision	BOS entry trigger	Date Finalised
5		02/11/2025

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
<i>Burhinus grallarius</i> Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Callistemon pungens</i> Callistemon pungens	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☒ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Calyptorhynchus lathami lathami</i> South-eastern Glossy Black-Cockatoo	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

BAM Candidate Species Report

<i>Cercartetus nanus</i> Eastern Pygmy-possum	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Dichanthium setosum</i> Bluegrass	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☒ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Eucalyptus magnificata</i> Northern Blue Box	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☒ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Eucalyptus nicholii</i> Narrow-leaved Black Peppermint	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☒ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☒ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Haloragis exalata subsp. velutina</i> Tall Velvet Sea-berry	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☒ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

BAM Candidate Species Report

<i>Hieraaetus morphnoides</i> Little Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☒ Aug ☒ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Lophoictinia isura</i> Square-tailed Kite	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☒ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Ninox connivens</i> Barking Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Ninox strenua</i> Powerful Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Petauroides volans</i> Southern Greater Glider	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☒ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Petaurus norfolcensis</i> Squirrel Glider	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☒ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

BAM Candidate Species Report

<i>Phascolarctos cinereus</i> Koala	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☒ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Swainsona sericea</i> Silky Swainson-pea	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☒ Sep ☐ Oct ☒ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Thesium australe</i> Austral Toadflax	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☒ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Tyto novaehollandiae</i> Masked Owl	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☒ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>	Habitat constraints
Caladenia amnicola	<i>Caladenia amnicola</i>	Habitat degraded
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Habitat constraints
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	Habitat constraints

BAM Candidate Species Report

Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Peppered Tree Frog	Litoria piperata	Geographic limitations
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Southern Myotis	Myotis macropus	Habitat degraded
Swift Parrot	Lathamus discolor	Habitat constraints
Tusked Frog population in the Nandewar and New England Tableland Bioregions	Adelotus brevis - endangered population	Refer to BAR

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00051433/BAAS18041/24/00051434	Gara Battery Energy Storage System	05/08/2025
Assessor Name	Report Created	BAM Data version *
Gilbert Whyte	02/11/2025	Current classification (live - default) (82)
Assessor Number	BAM Case Status	Date Finalised
BAAS18041	Finalised	02/11/2025
Assessment Revision	BOS entry trigger	Assessment Type
5		Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAI	Ecosystem credits

New England Hills Stringybark-Box Woodland											
1	3359_VZ_01	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	79.8	79.8	0.41	Environment Protection and Conservation Act listing status	High Sensitivity to Gain	Not Listed	Critically Endangered	2.50	20
2	3359_VZ_02	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	52.9	42.6	1.8	Environment Protection and Conservation Act listing status	High Sensitivity to Gain	Not Listed	Critically Endangered	2.50	48
3	3359_VZ_03	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	36.6	30.0	8.1	Environment Protection and Conservation Act listing status	High Sensitivity to Gain	Not Listed	Critically Endangered	2.50	153
										Subtotal	221

New England Hills Stringybark-Box Woodland												
4	3359_VZ_04	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 Highla	6.1	6.0	1.6	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	0

BAM Credit Summary Report

5	3359_VZ_05	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 Highla	47.3	37.4	0.54	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	13
											Subtotal	13
											Total	234

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAI	Species credits
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BAM Credit Summary Report

<i>Cercartetus nanus / Eastern Pygmy-possum (Fauna)</i>									
3359_VZ_01	79.8	79.8	0.41	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Vulnerable	Not Listed	False	16
								Subtotal	16

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00051433/BAAS18041/24/00051434	Gara Battery Energy Storage System	05/08/2025
Assessor Name	Report Created	BAM Data version *
Gilbert Whyte	02/11/2025	Current classification (live - default) (82)
Assessor Number	Assessment Type	BAM Case Status
BAAS18041	Major Projects	Finalised
Assessment Revision	BOS entry trigger	Date Finalised
5		02/11/2025

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Black Falcon	Falco subniger	3359-New England Hills Stringybark-Box Woodland
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	3359-New England Hills Stringybark-Box Woodland
Black-necked Stork	Ephippiorhynchus asiaticus	3359-New England Hills Stringybark-Box Woodland
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	3359-New England Hills Stringybark-Box Woodland
Diamond Firetail	Stagonopleura guttata	3359-New England Hills Stringybark-Box Woodland
Dusky Woodswallow	Artamus cyanopterus cyanopterus	3359-New England Hills Stringybark-Box Woodland
Eastern False Pipistrelle	Falsistrellus tasmaniensis	3359-New England Hills Stringybark-Box Woodland
Flame Robin	Petroica phoenicea	3359-New England Hills Stringybark-Box Woodland
Grey-headed Flying-fox	Pteropus poliocephalus	3359-New England Hills Stringybark-Box Woodland

BAM Predicted Species Report

Hastings River Mouse	<i>Pseudomys oralis</i>	3359-New England Hills Stringybark-Box Woodland
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	3359-New England Hills Stringybark-Box Woodland
Little Eagle	<i>Hieraaetus morphnoides</i>	3359-New England Hills Stringybark-Box Woodland
Little Lorikeet	<i>Glossopsitta pusilla</i>	3359-New England Hills Stringybark-Box Woodland
Regent Honeyeater	<i>Anthochaera phrygia</i>	3359-New England Hills Stringybark-Box Woodland
Speckled Warbler	<i>Chthonicola sagittata</i>	3359-New England Hills Stringybark-Box Woodland
Spotted Harrier	<i>Circus assimilis</i>	3359-New England Hills Stringybark-Box Woodland
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	3359-New England Hills Stringybark-Box Woodland
Square-tailed Kite	<i>Lophoictinia isura</i>	3359-New England Hills Stringybark-Box Woodland
Swift Parrot	<i>Lathamus discolor</i>	3359-New England Hills Stringybark-Box Woodland
Varied Sittella	<i>Daphoenositta chrysoptera</i>	3359-New England Hills Stringybark-Box Woodland
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	3359-New England Hills Stringybark-Box Woodland
White-throated Needletail	<i>Hirundapus caudacutus</i>	3359-New England Hills Stringybark-Box Woodland
Yellow-bellied Glider	<i>Petaurus australis</i>	3359-New England Hills Stringybark-Box Woodland
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	3359-New England Hills Stringybark-Box Woodland

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
South-eastern Glossy Black-Cockatoo	<i>Calyptorhynchus lathami lathami</i>	3359-New England Hills Stringybark-Box Woodland

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
South-eastern Glossy Black-Cockatoo	<i>Calyptorhynchus lathami lathami</i>	Habitat constraints

BAM Vegetation Zones Report

Proposal Details

Assessment Id	Assessment name	BAM data last updated *
00051433/BAAS18041/24/00051434	Gara Battery Energy Storage System	05/08/2025
Assessor Name	Report Created	BAM Data version *
Gilbert Whyte	02/11/2025	Current classification (live - default) (82)
Assessor Number	Assessment Type	BAM Case Status
BAAS18041	Major Projects	Finalised
Assessment Revision	BOS entry trigger	Date Finalised
5		02/11/2025

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Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	3359_VZ_01	3359-New England Hills Stringybark-Box Woodland	VZ_01	0.41	1	
2	3359_VZ_02	3359-New England Hills Stringybark-Box Woodland	VZ_02	1.81	1	Direct (0.53 ha) Partial (1.28 ha)

BAM Vegetation Zones Report

3	3359_VZ_03	3359-New England Hills Stringybark-Box Woodland	VZ_03	8.13	3	Direct (4.2 ha) Partial (3.93 ha)
4	3359_VZ_04	3359-New England Hills Stringybark-Box Woodland	VZ_04	1.58	1	Direct (1.48 ha) Partial (0.1 ha)
5	3359_VZ_05	3359-New England Hills Stringybark-Box Woodland	VZ_05	0.54	1	Direct (0.03 ha) Partial (0.51 ha)

Appendix E – BAM Plot Datasheets



Project: HRT0229 ARMIDALE ST.			
Assessor: Ben Stewart (BAAS23006)			
Date: 9-4-24	Plot ID: QQL		
Bearing: 314	Datum: GDA2020		
Zone: 56J	East: 381435	North: 6620723	

Aspect:	Weeds: MINOR IN. B. GR.
Soil/Geology: DARK BROWN CLAY LOAM	Condition: GRAZED.
Veg Structure: OPEN WOODLAND - PCT 3359	

Litter Cover	
P1	50
P2	15
P3	45
P4	45
P5	30
Average:	37%

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows
>80cm	X		
50-79cm	✓	1	1
30-49cm	✓	1	
20-29cm	X		
10-19cm	✓	12	
5-9cm	✓		
<5cm	✓		
			Total: 12m

Notes
MODERATE CONDITION WOODLAND (VZ or)

GF Code	Species	Cover	Abundance
Ta	EUCALYPTUS CHLOROCALYX ? CRAVA	5	1
Ta	EUCALYPTUS CALIGINOSA	10	2
Ga	CHLOBOLOS CREEPER	25	2000
Sh	LISSANTHE STRIGOSA	0.1	5
-	PERITHE	0.2	100
Ga	CALOX INVERSA	5	1000
Ga	CYNODON DACTYLON	20	10000
EX	PARONYCHIA BRASILIANA	0.2	1000
Ga	Poa latifolia STERISERIANA	1	100
Ga	RYTIDOSPERMA sp. RACEMOSUM	2	500
Ga	BUTHELOCHLOA MACRA	0.2	50
Fa	OXALIS PERENNANS	0.1	20
OR	ALYCINE TABACINA.	0.1	100
Ga	DIAGROSTIS LEPTOTACHYA	1	200
Ga	MICROLAENA STILOIDES.	35	5000
Fa	ADRIANUM sp. STANDEI	0.1	50
Ga	DICHELACHNE MILLANTHA.	0.1	50
Fa	ASPERULA CONFERTA.	0.1	50

Project: <u>HBT0229 ARMIDALE SF</u>			
Assessor: Ben Stewart (BAAS23006)			
Date: <u>9-4-24</u>	Plot ID: <u>Q02</u>		
Bearing: <u>328</u>	Datum: GDA2020		
Zone: <u>56</u>	East: <u>381399</u>	North: <u>6620834</u>	

Aspect: <u>FLAT</u>	Weeds: <u>MOD - GRASSES + FORBS</u>
Soil/Geology: <u>DARK BROWN CLAY SOIL</u>	Condition: <u>LOW - GRAZED</u>
Veg Structure: <u>SPARSE WOODLAND</u>	

Litter Cover		Tree Stems (DBH)	P	Large Tree Stem Count	Hollows
P1	<u>45</u>	>80cm	☒	<u>1+1</u>	
P2	<u>60</u>	50-79cm	☒		
P3	<u>60</u>	30-49cm	☒		
P4	<u>60</u>	20-29cm	☒		
P5	<u>35</u>	10-19cm	☒		Length Logs (m) _____ _____ _____
Average:	<u>46.1</u>	5-9cm	☒		
		<5cm	☒		
				Total: <u>0</u>	

Notes	
	<u>LOW CONDITION WOODLAND (V2,03)</u>

GF Code	Species	Cover	Abundance
T4	EUCALYPTUS BLAKEI	10	1
EX	SISTARIA PAUCIFLOCA	5	500
EX	DARTYLUS GLOMERATUS	25	1000
EX	LEPIDIUM BONARIENSE	1	1000
EX	TRIFOLIUM REPENS	0.5	1000
EX	SONCHUS OLERACEUS	0.1	10
EX	PLANTAGO LANCEOLATA	0.5	500
EX	BROMUS CATHARTICUS	5	500
EX	ACRITHATHERUM ELATIS	5	500
FC	CHENOPodium OXYPTANIA RUMILIO	0.2	300
EX	SOLANUM NIGRUM	0.1	10
EX	MIDIOLA CAROLINIANA	0.1	10
EX	MARLUISIUM VULGARE	0.2	100
EX	ELVESINE TRISTACHYA	0.1	500
EX	CONYZA BONARIENSIS	0.1	20
EX	Oxalis PERENNANS	0.1	100
EX	CIRSium VULGARE	0.1	10



Habitat

Weeds: HIGH - GRASSES

Condition: LOW - EXOTIC

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows
>80cm	X		
50-79cm	X		
30-49cm	X		
20-29cm	X	Length Logs (m)	
10-19cm	X		
5-9cm	X		
<5cm	X		
		Total:	

Notes	
	REGULARLY GRAZED.

[illegible]

Project: HB10229 ADMIDALE SF			
Assessor: Ben Stewart (BAAS23006)			
Date: 9-4-24	Plot ID: Q04		
Bearing: 052	Datum: GDA2020		
Zone: 56	East: 381723	North: 6620907	

Aspect: FLAT	Weeds: HIGH - PERENNIAL GRASSES
Soil/Geology: CLAY LOAM.	Condition: EXOTIC
Veg Structure: GRASSLAND.	

PCT: N/A - EXOTIC	EEC: NO
	Veg Zone: N/A

Litter Cover		Tree Stems (DBH)	P	Large Tree Stem Count	Hollows
P1	P2				
	20	>80cm	X	/	/
	5	50-79cm	X		
	10	30-49cm	X		
	10	20-29cm	X		
	15	10-19cm	X		
Average:	12%	5-9cm	X	Length Logs (m) / Total:	
		<5cm	X		

Notes	
	DOMINATED BY EXOTIC PERENNIAL GRASSES

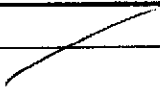
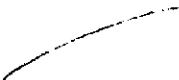
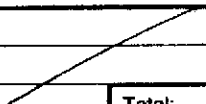
GF Code	Species	Cover	Abundance
EX	DACTYLIS GLOMERATA	60	5000
GG	ABRUS ANTHUSCHIA SCABRA	3	500
EX	SETARIA FORMOSA PAREN. FLORA.	25	10000
GG	CYNODON DACTYLON	5	1000
EX	ELAGYSTIS LUENS	0.5	500
EX	LEPIDIUM BONARIENSE	0.3	100
EX	ELUSINE TRITACHNA	0.1	100
EX	PANICUM BRASILIENSE	0.2	500
EX	CIRSIUM VULGARE	0.1	10
FL	CHENOPODIUM PSYCHOTRIA PUMILIO	0.2	200
FL	PORTULACA OLERACEA	0.1	1
EX	TRIFOLIUM REPENS	0.2	500

[illegible]

Project: HBT0229 ARMIDALE SF.			
Assessor: Ben Stewart (BAAS23006)			
Date: 9-4-24	Plot ID: Q05		
Bearing: 235	Datum: GDA2020		
Zone: 56	East: 381855	North: 6620763	

Aspect: FLWS	Weeds: LOW - MOD - GRASSES -
Soil/Geology: CLAY LOAM	Condition: LOW - MOD
Veg Structure: GRASSLAND - PCT 3359 - V2	

Litter Cover	
P1	10
P2	5
P3	10
P4	15
P5	15
Average:	11.1

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows
>80cm	X		
50-79cm	X		
30-49cm	X		
20-29cm	X	Length Logs (m)	
10-19cm	X		
5-9cm	X		
<5cm	X		
		Total:	

Notes
DERIVED NATIVE GRASSLAND - SOME NATIVE SHRUBS (ACACIA, LUSTINIA) PRESENT

GF Code	Species	Cover	Abundance
EX	SETARIA PUNCTATA PARVIFLORA	30	4000
GL	SPOROBIUS LAEBER	45	5000
EX	BLAEROSTIS LUGENS	1	1000
GL	BLAEROSTIS BROWNII	20	1000
GL	JUNCUS SP. FILICATUS	0.2	100
GL	FIMBRISTYLIS DICHOTOMA	0.1	100
GL	BOTHRIOCHLOA MACRA	0.1	50
EX	DACTYLIS GLUMERATA	1	200
EX	HYPOCHAERIS RADICATA	0.1	10
GL	DIGITARIA BROWNII	0.1	100
SL	ACACIA ULICIFOLIA	0.5	3
FC	CALOTIS - CALYSECTHALLUM APICULATUM	0.5	100
GL	ARISTIDA CALYCINA	0.2	50
GL	CHELOIS TRUNCATA	0.1	50
FL	WATSONBORGHIA SP	0.1	20
GL	BLAEROSTIS LOMOSTALHIA	0.1	10
GL	ANTHOSACHNE FLABRA	0.2	100

Project No: H316229	Project Title: 28 WOODLANDS RD ARMIDALE	Ass Type: BOAR	
Assessor: Dr. Gilbert Whyte (BAAS18041)			
Date: 25/07/24	Plot ID: Q06		Plot Photos and Coordinates
Bearing: 209	Datum: GDA94		T Start Photo ☒ T End Photo ☒ T Start Coord ☒ T End Coord ☒
East: 382147	North: 6620257		

Landscape Position: MIDSLOPE	Aspect: FLAT (ROADSIDE VEG)
Soil/Geology: CLAY LOAM	Condition: MODERATE TO GOOD
Veg Structure: GRASSY WOODLAND	

PCT No (V1): 3359	Veg Formation: GRASSY WOODLANDS	EEC (Y/N): Y
(V2)	(V3)	VZ No: V201
Veg Class: NEW ENGLAND GW		

Litter Cover (5 x 1m ² plots)	Tree Stem Diam Class	Large Tree Size Class:	Habitat Trees
P1 - 5m: 20	>80cm	No	No
P2 - 15m: 40	50-79cm	No 2	No 1
P3 - 25m: 10	30-49cm	☒	
P4 - 35m: 5	20-29cm	☒	
P5 - 45m: 5	10-19cm	☒	
Average: 16	5-9cm	☒	
	<5cm	☒	

Note: Only logs touching ground and greater than 10cm diam.

Fire Damage:	Logs (m): 36
Grazing Impacts:	
Logging:	
Other:	

GF Codes: T (Tree), S (Shrub), Grasses (G), Forbs (F), Ferns (Fe), Other (O), Exotic (Ex), High Threat Weeds (HTW).

GF	Plant Species 1-23 (within 400m ² Plot)	Cover	Abundance
T	EUCALYPTUS CALIGINOSA	10	20
HTW	RUBUS ANGLOCANOICANS	0.5	5
S	ACACIA FULCIFOLIA	0.2	2
S	BURSARIA SPINOSA	2	20
S	DAUBENTONIA LATIFOLIA	10	50
S	CASSINIA QUINQUEFARIA	10	50
O	HARDENBERGIA VIOLACEA	1	100
F	OXALIS PERENNANS	0.1	20
F	DYSPHANIA DUMILO	0.1	5
G	MICROSTACHYDIA STIPOIDES VAR STIPOIDES	5	10,000
F	CHRYSOCEPHALUM SEMIPAPPUS	1	100
G	ARISTIDA RYMOSA	20	100,000
G	THEMEDA AUSTRALIS	60	500,000
S	ERAGROSTIS LUGENS	10	5,000
G	LOMANORA LONGIFILIFORMIS. COR	2	500
EX	PLANTAGO LANCEOLATA	0.2	20
F	VITARIA CUNEATA	0.5	1000
EX	HYPOCHARTERIS RADICATA	0.2	500
F	OPERCULARIA DITHYLLA	0.2	500
L	CITRICAMPTERIS SIEBERI	0.2	5000
F	GOODENIA ROTUNDFOLIA	1	1000
F	DIANELLA LONGIFOLIA	2	1000
S	SWAINSONA CALEGIFOLIA	0.5	100

Project: H13T0229 - 28 WOODLANDS RD

Date: 25/07/24 Plot ID: Q_06

ARMIDDLE BDDR



Habitat
ENVIRONMENTAL SERVICES

[illegible]

Project: <u>H6T0229</u>		
Assessor: Ben Stewart (BAAS23006)		
Date: <u>25-7-24</u>	Plot ID: <u>Q07</u>	
Bearing: <u>142</u>	Datum: GDA2020	
Zone: <u>56J</u>	East: <u>381854</u> North: <u>6621114</u>	

Aspect: <u>WITHIN DRAINAGE CH</u>	Weeds: <u>MOD - BLACKBERRY.</u>
Soil/Geology: <u>BASALT?</u>	Condition: <u>PLANTED NATIVE + EXOTIC VEG.</u>
Veg Structure: <u>PLANTED 20NS (NATIVE TREES) / SHRUBS</u>	

Litter Cover		Tree Stems (DBH)	P	Large Tree Stem Count	Hollows
P1	<u>25</u>	>80cm	X		0
P2	<u>80</u>	50-79cm	X		
P3	<u>20</u>	30-49cm	✓		
P4	<u>30</u>	20-29cm	✓		
P5	<u>35</u>	10-19cm	✓		
Average:	<u>38%</u>	5-9cm	✓		
		<5cm	✓		
				Length Logs (m)	
				<u>2 + 1 + 5 + 3 + 3</u>	
					Total: <u>14m</u>

Notes	
	<u>DRAINAGE LINE WITH PLANT WINDROW OF TREES.</u>
	<u>EXOTIC + NATIVE.</u>
	<u>TREES + SHRUBS IN THE VICINITY, INCLUDE - CUPRESSUS sp., CITRUS sp., EUCALYPTUS LAUCIFLORA, E. ACUTIFORMIS, CALLISTEMON sp.</u>

GF Code	Species	Cover	Abundance
JG	CALLISTEMON sp. VIMINALIS	2	1
TH	CASUARINA CUNNINGHAMIANA	5	3
TA	EUCALYPTUS LAUCIFLORA	3	2
GA	SPOROBOLEUS CREEPER	15	1000
GA	JUNCUS SUBSECUNDUS	5	200
FA	HALORAGIS HETEROPHYLLA	0.2	500
EX	SETARIA PARVIFLORA	20	1500
EX	PLANTAGO VANILLOIDA	2	500
EX	ERAGROSTIS sp. LUGENS	20	1000
GA	Poa sieberiana	5	100
EX	TRIFOLIUM REPENS	1	1000
GA	FIMBRISTYLIS DICTYOTOMA	0.1	10
GA	JUNCUS HUMALOCALYX	0.1	100
FA	ASPENULA CONFERTA	0.2	500
	CEONANTHE BATA ROSEA	0.1	50
GA	CAREX APPRESSA	10	100
HTW	CYPERUS sp. DRACOPHILUS	2	500
EX	TARAXACUM OFFICINALE	0.1	20

Plot ID: Q 07

Habitat



GF Code	Species	Cover	Abundance
	LUDWIGIA ?	0.1	100
EX	SILYBUM MARITIMUM	0.1	10
HAW	RUBUS ANGLOCANADICUS	5	500
T ₆	EUCALYPTUS CINEREA SUBSP. CINREA.	2	1
HAW	PASPALUM FLUTATUM	2	10-0
F ₂	CYMBOPETUS LAWSONIANUS	0.1	100
LG	RYTIDOSPERMA RACEMOSUM	0.5	1500
F ₂	ACAENA NOVAE-ZELANDIAE	0.1	10
ELC	EXALT. SP. MARSILEA SP.	0.2	500
T ₆	EUCALYPTUS SP. CAMPHORA SUBSP. HUMANA CAMPHORA	2	1

Project: <u>HST0229 ARMIDALE BSS</u>			
Assessor: Ben Stewart (BAAS23006)			
Date: <u>15-8-24</u>	Plot ID: <u>Q09</u>		
Bearing: <u>318</u>	Datum: GDA2020		
Zone: <u>56</u>	East: <u>381799</u>	North: <u>6621562</u>	

Aspect: <u>NW</u>	Weeds: <u>HIGH</u>
Soil/Geology: <u>CLAY SOILS. BASALT DERIVED</u>	Condition: <u>EXOTIC</u>
Veg Structure: <u>GRASSLAND</u>	

Litter Cover (plant material that is detached and forms 2-D litter layer. Inc. under canopies of erect plants)	
P1	<u>85</u>
P2	<u>85</u>
P3	<u>75</u>
P4	<u>85</u>
P5	<u>85</u>
Average:	<u>83</u>

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
>80cm	☒		<u>0</u>
50-79cm	☒		
30-49cm	☒		
20-29cm	☒		Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m ² plot. Can be entirely or partly on the ground) <u>2#4</u> Total: <u>2m</u>
10-19cm	☒		
5-9cm	☒		
<5cm	☒		

Notes
<u>CLEARED Paddock FOR GRAZING</u>
<u>-(EXOTIC GRASSLAND)</u>

GF Code	Species	Cover	Abundance
EX	ALHAMBRA HUMISTATA STELLARIA PALLIDA	<u>0.2</u>	<u>500</u>
EX	LEPIDUM BENALIENSE	<u>0.5</u>	<u>1000</u>
EX	TRIFOLIUM REPENS	<u>15</u>	<u>10000</u>
EX	TRIFOLIUM (sp. sp.) SUBTERRANEUM	<u>15</u>	<u>10000</u>
EX	PLANTAGO LANCEOLATA	<u>0.5</u>	<u>500</u>
EX	PARONYCHIA BRASILIENSE	<u>0.1</u>	<u>100</u>
EX	MODIOLA CAROLINIANA	<u>0.2</u>	<u>500</u>
EX	DACTYLIS GLOMERATA	<u>50</u>	<u>1000</u>
EX	MARUBIUM VULGARE	<u>0.2</u>	<u>200</u>
EX	LOTUS AVSTRALIS	<u>0.2</u>	<u>1000</u>
EX	GAMMOTHARE CAVICOPS AMERICANA	<u>0.1</u>	<u>100</u>
EX	CIRSIIUM VULGARE	<u>0.1</u>	<u>10</u>
EX	SETARIA PARVIFLORA	<u>5</u>	<u>500</u>
CG	SPOROBOOLUS CRIBRUS	<u>2</u>	<u>200</u>
EX	ANAXACUM OFFICINALE	<u>0.1</u>	<u>5</u>
CG	BLAGROSTIS LEPTOSTACHYA	<u>1</u>	<u>200</u>
EX	BLAGROSTIS LEPTOSTACHYA TRACHYCALPA	<u>2</u>	<u>500</u>
EX	VERGASCUM THAUSUS	<u>0.1</u>	<u>1</u>

Project: HBT0229

Date: 15-8-24

Plot ID: Q 09

Habitat 

Cover

Abundance

GF Code	Species
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Species CYMBONOTUS LAWSONIANUS

0.1

30

Project: H50229 ARMIDALE BESS		
Assessor: Ben Stewart (BAAS23006)		
Date: 15-8-24	Plot ID: Q10	
Bearing: 343	Datum: GDA2020	
Zone: 56	East: 381720	North: 6621795



Aspect: W	Weeds: Low
Soil/Geology: LIGHT BROWN CLAY SOILS	Condition: MOD (WOODLAND)
Veg Structure: VERY TALL OPEN WOODLAND	

Litter Cover (plant material that is detached and forms 2-D litter layer. Inc. under canopies of erect plants)	
P1	40
P2	65
P3	65
P4	85
P5	80
Average:	67%

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
>80cm	X		1
50-79cm	✓	1+1	
30-49cm	X		
20-29cm	X		
10-19cm	X	Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m² plot. Can be entirely or partly on the ground)	
5-9cm	X	1+2+2+6+5+1+3+3+2+2	
<5cm	✓		Total: 27m

Notes	
-	PARTIALLY CLEARED OPEN WOODLAND SUBJECT TO GRAZING.
-	GROUND COVER NATIVE
-	WOODLAND COMPRISES YELLOW BOX + BLAKELY'S RED GUM ON MID SLOPES + FLATS w/ BROAD-LEAF STRINGYBARK (E. CALICINOSA) ON MORE ELEVATED AREAS.

GF Code	Species	Cover	Abundance
FL	CHRYSOLEPHALUM APICULATUM	2	5000
FL	ASPERULA LONGIFLORA	10	100000
FL	GERANIUM SOLANDERII	2	1000
FL	DICHLONDRA REPENS	5	5000
GH	LOMANDRA FILIFORMIS SUBSP. FILIFORMIS	0.2	200
GH	SPOROBOLOUS GRABER	5	500
EX	LIASUM VULGARE	0.2	20
GH	FLA LABILLARDIEREI	50	10000
EX	DACTYLIS GLOMERATA	5	500
GH	CAREX INVERSA	2	10000
EX	MEP TRIFOLIUM SUBTERRANEUM	10	10000
GH	JUNCUS FILICAULIS	1	500
FL	COTULA AUSTRALIS	0.2	1000
EX	LYSIMACHIA ARVENSIS	0.1	100
EX	TRIFOLIUM REPENS	1	1000
FL	HYPERICUM GRAMINEUM	0.2	500
FL	HALORAGIS HETEROPHYLLA	0.2	1000
GH	JUNCUS HOMALOCALUS	0.2	200

Plot ID: Q 10

Habitat



Date: 15-8-24		Plot ID: Q10		Cover	Abundance
GF Code	Species				
Tu	EUCALYPTUS MELLIODORA			2	2
Fu	CRASSUA SIEBERIANA			0.1	500
Fu	DAUCUS GLOCHIDIATUS			0.1	200
Ex	RUMEX ACETOSIDEA			0.2	1000
Ex	CAMPOCHLOA CACUMINATA AMERICANA			0.2	1000
Ex	TARAXACUM OFFICINALE			0.1	20
Fu	LYMBONOTUS LAWSONIANUS			0.1	50
Ex	PLANTAGO LANCEOLATA			0.2	200
Fu	OXALIS PERENNANS			0.5	10000
Fu	MENTHA DIOMONICA			0.1	100
Gr	SORGHUM LEIOCLADUM			2	100

Project: HBT0229 ARMIDALE BGS		
Assessor: Ben Stewart (BAAS23006)		
Date: 15-8-24	Plot ID: Q11	
Bearing: 256	Datum: GDA2020	
Zone: 56J	East: 381905	North: 6621336



Aspect: S	Weeds: MOD
Soil/Geology: BROWN CLAY. BASALT?	Condition: MOD (WOODLAND)
Veg Structure: TALL OPEN WOODLAND.	

Litter Cover (plant material that is detached and forms 2-D litter layer, inc. under canopies of erect plants)	
P1	30
P2	30
P3	25
P4	30
P5	35
Average:	30%

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
>80cm	X		1
50-79cm	✓	1	
30-49cm	X		
20-29cm	X	Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m² plot. Can be entirely or partly on the ground)	
10-19cm	✓		
5-9cm	X	2+3+3+3+1	
<5cm	X	Total: 12m	

Notes
NATIVE GRASSLAND WITH SPARSE TREE COVER.

GF Code	Species	Cover	Abundance
EX	TRIFOLIUM REPENS	5	5000
Ch	SPOROBOLUS CRISTATUS	15	1000
Th	EUCALYPTUS CALIGINOSA	0.5	1
Ph	CHLYSOCEPHALUM APICULATUM	2	1000
Ch	POA LABILLANDIERI	60	10000
EX	MEDICAGO TRIFOLIUM SUBTERRANEUM	2	1000
EX	CIRSIIUM VULGARE	0.1	5
Ph	ASPERULA CONFERTA	2	10000
EX	HYPOCHAERIS RADICATA	0.1	5
Ch	LOMANDRA FILIFORMIS SUBSP. FILIFORMIS	0.2	500
Ch	THEMIDA TRIANDRA	3	200
EX	DACTYLIS GLOMERATA	0.2	50
Ph	CORONIDIVM SCORPIOIDES	0.1	10
Ch	FIMBRISTYLIS DICHOTOMA	0.1	100
Ch	CHEILANTHES SIEBERI	0.2	500
Ph	HALORAGIS HETEROPHYLLA	0.2	1000
Ch	ERAGROSTIS BROWNII	0.5	200
EX	PLANTAGO LANCEOLATA	0.2	200

Project: HB 0229

Date: 15-8-24

Plot ID: Q 11

Habitat



Date: 15-8-24		Plot ID: Q11	Cover	Abundance
GF Code	Species			
GL	Carex inversa		0.5	1000
FR	GERANIUM SOLANDER		0.2	500
GL	ARISTIDA RAMOSA.		1	500
FR	ACACIA NOVAE-ZOLANDIAE		0.1	50
SA	LISANTHE STRICKOIA		0.2	50
GL	SORGHUM LEIOCLADUM		0.5	50
SM	MELICHTHUS VACCILLATUS		0.1	20
EX	PARONYCHIA BRASILIANA		0.1	100
EX	RUMEX ACETOSELA.		0.2	500
FR	DANUS GLOCHIDIATUS		0.1	5
EX	TARAXACUM OFFICINALE		0.1	30
EX	ORAGROSIS LUCENS		5	1000

Project: HB10229 ARMIDALE BBS		
Assessor: Ben Stewart (BAAS23006)		
Date: 15-8-24	Plot ID: Q12	
Bearing: 064	Datum: GDA2020	
Zone: 56	East: 281819	North: 6621406



Aspect: SW	Weeds: MOD.
Soil/Geology: CLAY SOILS	Condition: MOD
Veg Structure: GRASSLAND	

Litter Cover (plant material that is detached and forms 2-D litter layer, inc. under canopies of erect plants)	
P1	40
P2	40
P3	50
P4	60
P5	40
Average:	46%

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
>80cm	X		0
50-79cm	X		
30-49cm	X		
20-29cm	X	Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m ² plot. Can be entirely or partly on the ground)	
10-19cm	X		6
5-9cm	X		
<5cm	X		
			Total: 6m

Notes
NATIVE GRASSLAND. (V2-03)

GF Code	Species	Cover	Abundance
Gh.	POA LABILLARDIERI	10	1000
Gh.	THYMUS TRIANDRA	10	1000
EX	MEDICAGO ST. TRIFOLIUM SUBSTERNATUM	5	1000
FG.	HALOLAGIS HETEROPHYLLA.	0.5	1000
Gh.	SPOROBOZUS CREBER	60	1000
FG.	GERANIUM SOLANGERI	1	1000
FG.	ASPERULA CONFERTA.	0.5	5000
Sh	MELICHRUS URCEOLATUS	0.1	50
FG.	CHRYSOCEPHALUM APICULATUM	2	1000
FG.	CYMBONOTUS LAWSONIANUS	0.1	100
FG.	CRASSULA SIEBERIAN	0.1	100
FG.	OXALIS PERENNANS	0.2	1000
EX	PLANTAGO LANCEOLATA.	0.1	50
Gh.	CAREX INVERSA.	0.2	1000
EX-	RUMEX ACETOSELA.	0.2	500
FG.	MENTHA DIEMENICA	0.1	100
FG.	ACADENA NOVAE-ZELANDIAE	0.1	50
Gh.	SORGHUM LETICLADUM	1	100

Project: History

Date: 15-8-24

Plot ID: Q 12

Habitat



Date: 15-8-24		Plot ID: Q12	Cover	Abundance
GF Code	Species			
EX	STELLARIA MEDIA		0.1	50
GL	FIMBRISTYLIS DICHOTOMA		0.2	500
SH	LISSANTHE STRIGOSA		0.2	50
GL	ERAGROSTIS BROWNII		2	1000
FL	HYPERICUM GRAMINEUM		0.1	100
GL	JUNCUS FLICAVUS		0.1	100
EX	LEPIDIUM BONARIENSE		0.1	50
FL	CONOCARPUS TETRAGYNUS		0.1	100
FL	HERB - ALTERNATE LEAVES, SERRATE STEM LYTHRUM HYSSOPIFOLIA		0.1	30
SH	BRACHYCOM DAPHNOIDES SUBSP. PUBESCENS		0.1	1
GL	PANICUM EFFUSUM		2	500
GL	RYTIDOSPERMA SP. RACEMOSUM		0.1	5
EX	ERAGROSTIS LUGENS		5	1000
		</		

Project: HBT0229 ARMIDALE BGS		
Assessor: Ben Stewart (BAAS23006)		
Date: 15-8-24	Plot ID: Q13	
Bearing: 323	Datum: GDA2020	
Zone: 56	East: 381898	North: 6621541



Aspect: NNW	Weeds: MOD
Soil/Geology: CLAY SOILS	Condition: LOW-MOD
Veg Structure: GRASSLAND	

Litter Cover (plant material that is detached and forms 2-D litter layer, inc. under canopies of erect plants)		Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
P1	40	>80cm	X		0
P2	30	50-79cm	X		
P3	45	30-49cm	X		
P4	45	20-29cm	X		Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m² plot. Can be entirely or partly on the ground)
P5	65	10-19cm	X		
Average:	55%	5-9cm	X		
		<5cm	X		
					Total: 0m

Notes	
NATIVE GRASSLAND (VZ 03)	

GF Code	Species	Cover	Abundance
EX	MEDICAGO SP. TRIFOLIUM SUBTERRANEUM	10	5000
GH	SPOROBOLUS CROCHER	60	10000
EX	DACTYLIS GLOMERATA	1	100
GH	ERACROSTIS TRACHYCAULA	5	500
PH	CHALYSOCEPHALUM APICULATUM	0.5	500
EX	PARONYCHIA BRASILIANA	0.2	500
GH	CHELLANTHES SIEBENI	0.2	1000
PH	HYPERICUM GRAMINEUM	0.2	500
PH	DAULUS GLOCHIDIATUS	0.1	20
PH	RUMEX BROWNII	0.1	1
EX	TANAXACUM OFFICINALE	0.1	10
GH	ERACROSTIS BROWNII	15	5000
GH	SORGHUM LEIOCLADUM	0.5	10
GH	ARISTIDA RAMOSA	1	200
GH	JUNCUS FILICAULIS	0.2	100
GH	CYMBOLOCON REFRACTUS	1	100
GH	KIMBRISTYLIS DICHOTOMA	0.2	500
GH	CAREX INVESA	0.2	1000

Project: HBT0229

Date: 15-8-24

Plot ID: Q13



GF Code

Species

Cover

Abundance

AG

ERAGROSTIS LEPTOSTACHYA

5

500

Project: HB10229 ARMIDALE BESS		
Assessor: Ben Stewart (BAAS23006)		
Date: 15-8-24	Plot ID: Q14	
Bearing: 072	Datum: GDA2020	
Zone: 56J	East: 381801 North: 6620892	

Aspect: NW	Weeds: HIGH
Soil/Geology: BROWN CLAY SOILS	Condition: LOW
Veg Structure: GRASSLAND WITH ISOLATED TREES	

PCT: 3359	EEC: WHITE BOX YB - GW.
	Veg Zone: 03 04

Litter Cover (plant material that is detached and forms 2-D litter layer. Inc. under canopies of erect plants)	
P1	70
P2	80
P3	80
P4	75
P5	75
Average:	76%

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
>80cm	X		1
50-79cm	✓	1	
30-49cm	X		
20-29cm	X		
10-19cm	X		
5-9cm	X		
<5cm	✓		

Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m ² plot. Can be entirely or partly on the ground)	
7	
	Total: 7m

Notes
NATIVE GRASSLAND.
EXOTIC

GF Code	Species	Cover	Abundance
EX	DACTYLIS LOMBRATA	70	10000
TG	ANGLOTHONA FLORIBUNDA	3	1
EX	ERAGNOSTIS LUENS	2	500
EX	BROMUS DIANDRUS CATHARTICUS	5	500
EX	SETARIA PARVIFLORA	2	200
EX	PLANTAGO LANCEOLATA	1	1000
EX	PARONYCHIA BRASILIANA	0.2	1000
EX	CRASSULA SIEBERIANA	0.1	100
EX	SPOROBOLUS CRESSER	5	500
EX	MEDICAGO sp TRIFOLIUM SUBTERRANEUM	2	1000
EX	COTULA AUSTRALIS	0.1	100
HW	LOLIUM RIGIDUM	5	1000

Project: <u>LB10229 ARMIDALE SESS</u>		
Assessor: Ben Stewart (BAAS23006)		
Date: <u>28-8-24</u>	Plot ID: <u>Q15</u>	
Bearing: <u>034</u>	Datum: GDA2020	
Zone: <u>56</u>	East: <u>382195</u> North: <u>6620395</u>	

Aspect: <u>FLAT (WINTER ROO RES)</u>	Weeds: <u>COMMON PASTURE G.</u>
Soil/Geology: <u>CLAY LOAM</u>	Condition: <u>M62</u>
Veg Structure: <u>GRASSLAND</u>	

Litter Cover (plant material that is detached and forms 2-D litter layer. Inc. under canopies of erect plants)	
P1	<u>50</u>
P2	<u>50</u>
P3	<u>50</u>
P4	<u>60</u>
P5	<u>70</u>
Average:	<u>56%</u>

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
>80cm	X		0
50-79cm	X		
30-49cm	X		
20-29cm	X	Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m² plot. Can be entirely or partly on the ground) 0	
10-19cm	X		
5-9cm	X		
<5cm	✓		
			Total: 0

Notes

GF Code	Species	Cover	Abundance
Gh	THYMELAEA TRIANDROA	<u>35</u>	<u>5000</u>
Fh	ACACIA NOVAE-ZELANDIAE DREOMYRCHIS EUCLEDA	<u>0.2</u>	<u>200</u>
Fh	HALORAGIS HETEROPHYLLA	<u>0.2</u>	<u>1000</u>
Fh	CHEILANTHES SIEBERI	<u>0.2</u>	<u>1000</u>
Ex	RICHARDIA HUMISTRATA	<u>0.1</u>	<u>100</u>
Ex	PLANTAGO LANCEOLATA	<u>0.1</u>	<u>100</u>
Fh	CHRYSOCEPHALUM APICULATUM	0.2	500
Fh	HYPOXILUM GRAMINUM	<u>0.2</u>	<u>1000</u>
Fh	PLANTAGO GARDICHAUDII	<u>0.2</u>	<u>500</u>
Gh	POA SIEBERIANA	0.2	<u>10000</u>
Ex	HYPOCHAERIS RADICATA	<u>0.1</u>	<u>100</u>
Gh	SORGHUM LEIOCLADUM	<u>1</u>	<u>200</u>
Fh	ASPHERULA CONFERTA	<u>0.1</u>	<u>500</u>
Ex	ARTHROCONIUM MACULATUM	<u>0.2</u>	<u>50</u>
Tu	EUCALYPTUS BLAKEI	<u>0.5</u>	<u>3</u>
Gh	LOMANERA FILIFORMIS SUBSP. FLUFORMIS	<u>0.2</u>	<u>500</u>
Fh	CHLOEROPHYTES CIREUS LEUCOCORYMUS AUBICANS	<u>0.1</u>	<u>200</u>
Fh	LEPTORHYNCHOS SQUAMATUS CHRYSOCEPHALUM APICULATUM	<u>3</u>	<u>5000</u>

Plot ID: Q15

Habitat

[illegible]

Project: HB50229 ARNOLD BESS		
Assessor: Ben Stewart (BAAS23006)		
Date: 28-8-24	Plot ID: Q 16	
Bearing: 300	Datum: GDA2020	
Zone: 56	East: 381882	North: 6621225



Aspect: SOUTH FACING SLOPE	Weeds: MOD
Soil/Geology:	Condition: MOD GRASSLAND
Veg Structure: GRASSLAND	V2 - 03

Litter Cover (plant material that is detached and forms 2-D litter layer, inc. under canopies of erect plants)		Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
P1	10	>80cm	X		0
P2	15	50-79cm	X		
P3	80	30-49cm	X		
P4	10	20-29cm	X		Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m² plot. Can be entirely or partly on the ground)
P5	10	10-19cm	X		
Average:	25%	5-9cm	X		
		<5cm	X		
				Total: 0m	

Notes	
	HETEROGENEOUS GRASSLAND WITH EXOTIC AND NATIVE SPECIES. GRAZED -

GF Code	Species	Cover	Abundance
EX	TRIFOLIUM SUBTERRANEUM	40	10000
FA	ASPERULA CONFERTA	0.5	5000
GA	JUNCUS FLICATUS	0.2	200
GA	SPOROBOLUS CREBBER	5	500
GA	VIA LACINIOSA	45	5000
GA	PIMPINISTYLIS PICTURATA	0.2	500
EX	LEPIDUM BONARIENSE	0.1	100
FA	RUMEX BROWNII	0.1	50
EX	ORALIS SP. CORNICULATA	0.2	500
EX	PLANTAGO LANCEOLATA	0.2	500
FL	CHRYSOCEPHALUM COMPACTUM APICULATUM	0.2	200
FA	ACENA NOVAE-ZELANDIAE	0.1	50
EX	HYPOCHAERIS RADICATA	0.2	500
GA	ERAGROSTIS TRACHYCARPA	3	1000
FA	CHRYSOCEPHALUM APICULATUM	0.2	200
EX	CIRSIVUM VULGARE	0.1	10
FA	GERANIUM SOLANDERII	0.2	500
EX	PARONYCHIA BRASILIANA	0.1	200

Project: HBT0229	
Date: 7-8-24	Plot ID: Q16

Date: 7-8-8-24 Plot ID: Q 16

Plot ID: Q 16



Habitat

[illegible]

Project: <u>ADMINISTRATIVE SITES HBS0229</u>		
Assessor: Ben Stewart (BAAS23006)		
Date: <u>10-9-24</u>	Plot ID: <u>Q17</u>	
Bearing: <u>299</u>	Datum: GDA2020	
Zone: <u>56J</u>	East: <u>381719</u> North: <u>6621707</u>	

Aspect: <u>SW</u>	Weeds: <u>LOW</u>
Soil/Geology: <u>BROWN CLAY LOAM SOIL</u>	Condition: <u>LOW - MOD</u>
Veg Structure: <u>GRASSLAND</u> <u>MOD CONDITION GRASSLAND (VZ 03)</u>	

Litter Cover (plant material that is detached and forms 2-D litter layer inc. under canopies of erect plants)		Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
P1	<u>85</u>	>80cm	<u>X</u>		<u>0</u>
P2	<u>85</u>	50-79cm	<u>X</u>		
P3	<u>80</u>	30-49cm	<u>X</u>		
P4	<u>80</u>	20-29cm	<u>X</u>		Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m² plot. Can be entirely or partly on the ground) <u>0</u> Total: <u>0m</u>
P5	<u>85</u>	10-19cm	<u>X</u>		
Average:	<u>83%</u>	5-9cm	<u>X</u>		
		<5cm	<u>✓</u>		

Notes	
	<u>DERIVED NATIVE GRASSLAND WITH TREE REGENERATION</u>

GF Code	Species	Cover	Abundance
GA	<i>POA LABILLARDIERI</i>	<u>75</u>	<u>5000</u>
EX	<i>TRIFOLIUM SUBTERANEUM</i>	<u>2</u>	<u>5000</u>
EX	<i>CIRSIUM VULGARE</i>	<u>0.2</u>	<u>50</u>
FL	<i>CHRYSOCEPHALUM ARICULATUM</i>	<u>0.1</u>	<u>200</u>
EX	<i>VERBASCUM THASPI</i>	<u>0.1</u>	<u>20</u>
TA	<i>EUCALYPTUS BLAKEYI</i>	<u>0.1</u>	<u>1</u>
GA	<i>STOROBOLUS CLOBER</i>	<u>5</u>	<u>500</u>
GA	<i>CAREX INVENSA</i>	<u>10</u>	<u>10000</u>
FL	<i>CASSULA SIEBERIANA</i>	<u>0.1</u>	<u>1000</u>
EX	<i>HYPOCHAERIS RABICATA</i>	<u>0.2</u>	<u>100</u>
FL	<i>HYPERICUM GRAMINEUM</i>	<u>0.1</u>	<u>100</u>
GA	<i>LOMANTRA FILIFORMIS</i>	<u>0.5</u>	<u>5000</u>
FL	<i>DICHTHRA SP. A.</i>	<u>0.2</u>	<u>1000</u>
FL	<i>COTULA AUSTRALIS</i>	<u>0.1</u>	<u>1000</u>
FL	<i>HALORAGIS HETEROPHYLLA</i>	<u>0.2</u>	<u>1000</u>
FL	<i>WATSONBORGHIA SP.</i>	<u>0.2</u>	<u>500</u>
FL	<i>SPEKULA CONFERTA</i>	<u>1</u>	<u>10000</u>
FL	<i>OXALIS PERENNANS</i>	<u>0.1</u>	<u>500</u>

Project: H54229

Date: 10-9-24 Plot ID: Q 17

Plot ID: Q 17

Habitat [illegible]

Project: HB0229 AMIDALE BBS		
Assessor: Ben Stewart (BAAS23006)		
Date: 10-9-24	Plot ID: Q18	
Bearing: 028	Datum: GDA2020	
Zone: 56J	East: 581561	North: 6620741



Aspect: SSW	Weeds: LOW - MOD.
Soil/Geology: LIGHT BROWN SOIL - GRANITE.	Condition: MOD WOODLAND
Veg Structure: GRASSLAND w/ SCATTERED TREES (V2-02)	

Litter Cover (plant material that is detached and forms 2-D litter layer, inc. under canopies of erect plants)	
P1	40
P2	40
P3	70
P4	60
P5	75
Average:	57

Tree Stems (DBH)	P	Large Tree Stem Count	Hollows (No. trees living or dead w/ hollows at least 5cm) (TG & SG growth forms. Must be rooted within plot)
>80cm	✓	1	1
50-79cm	X		
30-49cm	X		
20-29cm	✓	Length Logs (m) (Native and exotic debris 10cm DBH or greater within 1000m² plot. Can be entirely or partly on the ground)	
10-19cm	X		
5-9cm	X		
<5cm	X		
			Total: 0m

Notes
MIXED EXOTIC + NATIVE GRASSLAND w/ SCATTERED TREES

GF Code	Species	Cover	Abundance
TG	EUCALYPTUS CALIGINOSA	5	1
TL	EUCALYPTUS BLAXEYI	1	1
EX	URTICA URENS	0.1	1
EX	PLANTAGO LANCEOLATA	5	1000
CG	CAREX INVERSA	10	100000
PH	LYMBONOTUS LANSONIANDU	0.1	50
EX	PARONYCHIA BRASILIANA	0.2	1000
PH	CHRYSOCEPHALUM APICULATUM	0.7	100
PH	GERANIUM SOLANDERII	0.1	100
CG	SPOROBOLOUS CREPER	15	1000
EX	MEDICAGO SP	3	1000
PH	CRASSULA SIBIRIANA	0.1	100
PH	OXALIS BOREALIS	0.2	1000
PH	ASTORVA CONFERTA	0.2	1000
CG	LOMANAIA SULIFORMIS	0.5	1000
EX	CIRSIIUM VULGARE	1	500
PH	OTSRANDIA FUMIDA CALOTIS CUNEIFOLIA	0.2	300
EX	HYPOCHAERIS RADICATA	0.2	200

Plot ID: Q18

Habitat

[illegible]

Project No: H30229	Project Title: GARA BESS		Ass Type: BDAR	
Assessor: Dr. Gilbert Whyte (BAAS18041)				
Date: 15/11/24	Plot ID: Q19	Plot Photos and Coordinates		
Bearing: 183	Datum: GDA94	T Start Photo	☒ T End Photo	☒
East: 381624	North: 6621801	T Start Coord	☒ T End Coord	☒



Landscape Position: MID SLOPE	Aspect: WEST
Soil/Geology: CLAY LOAM	Condition: MODERATE
Veg Structure: DERIVED NATIVE GRASSLAND	

PCT No (V1): 3359	Veg Formation: GRASSY WOODLANDS	EEC (Y/N): Y
(V2)	(V3) Veg Class: WESTERN SLOPES	VZ No: 02

Litter Cover (5 x 1m ² plots)	
P1 - 5m	5
P2 - 15m	2
P3 - 25m	2
P4 - 35m	5
P5 - 45m	10
Average:	4.8

Tree Stem Diam Class		Large Tree Size Class:		Habitat Trees
>80cm	X	No:	0	No: 0
50-79cm	X	No:	0	No: 6
30-49cm	X	Note: Only logs touching ground and greater than 10cm diam. Fire Damage: N/A Grazing Impacts: MODERATE - SHEEP Logging: N/A Other: N/A		
20-29cm	X			
10-19cm	X			
5-9cm	X			
<5cm	X			
				Logs (m): 0

GF Codes: T (Tree), S (Shrub), Grasses (G), Forbs (F), Ferns (Fe), Other (O), Exotic (Ex), High Threat Weeds (HTW).

GF	Plant Species 1-23 (within 400m ² Plot)	Cover	Abundance
G	POA SIEBERIANA	60	10,000
EX	ROSA RUBIGINOSA	0.2	2
F	DICHONDRA REPENS	5	100,000
EX	VULPIA BROMOIDES	10	50,000
EX	TRIFOLIUM DUBIUM	1	2000
G	CAREX INVERSA	0.5	1000
F	HYPERICUM GRAMINEUM	0.2	500
EX	CENTAURIUM BRYTHYLLA	0.2	500
G	BOTHRIODCHLOA MACRA	0.5	100
EX	BROMUS HORDEACEUS	2	2000
EX	PARONYCHIA BRASILIENSIS	1	2000
F	HALORAGIS HETEROPHYLLUS	5	100,000
F	EUCHYTON INVOLUCRATUS	1	2000
EX	BRIZA MINOR	2	5000
EX	CYCLOSPERMUM LEPTOPHYLLUM	1	2000
G	JUNCUS USITATUS	0.5	500
EX	TRIFOLIUM REPENS	1	10,000
F	TRICORYNE SIMPLEX	0.2	50
F	PIMELEA LINIFOLIA	0.1	20
G	JUNCUS USITATUS FILICULUS	0.2	20
G	DICHEUCHNE MICRANTHA	0.5	200
G	SORGHUM LEICLADUM	1	500
F	CRASSULA SIEBERIANA	1	10,000

Project: HBT 0229

Date: 15/11/24	Plot ID: Q19
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Habitat
ENVIRONMENTAL SERVICES



GF	Plant Species 24-70 (within 400m ² Plot)	Cover	Abundance
G	ERAGROSTIS LEPTOSTACHYA	0.5	100
EX	BROMUS DIANDRUS	2	5000
EX	PETROPHAGIA DUBIUM	0.5	1000
S	SCHOENUS APOGON	0.2	100
F	CHRYSOCEPHALUM APICULATUM	0.5	100
EX	LINARIA PELLIERIANA	0.1	20
EX	PLANTAGO LANCEOLATA	2	5000
F	TRICORYNE ELATIOR	0.2	50
EX	DACTYLUS GLOMERATUS	2	2000
HTW	ACETOSELLA VULGARIS (RUMEX)	0.5	1000
EX	HYPochaeris RADICATA	1	1000
EX	GAMochaeta AMERICANA	0.5	500
T	EUCALYPTUS BLAKELYI	1	5
EX	ERODIUM CICUTARIUM	0.5	200
EX	CIRSium VULGARE	0.1	5
F	CENTEA ASIATICA	0.2	100
F	HALENBERGIA GRACILIS	0.1	2
	END RAM PLOT (400m ²)		
START	20x50m COMMONWEALTH PLOT LIST (1000m ²)		
EX	HOLCUS LANATUS	5	5000
EX	LACHNAGROSTIS FILIFORMIS	0.5	100
EX	BROMUS MOLIFORMIS	0.2	50
G	JUNCUS HOMALOCALYX	0.1	10
EX	ROMULEA MINUTIFLORA	0.1	20
F	GERANUM SOLANDER	0.2	50
F	STACHOTA VINIFERA	0.1	10
F	OXALIS PERENNANS	0.1	50
EX	ROMULEA ROSA	0.1	20
EX	AIRA ELEGANTISSIMA	0.5	100
L	CHEILANTHES SIEBOLDI	0.2	50
F	CALOTIS CUNEATA	0.1	5
F	ARTHROPODIUM FIMBRIATUM	0.1	1
	LAST 13 SPECIES NOT WITHIN 400m ² RAM PLOT - NOT TO BE INCLUDED IN RAM-C		

Appendix F – Weather Condition Data



Table F-1 Weather condition data - Armidale Tree Group Nursery (BoM station 056037)

Date	Minimum temperature (°C)	Maximum temperature (°C)	Rainfall (mm)	Direction of wind	Wind speed (km/h)
9/04/2024	6.1	20	0	W	48
25/04/2024	8.5	20.4	0	W	39
24/07/2024	-5.5	17	0	NW	31
25/07/2024	-3.6	14.6	0	NW	52
14/08/2024	10	15	9.4	E	31
15/08/2024	8.5	19.5	5.6	WNW	31
22/08/2024	6.3	19	0	WSW	39
23/08/2024	0.4	20.3	0	NE	28
10/09/2024	-1.5	22.5	0	ENE	30
11/09/2024	3.1	22	0	WNW	41
13/11/2024	10.5	24.7	18.2	WNW	46
14/11/2024	9.6	26.3	9.2	ENE	39
15/11/2024	13.6	23.0	0.0	E	41

Appendix G –Significant Impact Criteria (EPBC Act)



EPBC Act Significant Impact Guidelines

In accordance with the EPBC Act Significant Impact Guidelines 1.1- MNES (DEWHA 2013), relevant significant impact criteria have been addressed for each of the following Commonwealth entities:

Critically Endangered Ecological Community

- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – critically endangered ecological community

Endangered Species

- South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)
- Koala (*Phascolarctos cinereus*)

Vulnerable Species

- *Callistemon pungens*
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Brown Treecreeper (*Climacteris picumnus victoriae*)
- Diamond Firetail (*Stagonopleura guttata*)
- Painted Honeyeater (*Grantiella picta*)
- Southern Whiteface (*Aphelocephala leucopsis*)

Migratory Species

- White-throated Needletail (*Hirundapus caudacutus*)

Assessment of Significance for Critically Endangered and Endangered Communities

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (CEEC)

The CEEC 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. The CEEC is characterised by the presence or prior occurrence of White Box, Yellow Box and/or Blakely's Red Gum and a generally grassy understorey. The trees may occur as pure stands, mixtures of the three species or in mixtures with other trees, including wattles (DECCW 2010, TSSC 2006).

Criteria	Assessment
An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:	The proposed development would reduce the extent of the CEEC as follows: - Complete removal of 6.65 ha of the CEEC (within the BESS Area and other areas where infrastructure is to be located). - Partial removal of 5.21 ha of the CEEC (within the transmission line easement).
(a) Reduce the extent of an ecological community.	
(b) Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines.	The CEEC (woodlands and native grasslands) within the Study Area within vegetation zones (VZ01, VZ02, VZ03, VZ04 and VZ05) are recognized as the typical forms of the CEEC that often occur within environments that have been subjected to long-term agricultural impacts. The CEEC exists in a fragmented state due to historical agricultural land management practices. Although the CEEC would be slightly fragmented by the project the retained vegetation and the vegetation within the easement (the ground stratum would be retained) and would maintain connectivity to a larger patch of the CEEC to the northeast of the Subject Land and preserve the patch.
(c) Adversely affect habitat critical to the survival of an ecological community.	Under the National Recovery Plan for the TEC (DECCW 2010), habitat critical to the survival of the TEC is considered areas that meet the minimum condition criteria under its listing and conservation advice (TSSC 2006). The proposed development would directly impact 6.65 ha (ground disturbance) and partially impact 5.21 ha (transmission line easement) Approximately 9.96 ha of the CEEC is to be retained within the buffer area and will be managed and the VI retained or improved via implementation of a Vegetation Management Plan (VMP).
(d) Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns.	The proposed development is unlikely to reduce groundwater levels such that the CEEC would be affected. Surface water drainage patterns will be maintained via implementation of a stormwater management strategy. During the construction phase, sediment and erosion controls, such as sediment fencing, will be erected along the boundary of the Study Area to mitigate erosion and prevent the transport of soil and debris. Following construction, the implementation of a VMP is proposed to improve the integrity and functionality of retained areas of the CEEC.
(e) Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a	The proposed development would directly impact 6.65 ha where ground disturbance would require the removal of all vegetation. Approximately 5.21 ha of the CEEC will be partially impacted within the transmission line easement where impacts would be largely limited to the selective

Criteria	Assessment
decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	removal of individual trees and shrubs. Native groundcover species (mainly comprised of grasses, forbs and sedges) would be maintained within this area and managed in accordance with a VMP to reduce the potential for indirect impacts such as weed incursion.
(f) Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: - Assisting invasive species, that are harmful to the listed ecological community, to become established, or - Causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or - Interfere with the recovery of an ecological community.	Potential indirect impacts caused by the proposed development: such as the spread of weeds have the potential to reduce the integrity of retained areas of the CEEC. The potential for such impacts are to be mitigated via various management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR). Recovery of the CEEC will be achieved via the retention of native vegetation within the Study Area where no direct impacts or partial impacts are proposed and a VMP will be implemented to restore the integrity of woodland and grassland patches that are to be retained within the Study Area.
Conclusion	In consideration of each of the significant impact criteria previously discussed, the proposed development is likely to have a significant impact on the CEEC.
References DECCW (2010). National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Department of Environment, Climate Change and Water NSW, Sydney. Threatened Species Scientific Committee (TSSC) (2006). Commonwealth Listing Advice on White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.	

Assessment of Significance for Assessment of Significance for Critically Endangered and Endangered Species

South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)

The Hooded Robin is found across Australia, except for the driest deserts and the wetter coastal areas (northern and eastern coastal Queensland and Tasmania). The species prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas and generally requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses (Barret et al. 1994)

Criteria	Assessment
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Within the Study Area, suitable habitat for the Hooded Robin is limited to the road reserve adjacent to Waterfall Way. Given that the Hooded Robin was not detected during the assessment and there are no known historical records within the locality of the Study Area, impacts to the species are likely to be negligible and limited to the removal of 0.41 ha of suitable habitat within VZ01. As such, it is unlikely that the proposed development would lead to a long-term decrease in the size of a population.
(a) Lead to a long-term decrease in the size of a population.	
(b) Reduce the area of occupancy of the species.	The Hooded Robin was not detected during the assessment and there are no known historical records within the locality of the Study Area. Therefore, it is unlikely that the proposed development will reduce the area of occupancy of the species.
(c) Fragment an existing population into two or more populations.	The Hooded Robin was not detected during the assessment and there are no known historical records within the locality of the Study Area. Therefore, it is unlikely that the proposed development would fragment an existing population into two or more populations.
(d) Adversely affect habitat critical to the survival of a species.	Approximately 0.41 ha of suitable habitat for the Hooded Robin will be impacted/removed within the road reserve to facilitate the proposed development. Given that similar habitat is widespread along roadsides within the locality and the region, it is unlikely that the habitat to be removed is critical to the survival of the species.
(e) Disrupt the breeding cycle of a population.	The Hooded Robin was not detected during the assessment and there are no known historical records within the locality of the Study Area. Therefore, it is unlikely that the proposed development will disrupt the breeding cycle of a population.
(f) Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The Hooded Robin was not detected during the assessment and there are no known historical records within the locality of the Study Area. Therefore, it is unlikely that the proposed development will modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
(g) Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	Potential indirect impacts caused by the proposed development: such as the spread of weeds has the potential to reduce the integrity of retained areas of habitat. The potential for such impacts is to be mitigated via various management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR).

Criteria	Assessment
(h) Introduce disease that may cause the species to decline or interfere with the recovery of the species.	Potential indirect impacts caused by the proposed development: such as the spread or introduction of pathogens is to be mitigated via various management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR). These measures include erosion and sediment control measures and vehicle hygiene procedures that will reduce the potential for the spread of soil born pathogens.
Conclusion	In consideration of each of the significant impact criteria previously discussed, the proposed development is unlikely to have a significant impact on the Hooded Robin.
References Barrett, G.W., Ford, H.A. and Recher, H.F. (1994). Conservation of woodland birds in a fragmented rural landscape. Pacific Conservation Biology 1, 245-256. Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2024b). Species Profile and Threats Database (SPRAT).	

Koala (*Phascolarctos cinereus*)

The Koala generally occurs from the Townsville district in northern Queensland, south along the coast and ranges into Victoria and part of South Australia. Within New South Wales and Queensland, this distribution extends into the western slopes and plains. The Koala lives entirely on a diet of leaves of both eucalypt and non-eucalypt trees and it has been shown that within its range there are local and regional preferences for the tree species used for feeding. Examples of eucalypts used as feed trees are *E. camaldulensis*, *E. viminalis*, *E. ovata*; *E. tereticornis*; *E. microcorys*; and *E. punctata*. Throughout its range the Koala suffers from either a lack of numbers or severe over-population where problems such as eye disease and reproductive tract bacterial disease caused by *Chlamydia psittaci* become prevalent (Martin and Handasyde 1995, Moore and Foley 2000).

Criteria	Assessment
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will: (a) Lead to a long-term decrease in the size of a population.	The Koala was not detected during the assessment and the Study Area is mapped as core Koala habitat (as defined by the Armidale Strategy or the Koala SEPP 2020. The native vegetation within the Study Area exists in a modified state. Most areas of the site lack canopy vegetation and only contain isolated mature trees and fragmented woodland remnants, which are generally small within the landscape. The habitat in these areas is unlikely to be important to the long-term survival of Koalas within the locality. Although moderate habitat connectivity occurs within areas of native vegetation within the road reserve (VZ 01) the extent of vegetation proposed (0.41 ha) to be removed is unlikely to impede the movements of Koalas that may utilise this area as part of a broader network of habitats. Given the lack of recent Koala records within the locality and the lack of Koalas detected during targeted surveys, there is little evidence that a Koala population occupies the site. As such, it is unlikely that the proposed development would lead to a long-term decrease in the size of a Koala population within the locality.
(b) Reduce the area of occupancy of the species.	The Koala was not detected during the assessment and there are few recent historical records of Koalas within the locality of the Study Area. Therefore, it is unlikely that the proposed development will reduce the area of occupancy of the species.
(c) Fragment an existing population into two or more populations.	The Koala was not detected during the assessment and there are few recent historical records of Koalas within the locality of the Study Area. Therefore, it is unlikely that the proposed development would fragment an existing population into two or more populations.

Criteria	Assessment
(d) Adversely affect habitat critical to the survival of a species.	The native vegetation within the Study Area exists in a modified state. Most areas of the site lack canopy vegetation and only contain isolated mature trees and fragmented woodland remnants, which are generally small within the landscape. The habitat in these areas is unlikely to be important to the long-term survival of Koalas within the locality. Although moderate habitat connectivity occurs within areas of native vegetation within the road reserve (VZ 01) the extent of vegetation proposed (0.41 ha) to be removed is unlikely to impede the movements of Koalas that may utilise this area as part of a broader network of habitats. The mobile nature of the species and the availability of better-quality habitat within the C2 land and the locality further indicates that the habitat to be removed is unlikely to be critical to the survival of the species.
(e) Disrupt the breeding cycle of a population.	The Koala was not detected during the assessment and there are few recent historical records of Koalas within the locality of the Study Area. Therefore, it is unlikely that the proposed development will disrupt the breeding cycle of a population.
(f) Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The Koala was not detected during the assessment and there are few recent historical records of Koalas within the locality of the Study Area. Therefore, it is unlikely that the proposed development will Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
(g) Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	Potential indirect impacts caused by the proposed development: such as the spread of weeds has the potential to reduce the integrity of retained areas of Koala habitat. The potential for such impacts is to be mitigated via several management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR).
(h) Introduce disease that may cause the species to decline or interfere with the recovery of the species.	Potential indirect impacts caused by the proposed development: such as the spread or introduction of pathogens is to be mitigated via various management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR). These measures include erosion and sediment control measures and vehicle hygiene procedures that will reduce the potential for the spread of soil borne pathogens.
Conclusion	In consideration of each of the significant impact criteria previously discussed, the proposed development is unlikely to have a significant impact on the Koala.

References

- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2024b). Species Profile and Threats Database (SPRAT).
- Martin, R.W. and Handasyde, K.A. (2002) Koala. The Mammals of Australia. Ronald Strahan (Ed) Reed New Holland.
- Moore, B.D., and Foley, W.J. (2000) A review of feeding and diet selection in koalas (*Phascolarctos cinereus*), Australian Journal of Zoology, 48, 317–333.

Assessment of Significance for Vulnerable Species

Callistemon pungens

The myrtaceous shrub species, *Callistemon pungens*, occurs in south-east Queensland and the northern tablelands of north east NSW. In NSW, it occurs from near Inverell to the eastern escarpment in New England, along rocky watercourses usually with sandy granite (or occasionally basalt) creek beds, and generally among naturalised species. In southern Queensland, it occurs in the Stanthorpe region. This species occurs within Border Rivers and Maranoa–Balonne (Queensland), and Border Rivers–Gwydir, Namoi and Northern Rivers (NSW) Natural Resource Management Regions. *Callistemon pungens* is also a commonly cultivated species. As such, it is known in the horticultural industry by various names, such as *Callistemon* ‘Lana’, *C.* ‘Gilesii’, *C.* ‘Armida’ and *C.* ‘Severn River’ (DECCW 2008).

Criteria	Assessment
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will: (a) Lead to a long-term decrease in the size of an important population.	According to the NSW BioNet Atlas, <i>Callistemon pungens</i> has not been previously recorded within a five-kilometer radius of the Study Area. Four individuals were detected during the assessment: three individuals within the road reserve adjacent to Waterfall Way and one individual within planted non-native vegetation near the eastern boundary (refer to Figure 12 within the BDAR). Based on the geographical distribution of the species and its known use as a cultivated species for horticulture, it is likely that each of the four individuals were established as ornamental plantings rather than naturally occurring. According to the EPBC Act Significant Impact Guidelines 1.1- MNES (DotE 2013), an important population is regarded as one that is a key source of genetic dispersal that is essential in maintaining the species function and diversity, as well as populations at the limit of their known geographical range. As such, it is unlikely that the individuals detected during the assessment form part of an important population. Additionally, no individuals of the species are to be impacted/removed to facilitate the proposed development.
(b) Reduce the area of occupancy of an important population.	No individuals of the species are to be impacted/removed to facilitate the proposed development. Therefore, it is unlikely that the proposed development will reduce the area of occupancy of the species.
(c) Fragment an existing important population into two or more populations.	No individuals of the species are to be impacted/removed to facilitate the proposed development. Therefore, it is unlikely that the proposed development would fragment an existing important population into two or more populations.
(d) Adversely affect habitat critical to the survival of a species.	Based on the geographical distribution of the species, it is likely that each of the four individuals of the species were established as plantings. Based on the known geographical range of the species, the habitat to be removed is unlikely to be critical to the survival of the species.
(e) Disrupt the breeding cycle of an important population.	No individuals of the species are to be impacted/removed to facilitate the proposed development. Therefore, it is unlikely that the proposed development will disrupt the breeding cycle of an important population.

Criteria	Assessment
(f) Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Approximately 0.41 ha of suitable habitat for the species will be impacted/removed within the road reserve to facilitate the proposed development. Given that similar habitat is widespread along roadsides within the locality and the region, it is unlikely that this removal would decrease the availability or quality of habitat to the extent that the species is likely to decline.
(g) Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the vulnerable species' habitat.	Potential indirect impacts caused by the proposed development: such as the spread of weeds has the potential to reduce the integrity of retained areas of habitat. The potential for such impacts is to be mitigated via several management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR).
(h) Introduce disease that may cause the species to decline or interfere with the recovery of the species.	Potential indirect impacts caused by the proposed development: such as the spread or introduction of pathogens is to be mitigated via various management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR). These measures include erosion and sediment control measures and vehicle hygiene procedures that will reduce the potential for the spread of soil borne pathogens.
Conclusion	In consideration of each of the significant impact criteria previously discussed, the proposed development is unlikely to have a significant impact on <i>Callistemon pungens</i> .
References	
DECCW 2008. Approved Conservation Advice for <i>Callistemon pungens</i> . Approved by the Minister/Delegate of the Minister on: 26/3/2008.	

Grey-headed Flying Fox (*Pteropus poliocephalus*)

The Grey-headed Flying-fox (*Pteropus poliocephalus*) occurs along the eastern seaboard of Australia roosting in large communal aggregations known as 'camps'. These camps are used permanently, annually, or occasionally, varying in size from hundreds to many thousands of individuals, fluctuating according to food resources (Eby and Law, 2008; Parry-Jones and Augee, 1991; Tidemann, 1995). This species forages on nectar and pollen from flowers of canopy trees (particularly Eucalyptus, Melaleuca and Banksia) and fleshy fruits from rainforest trees and vines. This species is highly mobile, dispersing to sites as far as 40 km to forage and returning to the camp in one night, and seasonally they may move hundreds of kilometres in response to variation in food resource productivity which largely explains the extensive migration movement of this species (Eby and Law, 2008). Roost sites are typically located near water, such as lakes, rivers or the coast. Roost vegetation includes rainforest patches, stands of Melaleuca, mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas.

Criteria	Assessment
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	The Grey-headed Flying-fox was not detected within the Study Area during the assessment. Additionally, no breeding camps were detected. Potential impacts to the Grey-headed Flying Fox as a result of the proposed development are to be limited to the removal of suitable foraging habitat. As such, it is unlikely that these impacts would lead to a long-term decrease in the size of an important population of the species.
(a) Lead to a long-term decrease in the size of an important population.	
(b) Reduce the area of occupancy of an important population.	The Grey-headed Flying-fox was not detected within the Study Area during the assessment. Additionally, no breeding camps were detected. Therefore, it is unlikely that the proposed development will reduce the area of occupancy of an important population of the species.
(c) Fragment an existing important population into two or more populations.	The Grey-headed Flying-fox was not detected within the Study Area during the assessment. Additionally, no breeding camps were detected. Therefore, it is unlikely that the proposed development would fragment an existing important population into two or more populations.
(d) Adversely affect habitat critical to the survival of a species.	Approximately 0.41 ha of suitable foraging habitat for the Grey-headed Flying-fox would be removed to facilitate the proposed development (within VZ 01). Based on the limited extent and condition of the native vegetation within VZ 01, this habitat is unlikely to be critical to the survival of the species.
(e) Disrupt the breeding cycle of an important population.	The Grey-headed Flying-fox was not detected within the Study Area during the assessment. Additionally, no breeding camps were detected. Therefore, it is unlikely that the proposed development will disrupt the breeding cycle of an important population.
(f) Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Approximately 0.41 ha of foraging habitat for the species will be impacted/removed within the road reserve to facilitate the proposed development. Given that similar habitat is widespread along roadsides within the locality and elsewhere within the region, it is unlikely that this removal would decrease the availability or quality of habitat to the extent that the species is likely to decline.

Criteria	Assessment
(g) Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the vulnerable species' habitat.	Potential indirect impacts caused by the proposed development: such as the spread of weeds has the potential to reduce the integrity of retained areas of habitat. The potential for such impacts is to be mitigated via several management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR).
(h) Introduce disease that may cause the species to decline or interfere with the recovery of the species.	Potential indirect impacts caused by the proposed development: such as the spread or introduction of pathogens is to be mitigated via various management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR). These measures include erosion and sediment control measures and vehicle hygiene procedures that will reduce the potential for the spread of soil borne pathogens.
Conclusion	In consideration of each of the significant impact criteria previously discussed, the proposed development is unlikely to have a significant impact on the Grey-headed Flying Fox.

References

- Department of Environment, Climate Change and Water (2009). Draft National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus*, Prepared by Dr Peggy Eby, NSW Department of Environment, Climate Change and Water, Sydney.
- Department of Environment, Climate Change and Water (2025). Species Profile and Threats Database. Available: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>.
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- Lumsden, L. and Bennett, A. (2000). Bats in rural landscapes: a significant but largely unknown faunal component. In 'Bushcare Grassy Landscapes Conference. Eds T. Barlow, R. Thorburn. Environment Australia. Canberra, Australia.
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Woodland Birds – Brown Treecreeper (*Climacteris picumnus victoriae*), Diamond Firetail (*Stagonopleura guttata*), Painted Honeyeater (*Grantiella picta*), and Southern Whiteface (*Aphelocephala leucopsis*)

The Brown Treecreeper (*Climacteris picumnus victoriae*) is endemic to eastern Australia, occurring from the coast to inland plains and western slopes of the Great Dividing Range. The species prefers woodlands dominated by stringybarks or other rough-barked eucalypts and forages in trees and on the ground. Nesting generally occurs in tree or stump hollows with a diameter greater than 6 cm (DECCW 2025).

The Diamond Firetail (*Stagonopleura guttata*) is endemic to SE Australia, extending from central Queensland to the Eyre Peninsula in SA. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and SW Slopes and the NW Plains and Riverina. The species is not commonly found in coastal districts, but mainly found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum *Eucalyptus pauciflora* Woodlands. It also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Nests are globular structures built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests.

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. A specialist feeder on the fruits of mistletoes (*Amyema* sp.) growing on woodland eucalypts and acacias.

The Southern Whiteface is known or predicted to occur in the following sub-regions of the New England Tablelands Interim Biogeographic Regionalisation of Australia Region. Associated with Northern Hinterland Wet Sclerophyll Forests, Western Slopes Grassy Woodlands.

Criteria	Assessment
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Within the Study Area, suitable habitat for threatened woodland bird species is largely limited to the road reserve adjacent to Waterfall Way. No threatened woodland bird species were detected during the assessment and there are few historical records of each of the above listed species within the locality. Given the lack of suitable habitat within the Study Area, impacts are likely to be limited to the removal of 0.41 ha of suitable habitat within the road reserve (VZ 01). As such, it is unlikely that the proposed development would lead to a long-term decrease in the size of a threatened woodland bird population.
(a) Lead to a long-term decrease in the size of an important population.	
(b) Reduce the area of occupancy of an important population.	No threatened woodland bird species were detected during the assessment and there are few historical records of the above listed threatened species within the locality of the Study Area. Therefore, it is unlikely that the proposed development will reduce the area of occupancy of any threatened woodland bird species.
(c) Fragment an existing important population into two or more populations.	No threatened woodland bird species were detected during the assessment and there are few historical records within the locality of the Study Area. Based on the limited extent of habitat removal proposed (0.41 ha), it is unlikely that the proposed development would fragment an existing population into two or more populations.

Criteria	Assessment
(d) Adversely affect habitat critical to the survival of a species.	Approximately 0.41 ha of suitable habitat for threatened woodland bird species will be impacted/removed within the road reserve to facilitate the proposed development. Given that similar habitat is widespread along roadsides within the locality and the region, it is unlikely that the habitat to be removed is critical to the survival of these species.
(e) Disrupt the breeding cycle of an important population.	Based on the limited extent of habitat removal proposed (0.41 ha), it is unlikely that the proposed development will disrupt the breeding cycle of a population of any of these species.
(f) Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Based on the limited extent of habitat removal proposed (0.41 ha), it is unlikely that the proposed development will modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that these species are likely to decline.
(g) Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the vulnerable species' habitat.	Potential indirect impacts caused by the proposed development: such as the spread of weeds has the potential to reduce the integrity of retained areas of habitat. The potential for such impacts is to be mitigated via various management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR).
(h) Introduce disease that may cause the species to decline or interfere with the recovery of the species.	Potential indirect impacts caused by the proposed development: such as the spread or introduction of pathogens is to be mitigated via various management measures that are to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR). These measures include erosion and sediment control measures and vehicle hygiene procedures that will reduce the potential for the spread of soil borne pathogens.
Conclusion	In consideration of each of the significant impact criteria previously discussed, the proposed development is unlikely to have a significant impact on the Brown Treecreeper (<i>Climacteris picumnus victoriae</i>), Diamond Firetail (<i>Stagonopleura guttata</i>), Painted Honeyeater (<i>Grantiella picta</i>), or the Southern Whiteface (<i>Aphelocephala leucopsis</i>).
References	
Barrett, G.W., Ford, H.A. and Recher, H.F. (1994). Conservation of woodland birds in a fragmented rural landscape. Pacific Conservation Biology 1, 245-256.	
Blakers, M., Davies, S.J.J.F. and Reilly, P.N. (1984). 'The Atlas of Australian Birds'. (Melbourne University Press: Melbourne.)	

Assessment of Significance for Listed Migratory Species

White-throated Needletail (*Hirundapus caudacutus*)

The White-throated Needletail (*Hirundapus caudacutus*) is a migratory species that is usually seen in eastern Australia from October to April. The species breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan June-August. Most often the species is observed in eastern Australia before storms, low pressure troughs and approaching cold fronts and occasionally bushfire. These conditions are often used by insects to swarm (eg termites and ants) or tend to lift insects away from the surface which favours sighting of White-throated Needletails as they feed. The species has been recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows Chantler 1999). They build their nests in rock crevices in cliffs or hollow trees (Higgins 1999). In Australia, White-throated Needletails almost always forage aerially, at heights up to 'cloud level', above a wide variety of habitats ranging from heavily treed forests to open habitats, such as farmland, heathland or mudflats.

Criteria	Assessment
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Given that the White-throated Needle-tail is an aerial foraging insectivorous species, suitable habitats may include a broad range of vegetation types that support insect communities, including forests, woodlands and grasslands. Based on the limited extent and low condition of the majority of the native vegetation within the Subject Land, it is unlikely that these areas represent important aerial foraging habitat for the White-throated Needle-tail.
(a) 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.	
(b) Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	Potential indirect impacts caused by the proposed development, such as the spread of weeds or soil borne pathogens have the potential to reduce the integrity of retained areas of habitat. The potential for such impacts is to be mitigated via various management measures to be implemented during the construction and operational phases of the project (see Section 7.6 of the BDAR).
(c) Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	Based on the limited extent and condition of the majority of the native vegetation within the Subject Land, it is unlikely that impacts of the proposed development on these areas would seriously disrupt the lifecycle of the White-throated Needle-tail.
Conclusion	In consideration of each of the significant impact criteria previously discussed, the proposed development is unlikely to have a significant impact on the White-throated Needle-tail.

Criteria	Assessment
References	
Blakers, M., Davies, S.J.J.F., and Reilly, P.N. (1984). The Atlas of Australian Birds. Melbourne, Victoria: Melbourne University Press.	
Chantler, P. (1999). Apodidae (swifts) species accounts. In: del Hoyo, J., A. Elliott and J. Sargatal, eds. Handbook of the Birds of the World. Volume 5. Barn-owls to Hummingbirds. Page(s) 419-457. Barcelona: Lynx Edicions.	
Coventry, P. (1989). Comments on airborne sightings of White-throated Needletails <i>Hirundapus caudacutus</i> . Australian Bird Watcher. 13:36-37.	
Higgins, P.J. (ed.) (1999). Handbook of Australian, New Zealand and Antarctic Birds. Volume Four - Parrots to Dollarbird. Melbourne: Oxford University Press.	

Appendix H – SAI Assessment

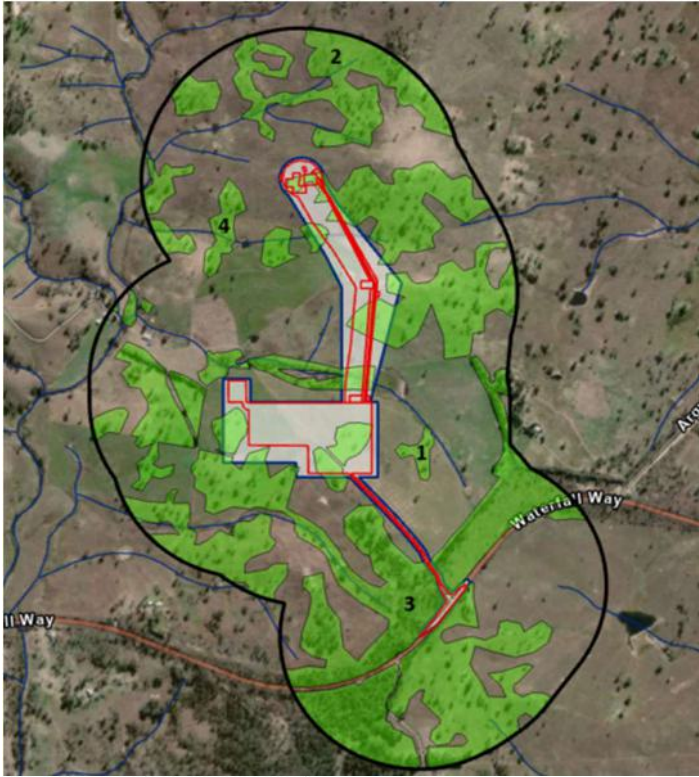


An SAI Assessment has been prepared for the TEC in accordance with the criteria listed in Section 9.1 of the Biodiversity Assessment Method 2020 (BAM).

Criteria	Discussion
1a. What action and measures taken to avoid the direct and indirect impact on the TEC at risk of an SAI?	The proposed development was designed to occupy areas of the site assessed as being predominantly vegetated with Exotic Grassland. The layout was then redesigned, and the impact footprint was reduced from 22.43 ha to 19.90 ha. This measure will reduce direct impacts to the TEC and allow for retention of 9.96 ha of the TEC in areas outside the Subject Land. Mitigation measures have been proposed to ensure indirect impacts to the TEC do not occur during the construction and the operation of the project. These include the following: • Protection measures such as the establishment of no-go zones, the installation of appropriate signage, and installation of tree protection measures). • Measures to prevent the transfer of sediments and contaminants via the installation of source controls such as sediment fences. • The establishment of appropriate washdown facilities to clean vehicles and equipment prior to arrival on-site and prior to departure to prevent the spread of soil, contaminants and weed propagules. In addition to the above listed measures, a VMP is to be prepared and implemented prior to construction of the project. The VMP is to be in accordance with TransGrid ISO 14001 certified EMS and is to specify clearing protocols and the management of weeds prior to clearing, particularly in the partially impacted areas containing the TEC to ensure the ground strata VI is retained or improved. The VMP will aim to restore the integrity of the partially retained and retained areas of the TEC, including surrounding woodland remnants.
2a. Evidence of reduction in geographic distribution (Principle 1, clause 6.7(2)(a) BC Regulation) as the current total geographic extent of the TEC in NSW AND the estimated reduction in geographic extent of the TEC since 1970 (not including impacts of the proposal)	Thiele and Prober (2000) estimated that less than 0.1% of Grassy White Box Woodlands (a component of the Box – Gum Grassy Woodland and Derived Grassland ecological community) remains in a near-intact condition. Much of the original extent of the Box – Gum Grassy Woodland and Derived Grassland ecological community has been cleared for agriculture. Austin et al. (2000) found that this ecological community had been reduced to less than 1% of its pre-1750 extent in the Central Lachlan region. Thomas et al. (2000) estimated.
2b. Extent of reduction in ecological function for the TEC using evidence that describes the degree of environmental degradation or disruption to biotic processes (Principle 2, clause 6.7(2)(b) BC Regulation) indicated by: i.change in community structure. ii.change in species composition iii.disruption of ecological processes	i. Change in community structure – In most of the areas that remain, grazing and pasture-improvement have effectively removed the characteristic understorey, leaving only the overstorey trees with an understorey dominated by exotic species (McIntyre et al. 2002; Prober & Thiele in press). In these areas, grazing has also largely prevented the regeneration of the overstorey species (Sivertsen 1993). Due to the high levels of clearing that have taken place, and continued grazing, large areas of healthy, regenerating overstorey are rare.

Criteria	Discussion
iv.invasion and establishment of exotic species v.degradation of habitat, and vi.fragmentation of habitat	ii.Change in species composition -Kangaroo Grass (<i>Themeda australis</i>) and Snow Grass (<i>Poa sieberiana</i>) were originally the dominant grasses across a large part of the TECs range and are particularly sensitive to grazing pressure (Cole et al. 2004). Grazing tends to cause the loss of these grasses, along with other grazing-intolerant forbs, grasses, sedges and shrubs. These grazing-intolerant forbs include tall perennial herbs such as daisies such as Yam Daisy (<i>Microseris lanceolata</i>), lilies such as Milkmaids (<i>Burchardia umbellata</i>), pea plants such as the Australian Trefoil (<i>Lotus australis</i>), and orchids such as the Purple Diuris (<i>Diuris punctata</i>). iii.Disruption of ecological processes - Grazing can also have indirect effects upon other ground layer species through soil disturbance and physical changes to the soil such as compaction, nutrient enrichment, reduced water infiltration and erosion. These changes to the soil can facilitate and maintain weed invasions and make soil conditions unsuitable for native species regeneration (Prober et al. 2002a & 2002b; Yates & Hobbs 1997). As a consequence of these pressures, there are only a small number of areas remaining that retain a highly diverse understorey dominated by native, perennial tussock grasses. iv. Invasion and establishment of exotic species – Weed invasion continues to be one of the key mechanisms and indicators of degradation of the TEC. Direct threats such as grazing, soil disturbance and nutrient enrichment also facilitate weed invasion. Environmental weeds impacting upon this ecological community include both agricultural weeds, such as Coolatai Grass and introduced exotic pasture grasses, such as Phalaris. Weeds have invaded most of the remaining areas of the original pre-1750 extent of this ecological community. Austin et al (2000) found that only 8% of Yellow Box – Red Gum Woodland sites had greater than 50% cover of native species. v.Degradation of habitat – The vegetation has already been severely degraded as previously discussed. vi.Fragmentation of habitat – The vegetation is already highly fragmented within the landscape.
2c. Evidence of restricted geographic distribution (Principle 3, clause 6.7(2)(c) BC Regulation), based on the TEC's geographic range in NSW according to the: i. extent of occurrence ii. area of occupancy, and iii. number of threat-defined locations	i.Extent of occurrence – The TEC has been heavily cleared across most of its range. The remaining extent of the ecological community is highly fragmented, occurring in small, isolated patches within a cleared environment, or within a landscape of other disturbed woodlands. ii.Area of occupancy – The current estimate for the area of occupancy of the TEC in NSW is 250,729 ha, according to the Conservation Advice for the TEC (2002) iii.Number of threat-defined locations – Unknown. Ther extent to which further clearing and the deterioration and degradation of remnants is occurring (NSW Scientific Committee 2002). Of particular concern is the threat posed to higher quality remnants within reserves via the increasing trend of converting

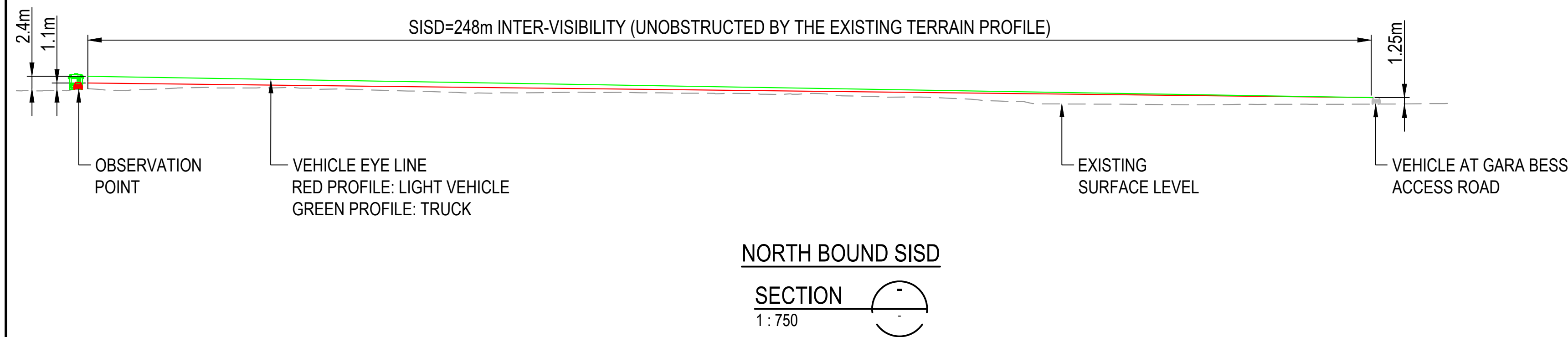
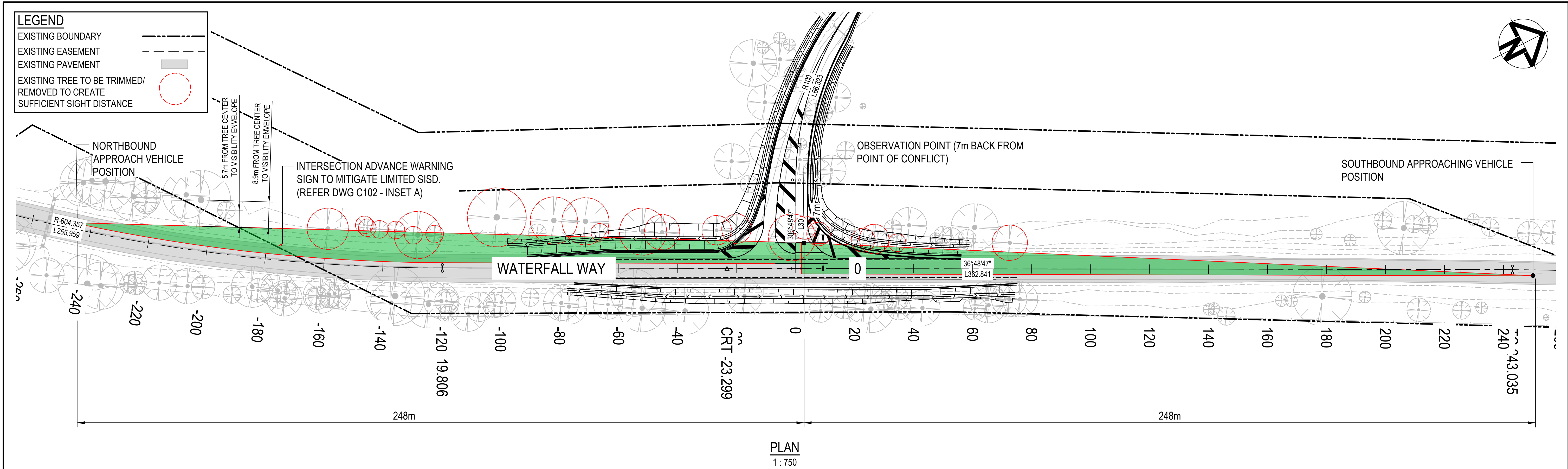
Criteria	Discussion
	intermittent grazing regimes to more intensive stocking regimes (Prober & Thiele 1995).
2d. evidence that the TEC is unlikely to respond to management (Principle 4, clause 6.7(2)(d) BC Regulation).	The priority recovery and threat abatement actions required for the listed ecological community include: • Protection of remnants of the listed ecological community through the development of conservation agreements and covenants. • Protection of remnants from weeds, particularly Coolatai Grass, by preventing soil disturbance in and around remnants, and the speedy eradication of any new invasion. • Avoid the use of fertilisers in or near remnants • avoid soil disturbance in or near remnants, such as ripping planting lines and road grading. • In very small, derived grassland sites, avoid planting trees as they may reduce the floral diversity through competition for light, nutrients and water. • Planting and other rehabilitation-focussed disturbance should focus on the edges of patches, expanding them, rather than within the patches. • Expansion and connection of existing remnants; • exclusion of continuous grazing from remnants is important, coupled with weed management and control. • Use strategic grazing (incorporating rest at appropriate times) in areas still containing a diverse native understorey. • Burning or slashing if native tussock grasses have built up to a high level, to open inter-tussock spaces for tree seedlings, forbs and shrubs to establish.
3. TBDC indicates data is ‘unknown’ or ‘data deficient’ for a TEC	The TBDC does not indicate data is ‘unknown’ or ‘data deficient’ for the TEC
4a. In relation to the impacts from the proposal on the TEC at risk of an SAI the impact on the geographic extent of the TEC (Principles 1 and 3) by estimating the total area of the TEC to be impacted by the proposal: in hectares, and as a percentage of the current geographic extent of the TEC in NSW.	Impacts of the project will result in direct removal of 6.65 ha of the TEC and partial removal of 5.81 ha over five vegetation zones. A total of 9.96 ha would be retained. The areas of each vegetation zone to be impacted and their corresponding VI scores are as follows: Hectares • VZ 01: 0.41 ha direct impact to good condition woodland (VI 79.8) • VZ 02: 0.53 ha direct impact and 1.28 partial impact to moderate condition woodland (VI 52.9) • VZ 03: 4.20 ha direct impact and 3.39 partial impact to moderate condition grassland (VI 36.6) • VZ 04: 1.48 ha direct impact and 0.10 ha partial impact to low condition grassland (VI 6.1) • VZ 05: 0.03 ha direct impact and 0.51 partial impact to planted vegetation (VI 47.3) Percentage • For all VZs, impacts will comprise <0.00001% of the current geographic extent of the TEC in NSW.

Criteria	Discussion
4b. The extent that the proposed impacts are likely to contribute to further environmental degradation or the disruption of biotic processes (Principle 2) of the TEC by: i. estimating the size of any remaining, but now isolated, areas of the TEC; including areas of the TEC within 500 m of the development footprint or equivalent area for other types of proposals. ii. describing the impacts on connectivity and fragmentation of the remaining areas of TEC measured by: • distance between isolated areas of the TEC, presented as the average distance if the remnant is retained AND the average distance if the remnant is removed as proposed, and • estimated maximum dispersal distance for native flora species characteristic of the TEC, and other information relevant to describing the impact on connectivity and fragmentation, such as the area to perimeter ratio for remaining areas of the TEC as a result of the development. iii. describing the condition of the TEC according to the vegetation integrity score for the relevant vegetation zone(s) (Section 4.3). The assessor must also include the relevant composition, structure and function condition scores for each vegetation zone.	i. The size of isolated areas of the TEC; including areas of the TEC within 500 m of the Subject Land were estimated via GIS as follows: • Patch 01 (1.16 ha), approximately 118m from the subject land. • Patch 02 (17.43 ha), approximately 110m from the subject land. • Patch 03 (119.32 ha), approximately 0-46m from the subject land. • Patch 04 (5.56 ha), approximately 200m from the subject land.  ii The average distance between the four patches is approximately 118.5 m. The average distance would not change as a result of the removal of vegetation for the project. Connectivity within the locality would be retained similar to the current state. iii. The TEC vegetation within the Subject Land has been subjected ongoing agricultural management that has reduced the integrity

Criteria	Discussion
	of the vegetation. This is evident throughout the site by the low cover of trees and shrub, the low to moderate diversity of native plant species and the abundance of non-native plant species, including weeds. Despite ongoing agricultural practices, there are areas of the Study Area that contain a moderate to high diversity and the coverage of native groundcover species. The resilience of the assemblages of native grasses, sedges, and forbs, despite agricultural impacts, indicates that improvement in floristic structure, composition and functionality may be achieved via appropriate management actions, such as the removal of grazing pressure and other measures developed as part of a site-specific VMP (refer to Section 7.6). A summary of impacts and the future VI of each vegetation zone, including direct and partial impacts within the Subject Land is presented in Table 15.
5. Provision of new information that demonstrates that the principle identifying that the TEC is at risk of an SAI is not accurate.	Not applicable
	• Department of Planning and Environment (DPE) (2025). Threatened Biodiversity Profile Search. Available at: https://threatenedspecies.bionet.nsw.gov.au/profile?id=20392 • Department of Planning and Environment (DPE) (2002). NSW Threatened Species Scientific Committee – Final Determinations. https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2000-2003/white-box-yellow-box-blakelys-red-gum-woodland-endangered-ecological-community-listing. • New South Wales Threatened Species Scientific Committee (TSSC) (2020). Final Determinations

Appendix I – Tree Removal for Access Upgrade and Sight Analysis





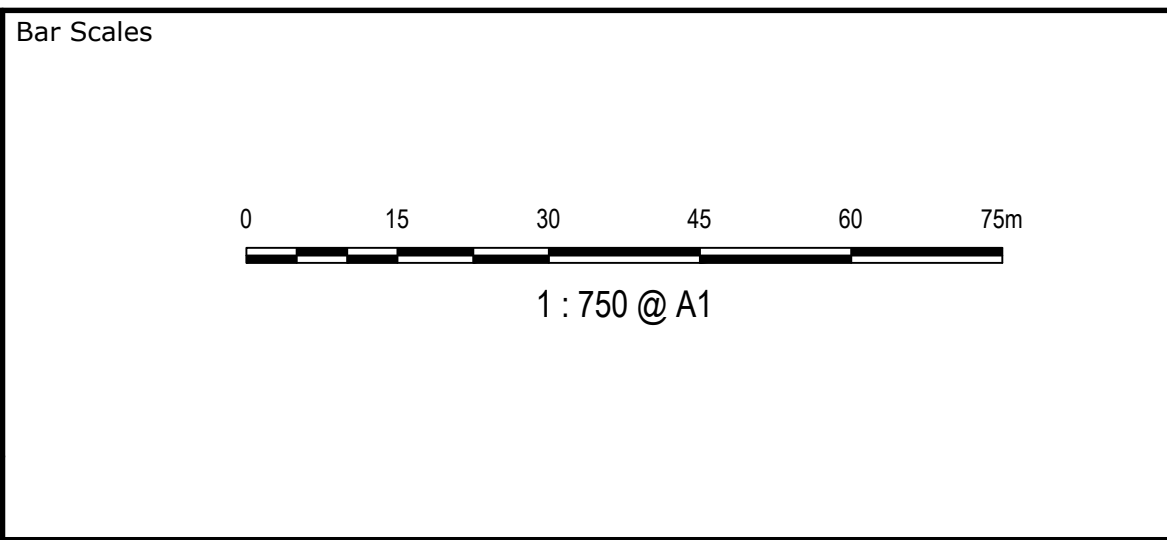
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- EXISTING BOUNDARY
- SAFE INTERSECTION SIGHT DISTANCE (SISD) = 248m
(DESIGN SPEED 110km/hr)

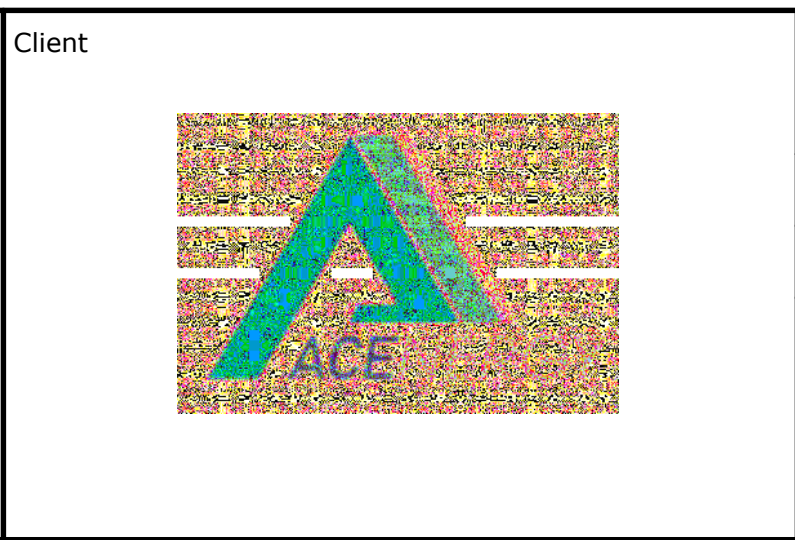
NOTES

- 110kph DESIGN SPEED DETERMINED FROM SPEED SURVEY UNDERTAKEN ON WATERFALL WAY.
- A GENERALLY UNIFORM ROAD GRADE OF +1.2% HAS BEEN SURVEYED FROM SOUTHWEST TO NORTHEAST.
- A VERTICAL PROFILE OF THE SISD PATH HAS BEEN ASSESSED WHICH INDICATED NO ADDITIONAL OBSTRUCTIONS TO SISD.
- PARAMETERS AND CALCULATIONS AS PER AUSTRROADS GUIDE TO ROAD DESIGN (AGRD) AND THE TNSW SUPPLEMENT TO AGRD

B	ISSUED FOR APPROVAL	04/11/2025
A	ISSUED FOR APPROVAL	15-10-25
Issue	Description	Date



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Scales	1:750	Drawn	EH
		Designed	EH
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Height Datum	AHD	Approved	

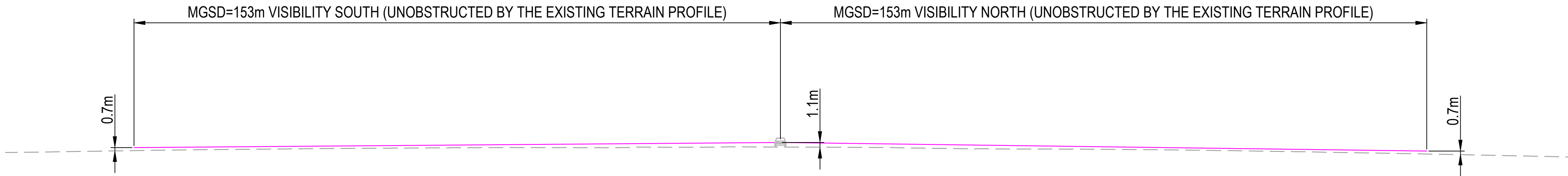
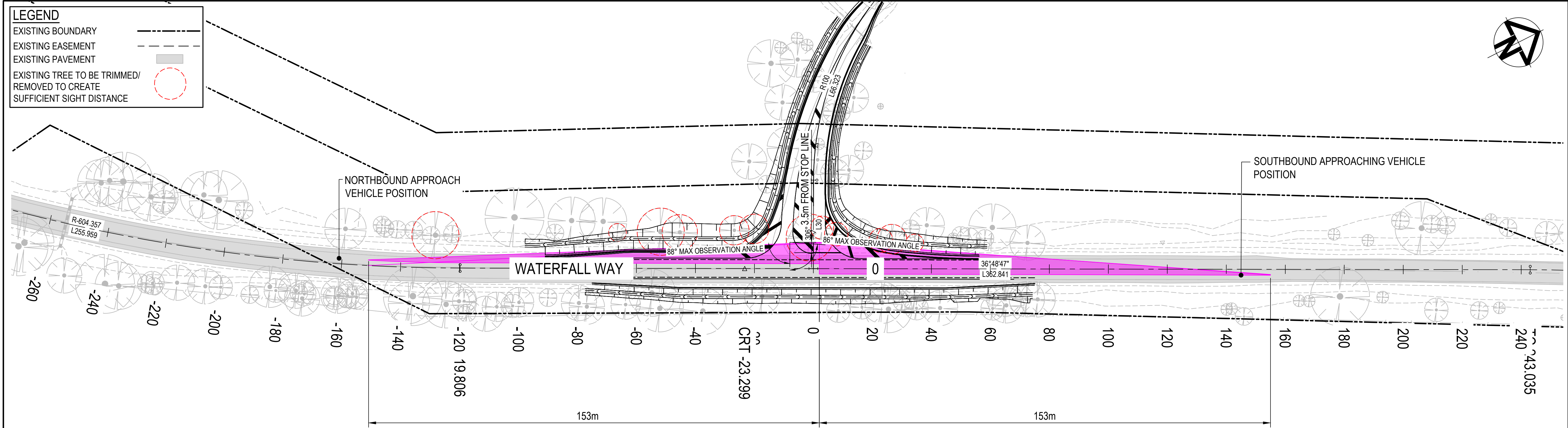
Project	GARA BESS (ARMIDALE) STRATEGIC INTERSECTION DESIGN
Title	SAFE INTERSECTION SIGHT DISTANCE (SISD) WATERFALL WAY PLAN

Civil Engineers and Project Managers

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P 02 9439 1777
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ABN 96 130 882 405

at&l

Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	24-1239-C801	Issue B



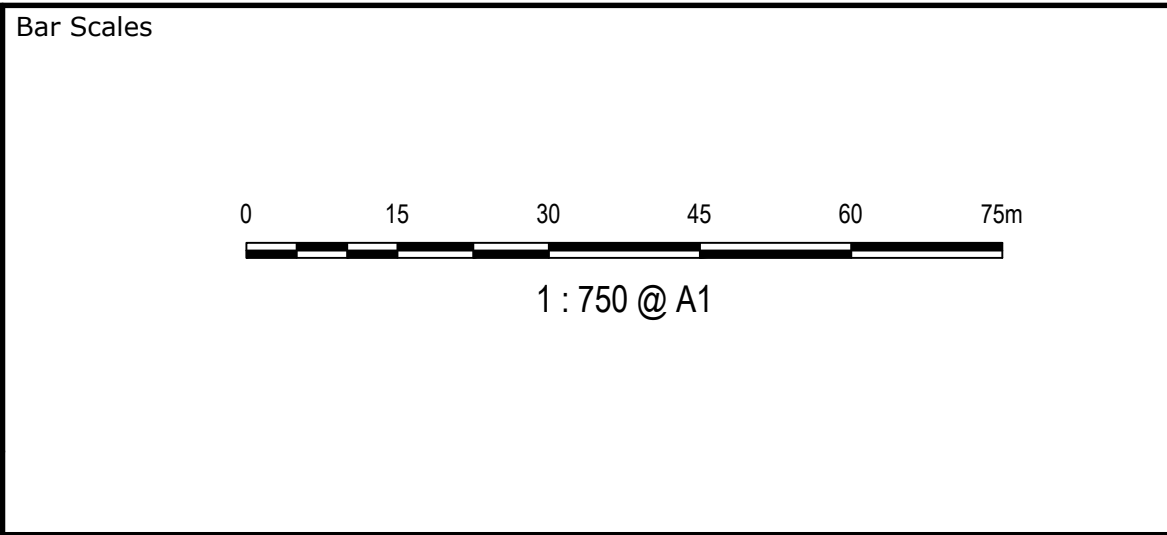
LEGEND

- EXISTING BOUNDARY
- MINIMUM GAP SIGHT DISTANCE (MGSD) = 153m
(DESIGN SPEED 110km/hr, 5 SEC GAP ACCEPTANCE)

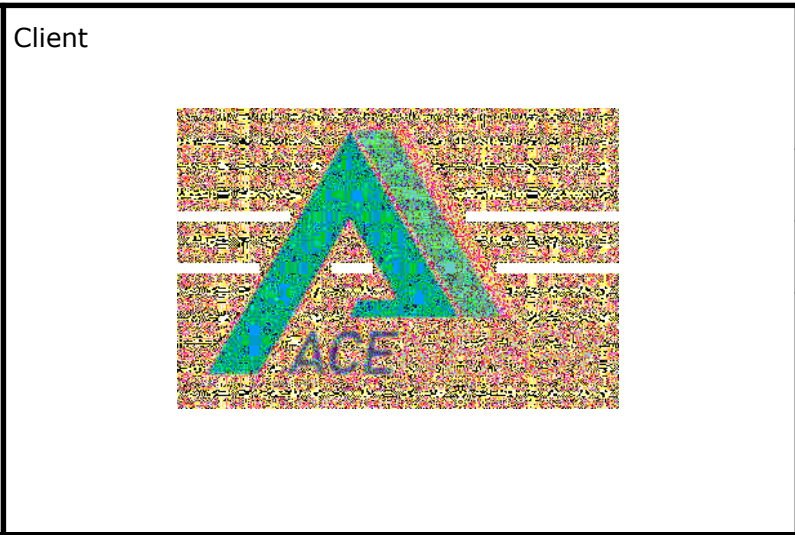
NOTES

- 110kph DESIGN SPEED DETERMINED FROM ADDITIONAL BUFFER.
- A GENERALLY UNIFORM ROAD GRADE OF +1.2% HAS BEEN SURVEYED FROM SOUTHWEST TO NORTHEAST.
- A VERTICAL PROFILE OF THE MGSD PATH HAS BEEN ASSESSED WHICH INDICATED NO ADDITIONAL OBSTRUCTIONS TO SLD.
- PARAMETERS AND CALCULATIONS AS PER AUSTRROADS GUIDE TO ROAD DESIGN (AGRD) AND THE TNSW SUPPLEMENT TO AGRD

B	ISSUED FOR APPROVAL	04/11/2025
A	ISSUED FOR APPROVAL	15-10-25
Issue	Description	Date



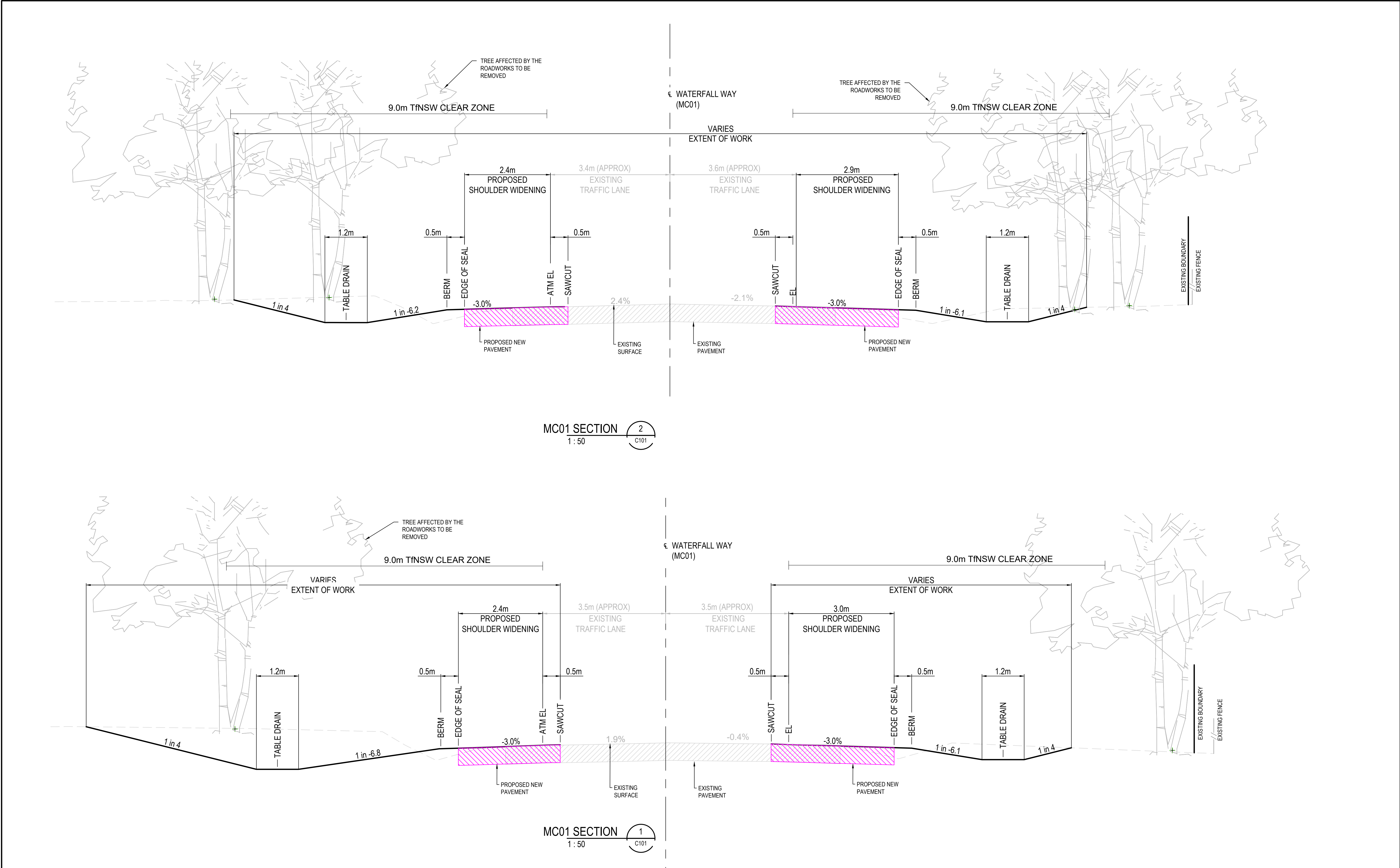
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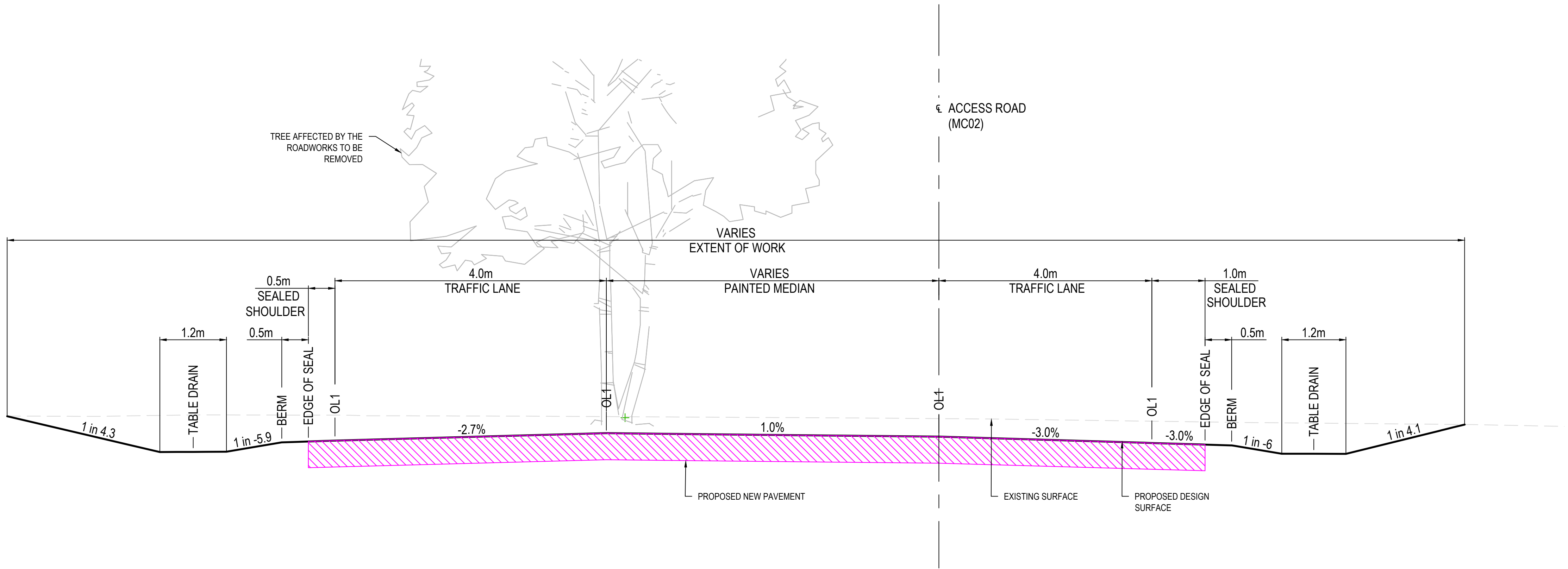
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Grid	GDA2020	Checked	GB
Height Datum	AHD	Approved	

Project	GARA BESS (ARMIDALE) STRATEGIC INTERSECTION DESIGN
Title	MINIMUM GAP SIGHT DISTANCE (MGSD) SITE ACCESS PLAN

Civil Engineers and Project Managers		
Level 10, 124 Walker Street North Sydney NSW 2060 P 02 9439 1777 E info@atl.net.au www.atl.net.au ABN 96 130 882 405		
Status	FOR APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		
Project - Drawing No.	24-1239-C802	Issue
		B

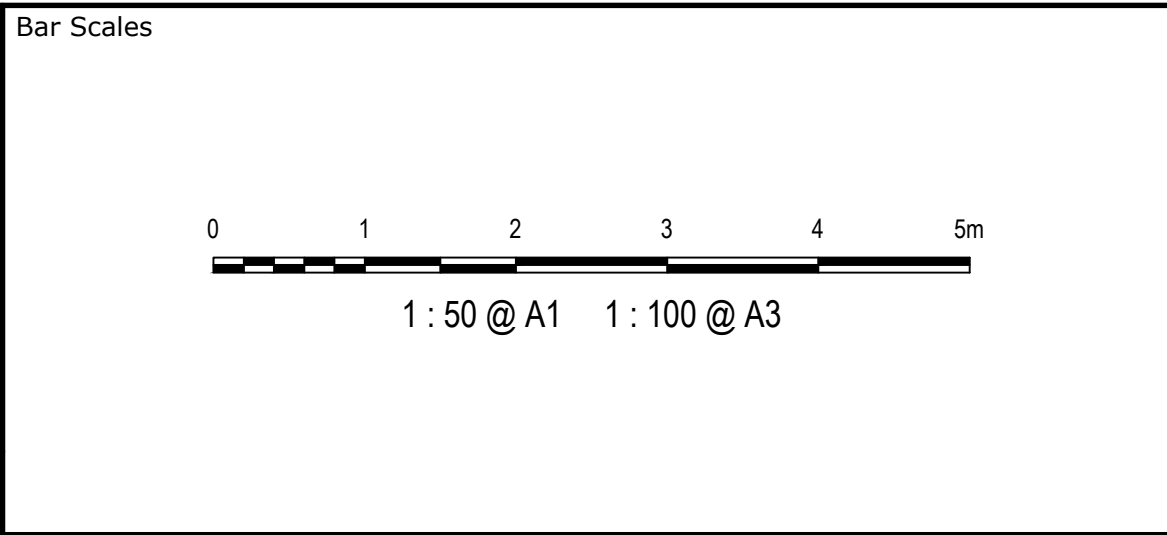


		Bar Scales		THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L	Client 	Scales 1:50		Drawn EH	Project GARA BESS (ARMIDALE) STRATEGIC INTERSECTION DESIGN	Civil Engineers and Project Managers  Level 10, 124 Walker Street North Sydney NSW 2060 P 02 9439 1777 E info@atl.net.au www.atl.net.au ABN 96 130 882 405				
		 1 : 50 @ A1 1 : 100 @ A3				Grid GDA2020	Checked GB	Designed EH		Title TYPICAL SECTIONS SHEET 1	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION			
						Height Datum AHD	Approved				Project - Drawing No. 24-1239-C901			
B		ISSUED FOR APPROVAL				04/11/2025							Issue A1	
A		ISSUED FOR APPROVAL		15-10-25										
Issue		Description		Date										

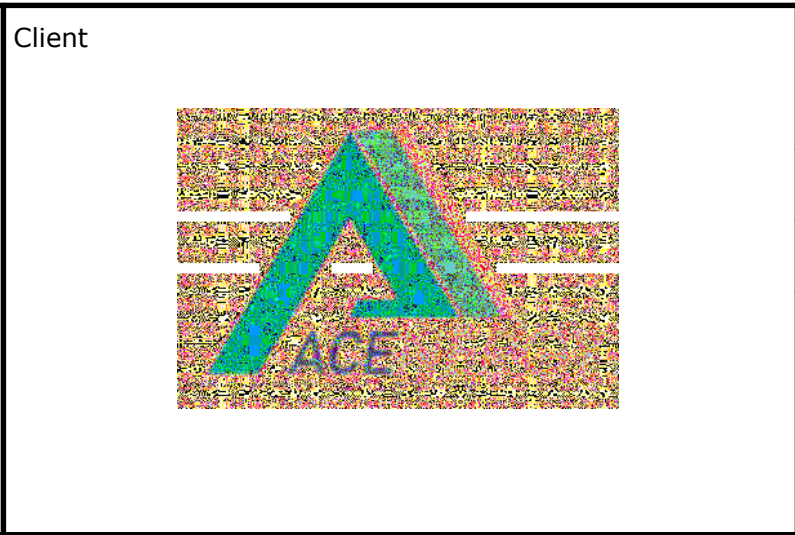


MC02 SECTION 3
1 : 50

B	ISSUED FOR APPROVAL	04/11/2025
A	ISSUED FOR APPROVAL	15-10-25
Issue	Description	Date



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Scales	1:50	Drawn	EH
		Designed	EH
Grid	GDA2020	Checked	GB
Height Datum	AHD	Approved	

Project	GARA BESS (ARMIDALE) STRATEGIC INTERSECTION DESIGN
Title	TYPICAL SECTIONS SHEET 2

Civil Engineers and Project Managers		
Level 10, 124 Walker Street North Sydney NSW 2060 P 02 9439 1777 E info@atl.net.au www.atl.net.au ABN 96 130 882 405		
Status	FOR APPROVAL	A1
NOT TO BE USED FOR CONSTRUCTION		
Project - Drawing No.		Issue
24-1239-C902		B

