EMU PARK ENERGY HUB

Scoping Report



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Appendix A Scoping Summary Table

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Appendix C Preliminary Visual Impact Analysis

Appendix D Preliminary Biodiversity Assessment

Appendix E Community and Stakeholder Engagement Plan

Appendix F Cumulative Impact Scoping Assessment

1 INTRODUCTION

This section introduces the Applicant and the Project. It includes the objectives of the Project as well as relevant site information and any related development. Relevant background information is provided as well as key strategies to avoid, minimise or offset the Project impacts.

1.1 Preamble

Emu Park Energy Pty Ltd (Applicant) seeks to construct, operate, maintain and decommission the up to 350 megawatt (MW) /800 megawatt-hour (MWh) Emu Park Energy Hub (Project). The Project is located 22 kilometres (km) south-east of Casino and 720 km north of Sydney (by road).

The preliminary Project Area in this Scoping Report is shown on **Figure 1-1** in the context of its regional setting. The Project Area consists of two properties under private ownership. The Project will connect to the existing 330 kilovolt (kV) TransGrid overhead powerlines.

Preliminary Lot and DP details applicable to the Scoping Report are discussed in **Section 2.3.2**.

The Project has a preliminary Estimated Development Cost (EDC) of approximately $800 million and will provide full time equivalent (FTE) employment for up to 300 personnel during construction.

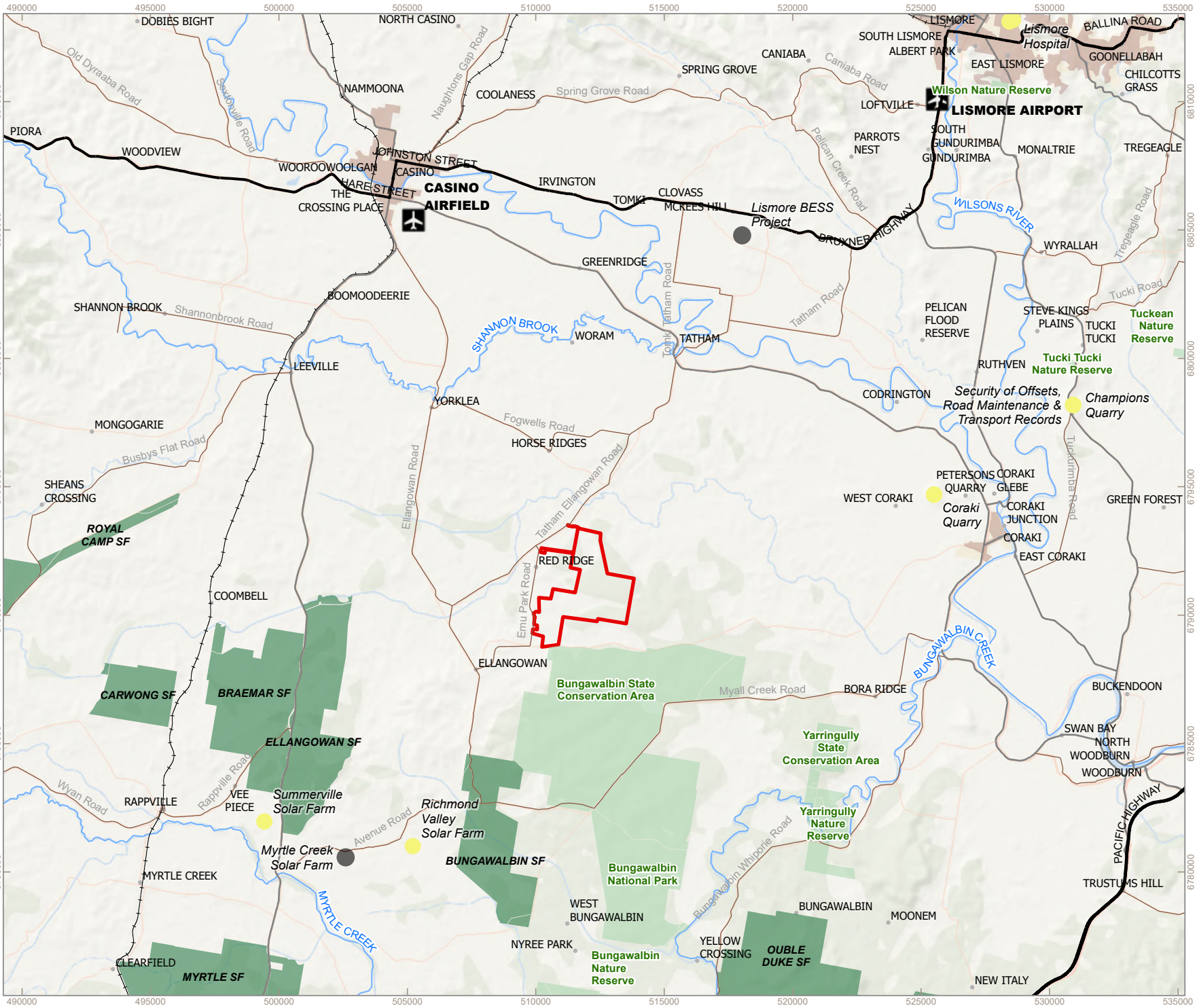
The Project is State Significant Development (SSD) as defined under *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) and will seek development consent under the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act).

RPS AAP Consulting Pty Ltd (RPS) has been engaged by the Applicant to prepare this Scoping Report to support the SSD development consent process.

The Scoping Report supports an application to the Secretary of the NSW Department of Planning, Housing and Infrastructure (DPHI) for Secretary's Environmental Assessment Requirements (SEARs). The SEARs will guide the preparation of an Environmental Impact Statement (EIS) for the Project, which will support the Development Application (DA) under Part 4, Division 4.7 of the EP&A Act.

The DA and supporting EIS will be prepared in accordance with 'State Significant Development Guidelines' (DPHI, 2024a), accompanied by the consent of the owner/s of the land as required in Section 23(1) of the *Environmental Planning and Assessment Regulation 2021*, and include a declaration from a Registered Environmental Assessment Practitioner (REAP).

The Scoping Report also supports a referral under Part 9 of the Commonwealth (Cwlth) *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).



Legend

- Project Area

Existing Envionment

- Primary Road
- Arterial Road
- Sub Arterial Road
- Railway
- Airport
- NSW State Forest
- NPWS Reserve
- Built Up Areas

Other Developments

- Assessment
- Approved
- Withdrawn

0 2 4 6 8 km

SCALE 1:200,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Regional Locality
AUTHOR: Natalie.Wood
DATE CREATED: 8/12/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

rps
A TETRA TECH COMPANY

FIGURE 1-1: REGIONAL LOCALITY

1.2 The Applicant

Metlen Energy and Metals (Metlen) is a global manufacturer and contractor of solar energy and energy storage projects, providing reliable solutions across the project development spectrum, from standalone projects to complex hybrid systems. Metlen currently has 14 renewables projects in development in Australia as of 15 July 2025 (Metlen, 2025).

Emu Park Energy Pty Ltd is a subsidiary of Metlen. The relevant contact address is Level 5, 461 Bourke Street, Melbourne VIC, 3000 and the company's ABN is 60 814 409 475.

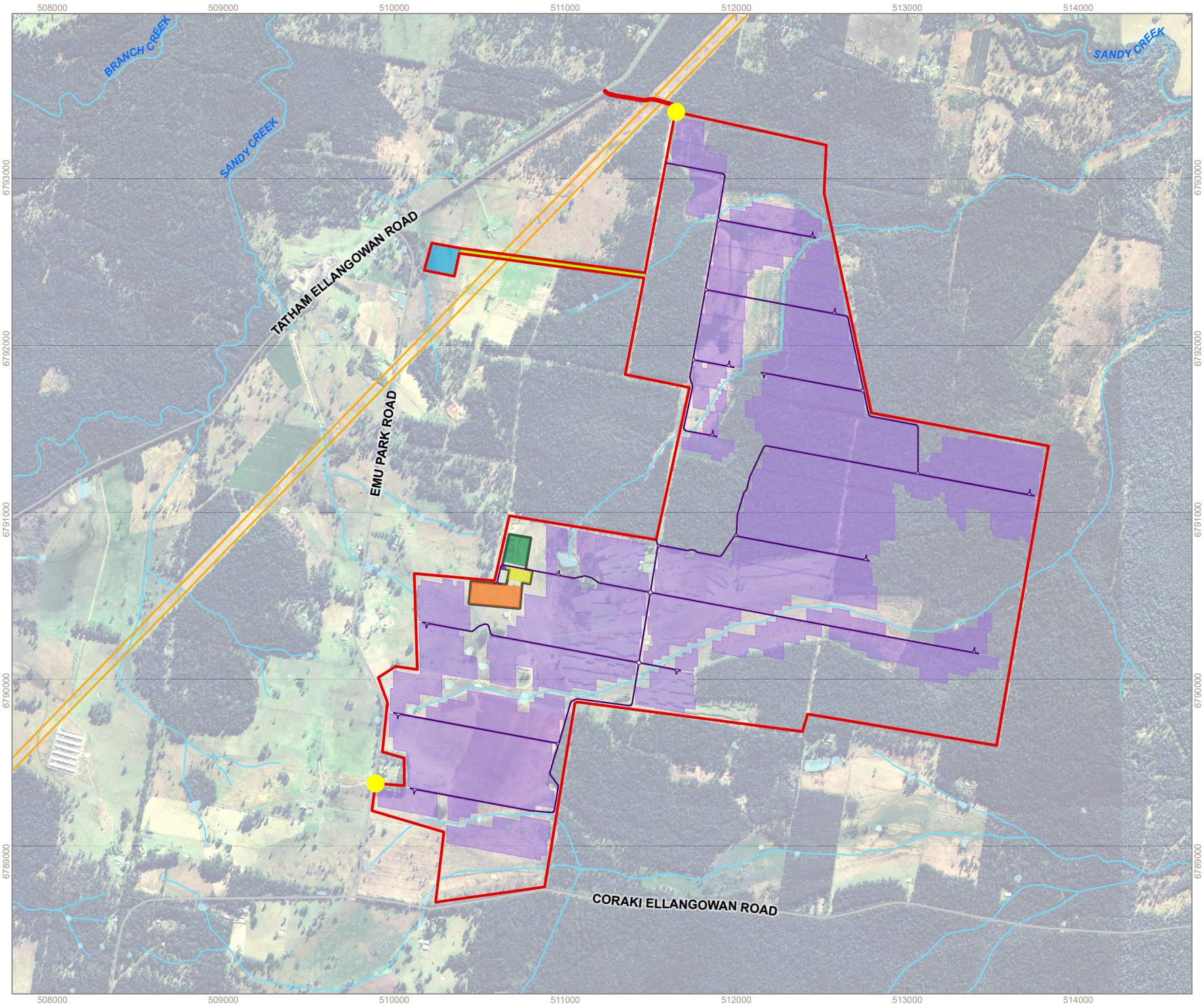
1.3 Project Overview

The Project will involve the construction, operation, maintenance and decommissioning of an up to 350 MW solar farm, electrical infrastructure, other related infrastructure and ancillary activities conceptually shown in **Figure 1-2**. **Table 1-1** contains the Project components.

Table 1-1 Preliminary Project Summary

Element	Feature	Specification
Energy generation	Solar arrays	Approximately 560,000 PV panels
Power conversion units	Power station (inverter, transformer and associated equipment)	• 85 units for PV array • 57 inverters for BESS • 6 m x 3 m x 2.4 m (L x H x W) dimensions
Electrical Reticulation Network	Substation site	• 33 kV switching room • Hamonic filter • Capacitor banks • Auxiliary and earthing transformers • 360MVA 330/33/33kV high voltage transformer • High voltage switchgear • SCADA
	On site switching station	• 330 kV switching station • Auxiliary power supply for switching station from transmission network • Incoming 330 kV bay from onsite substation • Two outgoing 330 kV bays to transmission network • Duplicate line protection on 330 kV bays
	On site switching station and external connection to the TransGrid Network	• Transmission line easement to connect to the existing 330kV TransGrid overhead powerlines (line 89 cut-ins) • Optical ground wire (OPGW) upgrades from the onsite switching station to the 330 kV transmission substations • All reticulation may be either underground or overhead cables
	Internal electrical reticulation network	• 33 kV electrical reticulation network • Internal solar low voltage cables • Electrical reticulation will generally follow rows of panels and internal access routes, where practical • The solar array/s and BESS will connect into the onsite substation directly • All reticulation may be either underground or overhead cables
Other infrastructure	Operations and Maintenance (O&M) facility	Site office, maintenance, storage facilities and other associated infrastructure
Energy Storage	Lithium-ion phosphate (LFP) containerised BESS	• 200 MW / 800 MWh • 228 units 60 inverters • 6 m x 3 m x 2.4 m (L x H X W) dimensions
	Temporary storage and Construction	Additional temporary areas to facilitate storage and construction

Element	Feature	Specification
	Construction and operational infrastructure	• Site office, parking, maintenance and storage facilities, communications, fencing, meteorological masts • Construction compounds (including office buildings, work areas, parking, waste disposal, storage facilities and associated amenities and infrastructure) • Water management structures
Ancillary activities	Resources for construction and maintenance	• Water, gravel, concrete, aggregate for construction from external sources • Rock crushing, blasting, geotechnical investigations, concrete batching • Pre-construction activities (including but not limited to geotechnical investigations, met mast installation, site establishment works)
Access	Internal access tracks	Nominally 6 m wide unsealed gravel access roads
	Port to site access	Brisbane and associated road upgrades if required)
Interactions with other projects	None	No other infrastructure projects within 5 km of the Project Area.
Workforce	Construction Operations	300 FTE 5 FTE
Preliminary Disturbance	Maximum project disturbance	Up to 580 ha within the Project Area
Subdivision	Preliminary disturbance	Subdivision and purchase of land for substation/s and access



Legend

Project components

- Project Area
- Infrastructure
- PV Array
- BESS
- Building OM & Storage
- Amenities
- Laydown Area
- Main Substation Area
- Powerline Easement
- Collector Substation
- Internal Access Roads
- Optional Site Access

Existing Environment

- Roads
- Electricity Transmission Line
- Watercourse
- Waterbody

0 0.5 1 km

SCALE 1:30,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Conceptual Layout1
AUTHOR: NATALIE.WOOD
DATE CREATED: 31/07/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

RPS A TETRA TECH COMPANY

FIGURE 1-2: PRELIMINARY CONCEPTUAL PROJECT LAYOUT

1.4 Background

The Project Area was identified as an area of interest for a solar farm due to its close proximity to the existing electricity transmission lines and strong solar resource potential. It is currently used for cattle and timber production.

There is one approved solar farm and one proposed solar farm in the regional locality of the Project Area as shown in **Figure 1-1**. The closest approved project is Summerville Solar Farm, about 12 km southwest of the Project Area.

Metlen commenced consultation with the landowners of the Project Area and nearby neighbours in 2024. An initial Constraints Report (RPS, 2024) was completed to investigate potential constraints of two potential layouts. The current layout was chosen due to the site having fewer environmental constraints of the two options Metlen is dedicated to building the Project sustainably and responsibly, working closely with government agencies, landowners and community organisations.

The Project will stimulate growth and job opportunities for nearby local communities and will contribute to Australia's renewable energy generation goals.

The Project is expected to raise awareness about renewable energy and environmental sustainability within the community and drive economic growth and diversification in the region.

1.5 Related Development

The Project will connect to and rely on the existing TransGrid 330 kV overhead transmission lines to the west of the Project Area as shown on **Figure 1-2**.

1.6 Objectives

The Applicant's objectives of the Project are to:

- Provide a source of renewable energy to supplement NSW and National energy requirements and assist in reducing greenhouse gas (GHG) emissions;
- Contribute to NSW and Commonwealth targets for renewable energy;
- Provide both direct and indirect employment opportunities during construction and operation;
- Liaise and work with the community and all potentially affected stakeholders in the identification, mitigation and/or monitoring of any potential environmental effects;
- Ensure quality, safety and environmental standards are maintained;
- Minimise all potential adverse environmental impacts;
- Assist in improving stability, sustainability and reliability to the electricity network services through proven and cost-effective solutions; and
- Supply electricity during periods of peak demands.

1.7 Related Guidelines

This Scoping Report has been prepared in alignment with the following guidelines:

- 'Large-Scale Solar Energy Guideline' (DPIE, 2022a) (Solar Guideline);
- 'Technical Supplement for Landscape and Visual Impact Assessment' (DPE, 2022b);
- 'State Significant Development Guidelines' (DPHI, 2024a);
- 'State Significant Development Guidelines - Preparing a Scoping Report: Appendix A to the State Significant Development Guidelines' (DPIE, 2022a) (Scoping Report Guidelines);
- 'Social Impact Assessment Guideline for State Significant Projects' (DPIE, 2023) (SIA Guideline);

- ‘Cumulative Impact Assessment Guidelines for State Significant Projects ‘(DPIE, 2022b); and
- ‘Undertaking Engagement Guidelines for State Significant Projects’ (DPHI, 2024) (Engagement Guidelines).

1.8 Structure

This Scoping Report has the following structure:

- **Section 1** describes the preliminary Project and the Applicant, an overview of the Project for which approval is sought, and the purpose of this Scoping Report. It also notes any related development, relevant guidelines, the Project objectives and structure of this Scoping Report;
- **Section 2** outlines the strategic context for the Project, including alignment with international, Commonwealth, state and local policies and strategic goals, the land use planning of the Project Area, the adjacent setting and features, and provides a preliminary project justification;
- **Section 3** describes the development within the Project Area, interaction with other Projects, staging, alternatives considered and the environmental benefits of the Project;
- **Section 4** outlines the statutory context for the Project including the power to grant approval, permissibility, other approvals and mandatory matters for consideration;
- **Section 5** describes the community and stakeholder engagement plan (CSEP), stakeholder identification, engagement conducted to date, preliminary community feedback and proposed future engagement;
- **Section 6** provides relevant background information and a preliminary assessment and EIS assessment approach for environmental and social aspects; and
- **Section 7** and **Section 8** provide abbreviations and references, respectively.

Appendix A to **Appendix F** support this Scoping Report.

Appendix A contains the Scoping Summary Table which is a requirement of the Scoping Report Guidelines. It describes the level of assessment required for each matter, type of engagement necessary and guidelines to be considered.

Appendix B includes a summary of the Scoping Report Guidelines’ requirements and indicates where each is addressed in this Scoping Report.

Appendix C to **Appendix E** provide relevant technical studies including the preliminary visual impact assessment, preliminary biodiversity assessment and the community and stakeholder engagement plan (CSEP).

Appendix F includes a cumulative impact scoping assessment.

2 STRATEGIC CONTEXT

This section identifies the key strategic issues that are relevant to the assessment of the Project. It also describes the key features of the Project Area and surrounds, existing land use and land ownership. Relevant future developments in the area that could affect or be affected by the Project have been summarised.

2.1 Policy and Strategic Goals Alignment

2.1.1 International

2.1.1.1 United Nations Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a global call for action to "promote prosperity while protecting the planet" (UN, 2015). The SDGs address a range of socioeconomic and environmental issues including education, health, social protection, job opportunities, climate change and environmental protection. The 17 SDGs of the '2030 Agenda for Sustainable Development' came into force on 1 January 2016. Australia has been a United Nations (UN) member state since 1945 and has adopted the SDGs in its national policymaking.

There are a number of SDGs that renewable energy infrastructure aligns with, the core goal being "Goal 7 – Affordable and Clean Energy". Target 7.A of Goal 7 aims to "enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology by 2030".

Other SDGs that the Project indirectly aligns with include:

- SDG 8 – Decent Work and Economic Growth;
- SDG 9 – Industry, Innovation and Infrastructure;
- SDG 11 – Sustainable Cities and Communities;
- SDG 13 – Climate Action; and
- SDG 17 – Partnerships for the Goals.

The Project is a renewable energy project and will therefore contribute to addressing socio-economic and environmental issues through advancing cleaner fossil-fuel technology and energy efficiency.

2.1.1.2 United Nations COP29 (2024)

COP29 is the United Nations (UN) Framework Convention on Climate Change Conference of the Parties (COP) that took place in Azerbaijan from 11-22 November 2024.

The key priorities at COP29 included securing a new goal on climate finance, ensuring every country has the means to take much stronger climate action, significantly reducing GHG emissions and building resilient communities (UN, 2024). COP29 agreed on a $460 billion annual funding deal to help nations adapt to climate change (UN, 2024). The deal aims to keep the clean energy boom growing, protect lives and help countries share in huge benefits of bold climate action, more jobs, stronger growth, and cheaper and cleaner energy. Countries also agreed on rules for a global market to buy and sell carbon credits that could mobilise new projects to help fight global warming (UN, 2024).

The Project will contribute to cheaper and cleaner energy and help reduce GHG emissions by generating renewable electricity.

COP30 will be held in Belém from 10-21 November 2025.

2.1.1.3 United Nations COP28 (2023)

The UN Framework Convention on Climate Change COP 28 held in Dubai from 30 November to

12 December 2023 "… marked the conclusion of the first 'global stocktake of the world's efforts to address climate change under the Paris Agreement". An agreement to commence the "'… beginning of the end' for the fossil fuel era" was established and includes aiming to "… triple renewable energy capacity and doubling energy efficiency improvements by 2030".

The Project will contribute to the reduction of GHG emissions by generating renewable electricity.

2.1.1.4 United Nations COP26 (2021)

A key outcome of the UN Framework Convention on Climate Change Conference of the Parties (COP) held in Glasgow in 2021 (COP26) was the agreement to "… revisit and strengthen… 2030 targets in nationally determined contributions…by the end of 2022 …" (UNFCC, 2021).

Nations were also called upon to "phase down unabated coal power and inefficient subsidies for fossil fuels". As a result, the Australian Commonwealth Government committed to achieve net zero GHG emissions by 2050.

The Project will contribute to the reduction of GHG emissions through renewable energy generation.

2.1.1.5 United Nations COP21 (2015)

The UN Framework Convention on Climate Change COP – COP21 (The Paris Agreement) was an important stepping-stone for international relations on climate change as it brought all nations into a common cause to combat climate change. The core outcome of the Paris Agreement was to limit emissions globally, by holding the increase in the global average temperature to well-below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels (UNFCC, 2015).

The Project will contribute to meeting Australia's commitments under the Paris Agreement through reducing annual GHG emissions through renewable energy generation.

2.1.2 Commonwealth

2.1.2.1 Government's Large-scale Renewable Energy Target

The Renewable Energy Target (RET) is an Australian Government scheme designed to reduce emissions of GHGs in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources.

The Large-scale Renewable Energy Target (LRET) incentivises the development of renewable energy power stations in Australia through a Renewable Energy Certificate Market for the creation and sale of certificates called large-scale generation certificates (LGCs). LRET-accredited power stations can create LGCs for electricity generated from that power station's renewable energy sources. LGCs can then be sold to:

- Liable entities under the RET (mainly electricity retailers); and
- Companies and individuals looking to support claims about reducing emissions, using renewable electricity, or by surrendering offsets such as Australian Carbon Credit Units (ACCUs).

The current target under the LRET is for 33,000 GWh of additional renewable energy to be generated annually. The current targets, accreditation of power stations, and creation of LGCs will remain until the end of the scheme in 2030.

Once operational, the Project will generate up to 707,000 MWh of clean energy annually. The Project will therefore contribute significantly to meeting the LRET target.

2.1.2.2 Climate Change Act 2022

In 2022 the Australian Government passed the *Climate Change Act 2022* (CC Act) which outlines goals to combat climate change through legislative requirements. The CC Act is pivotal in setting requirements for the generation of energy in Australia and targeting GHG emissions. Australia's GHG reduction targets are a 43% reduction in GHG emissions (from 2005 levels) by 2030 and to achieve net zero by 2050. These GHG emission targets are derived from the Paris Agreement's goals as stated in **Section 2.1.1.5**.

The CC Act also introduces the requirement for the Minister for Climate Change and Energy to prepare an annual climate change statement to be presented in the House of Parliament, as informed by the Climate Change Authority.

The Project aligns with the CC Act's objectives for GHG emission reduction by utilising renewable energy as a source for clean energy to Australia's electricity supply.

2.1.2.3 National Electricity Market

The National Energy Market (NEM) is a wholesale market through which electricity is traded in Australia. The NEM incorporates approximately 40,000 km of transmission lines and cables in Australia and spans the eastern and southeastern coasts (including QLD, NSW, ACT, SA, VIC and TAS) (AEMO, 2022a). It delivers around 80% of all electricity consumption in Australia (DCCEEW, 2023). The NEM facilitates the exchange of electricity between generators and retailers. Retailers resell the electricity to businesses and households. The Australian Energy Market Operator (AEMO) controls the NEM and is responsible for monitoring electricity consumption and the flow of energy across the power system (AEMO, 2022).

AEMO recognises that the NEM needs to be modernised to accommodate and respond to changes in electricity generation, emerging technologies, such as solar batteries, and shifting consumer preferences. (DCCEEW, 2023).

The 'Renewable Integration Study' (AEMO, 2020) (RIS) is a multi-year plan to maintain system security in the future NEM with a high share of renewable resources. The results of the Stage 1 RIS finds that if in the next five years the recommended actions are taken to address the regional NEM-wide challenges (keeping balance in a system in which energy supply is increasingly variable and uncertain), the NEM could be operated securely with up to 75% instantaneous input of wind and solar electricity generation (AEMO, 2020).

The Project will contribute via its infrastructure to connect to the NEM and allow for its distribution to retailers. The Project will directly feed into the NEM and contribute to the large-scale goal of renewable energy generation being prominent in the market and reduce the reliance on fossil fuels.

2.1.2.4 Integrated System Plan 2024

The 'Integrated System Plan' (AEMO, 2024) (ISP) is an integrated roadmap for the efficient development of the NEM over the next 20 years, in line with government policies to reach a net zero economy by 2050. The primary objective is to optimise value to end consumers by designing the lowest cost, secure and reliable energy system capable of meeting any emissions trajectory determined by policy makers at an acceptable level of risk (AEMO, 2024). The security of the power system is related to its ability to respond quickly and remain stable when unexpected events occur (i.e. transmission line failing) and the reliability is the ability of the system to deliver electricity to meet the demand of energy users.

The ISP is published every two years and serves to inform policymakers, investors and consumers with a clear plan for essential infrastructure to meet future energy needs. It draws on stakeholder engagement and industry expertise in order to maximise the value and benefits to electricity consumers. The ISP provides detail on the network projects within QLD, NSW, ACT, VIC, SA and TAS, and how each will connect as well as outlines the Renewable Energy Zones in Australia.

The Project's location is shown on **Figure 1-1** and will support the energy transition and provide new infrastructure to ensure a reliable and affordable electricity supply.

2.1.3 NSW Government

2.1.3.1 Climate Change (Net Zero Future) Act 2023

The *Climate Change Act (Net Zero Future) Act 2023* (Net Zero Act) passed Parliament on 30 November 2023. The Net Zero Act incorporates all government climate initiatives to achieve the goal of net zero by 2050 and legislates the following:

- Guiding principles for action to address climate change that consider the impacts, opportunities and need for action in NSW;
- Emissions reduction targets for NSW;
  - 50% reduction on 2005 levels by 2030;
  - 70% reduction on 2005 levels by 2035;
  - Net zero by 2050;
- An objective for NSW to be more resilient to a changing climate; and
- Establishing an independent, expert Net Zero Commission to monitor, review, report on and advise on progress towards these targets.

The Project would assist with increasing progress towards these targets by providing renewable energy to the NEM.

2.1.3.2 Net Zero Plan Stage 1: 2020-2030

The 'Net Zero Plan Stage 1: 2020-2030' (DPIE, 2020a) (Net Zero Plan) sets the framework for how the NSW Government will achieve net zero emissions by 2050. In September 2021, the NSW Government announced the reduction of emissions by 50% below 2005 levels by 2030.

The Project will contribute to the Net Zero Plan's goals through the reduction of GHG emissions.

2.1.3.3 NSW Electricity Strategy

The 'NSW Electricity Strategy' (State of NSW and DPIE, 2019) is the NSW Government's plan for a reliable, sustainable and affordable energy. The NSW Electricity Strategy aligns with the Net Zero Plan and will respond to current electricity demand challenges in an effort to combat electricity prices and reliability by:

- Delivering Australia's first coordinated Renewable Energy Zones);
- Saving energy, especially at times of peak demand via the Energy Security Safeguard;
- Supporting the development of new electricity generators;
- Setting a target to bolster the state's energy resilience; and
- Making it easier to do energy business in NSW.

The Project is consistent with the NSW Electricity Strategy as it provides renewable energy generation and storage capacity that will ultimately result in lower cost of power in comparison to wholesale prices.

2.1.3.4 NSW Electricity Infrastructure Roadmap

The 'NSW Electricity Roadmap' (NSW Government, 2023) (Roadmap) is a 20-year plan to make the state's electricity system into one that is cheap, clean and reliable.

The Roadmap aims to streamline investment into transmission, generation, storage and the firming of infrastructure as coal-fired generation plants retire and are phased out (e.g. Vales Point in 2029, Mt Piper in 2040, Bayswater in 2033, Eraring in 2025 (now scheduled for 2027) and Liddell was closed 2023) (AEMO, 2023).

2.2 Land Use Planning

The Project Area is in the Richmond Valley Local Government Area (LGA) as shown on **Figure 1-1**. Richmond Valley Council's (NSC) overarching planning document is the Richmond Valley 'Local Environmental Plan 2012' (Richmond Valley LEP). The 'Richmond Valley Council Local Strategic Planning Statement 2020 Vision' (LSPS) and 'Community Strategic Plan Richmond Valley 2040' (CSP) also form key Richmond Valley Council planning documentation and are also discussed below.

Other relevant NSW and Federal legislation is discussed in **Section 4**.

2.2.1 Richmond Valley Local Environmental Plan 2012

Relevant aims of the Richmond Valley LEP include:

"…(a) to encourage the proper management, development and conservation of natural and man-made resources,

(b) to support and encourage social and economic benefits within Richmond Valley,

(c) to ensure that suitable land for beneficial and appropriate uses is made available as required,

(d) to manage appropriate and essential public services, infrastructure and amenities for Richmond Valley,

(e) to minimise the risk of harm to the community through the appropriate management of development and land use…."

The Project will contribute to the above objectives as it has been designed to avoid areas of significance for biodiversity, agricultural, Aboriginal heritage and scenic qualities. The Project will be developed to focus on suitable development that is of benefit for the land the Project is on and the broader community. It will provide renewable energy and contribute to the development and growth of the Richmond Valley area and surrounding communities.

2.2.2 Richmond Valley Council Local Strategic Planning Statement 2020

The 'Richmond Valley Council Local Strategic Planning Statement: Beyond 20-20 Vision' (Richmond Valley Council, 2020) (LSPS) outlines the Richmond Valley LGA's town planning priorities and strategic direction to address planning and development issues of importance to bring a vibrant and sustainable future. The LSPS investigates the unique attributes of the local area, and its community values, and provides a rationale for decisions about how land use patterns will evolve to achieve the community's broader expectations over the next 20 years.

The LSPS is primarily informed by the 'North Coast Regional Plan 2036' and Richmond Valley Council's Community Strategic Plan (CSP), as well as having regard to a range of State, regional and local plans, policies and strategies.

The Project would address several planning priorities identified in the LSPS:

- Planning Priority 4 – Look after our environment: met through rigorous biodiversity assessment and the Project designed around identified constraints;
- Planning Priority 5 – Create resilient communities: council is focused on recovery after extreme weather events have impacted the region. The Project would aim to work with council and the local community; Planning Priority 6 – Celebrate our heritage: protection of Aboriginal objects through consultation, collaboration, and careful project design. Working closely with First Nations stakeholders would assist with understanding potential cultural values of the Project Area;
- Planning Priority 7 – Protect productive agriculture land & significant resources: the Project has been designed to work alongside existing land uses and avoid areas high capability land;
- Planning Priority 8 – Diversify the range of services and employment options: the Project will provide local employment and opportunities for local businesses, providing the opportunity to vary employment from current major industries of the area (food production, leather manufacturing and wood products).

2.2.3 Richmond Valley Council Community Strategic Plan 2040

The Richmond Valley 'Community Strategic Plan 2040' (CSP) is a 15-year plan that sets out the strategic direction and community vision and goals.

The Project would align with strategic directions 1 and 3 through the provision of local employment opportunities, as well as strategic direction 2 through preserving native bushland, biodiversity and waterways. Sustainable development practices would be implemented throughout the Project's lifecycle.

2.3 Built Environment

There are 119 sensitive receivers within 4 km of the Project Area. The broader area around the Project Area is primarily large rural properties with single dwellings. Areas that are not forested are used for agricultural purposes. Built infrastructure is shown on **Figure 2-1** and around the Project Area is limited to dwellings.

There is a double line transmission line easement adjacent to the Project Area in the northwest. This contains the Transgrid Lismore to Coffs Harbour 330 kV overhead transmission line and the Transgrid Lismore to Koolhan 132 kV overhead transmission line.

There is a railway line located approximately 12 km west of the Project Area. This line is a part of the Central Station (Sydney) to Casino Station regional trains and coaches' network. The railway is used for freight and connects Wollongong to Brisbane.

2.3.1 Community

2.3.1.1 Regional Community

The Project Area is located in the Richmond Valley LGA. The Richmond Valley LGA is predominantly rural in character. The natural beauty of the area contributes significantly to its character and the community's values. The developed parts of the area are primarily dedicated to agriculture and small urban areas.

Nearby townships to the Project Area are shown in **Figure 1-1** and include:

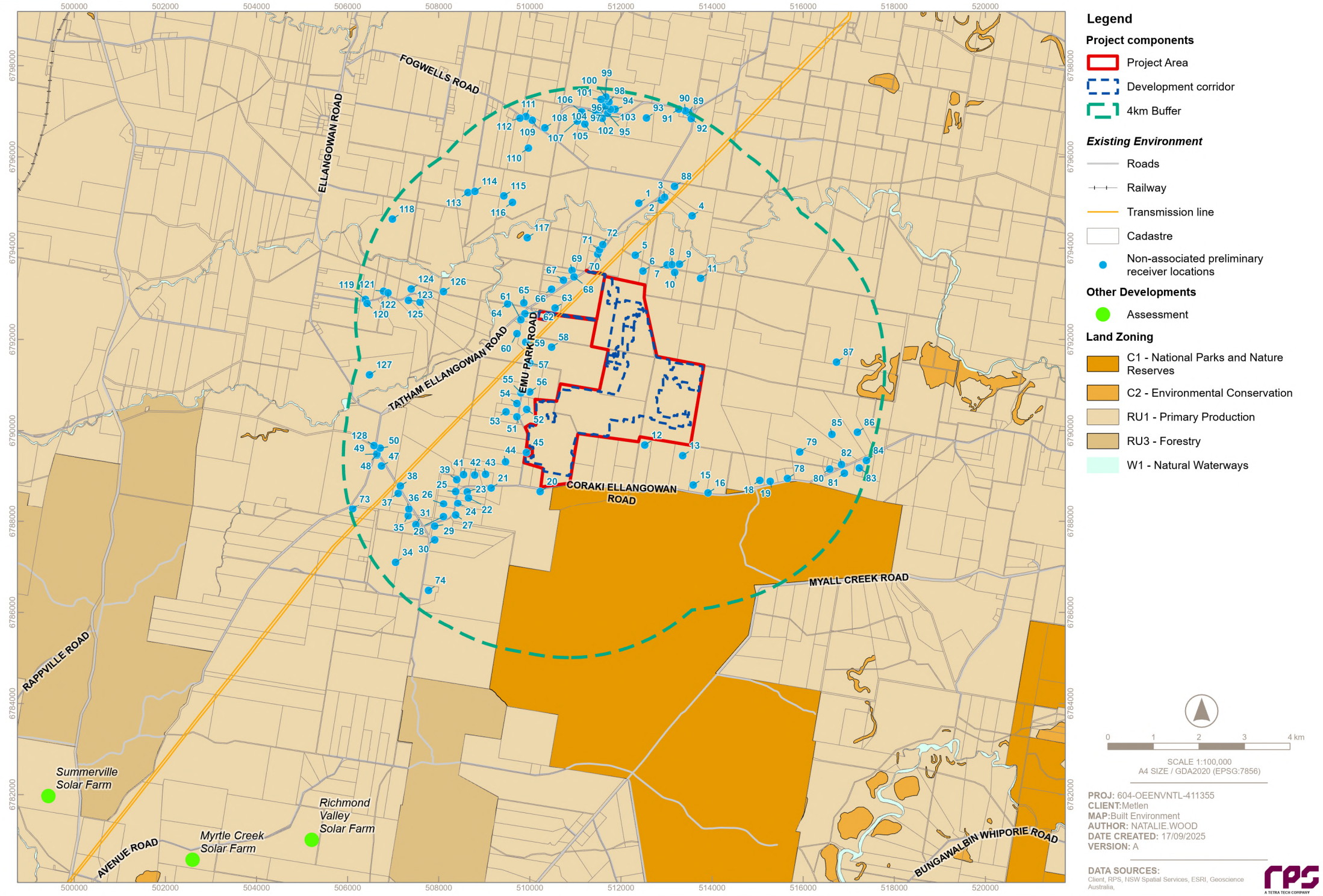
- Casino – 16 km northwest;
- Lismore – 28km northeast; and
- Coraki – 18 km east.

The Richmond Valley LGA has a population of 23,595 (ABS, 2021) and encompasses agricultural and small residential areas. Key employment sectors include meat processing (5.8%), aged care residential services (4.2%) and hospitals (except psychiatric hospitals) (3.3%).

The Richmond Valley LGA has a large First Nations population, including members of the Galibal people of the Bundjalung Nation, the traditional custodians of the Djanangmum (also known as Casino).

2.3.1.2 Local Community

The Project is situated in the locality of Ellangowan. The population of Ellangowan is 318 residents (ABS, 2021). 7.2% of the population identifies as Aboriginal and/or Torress Strait Islander and the median age is 47. The primary occupations in Ellangowan include labourers (16.3%), technicians and trades workers (14.8%) and machinery operations and drivers (14.8%). Infrastructure in Ellangowan is limited to small residences, and the Ellangowan Nature Preserve covers a large portion of the area in the east.



Legend

Project components

- Project Area
- Development corridor
- 4km Buffer

Existing Environment

- Roads
- Railway
- Transmission line
- Cadastre
- Non-associated preliminary receiver locations

Other Developments

- Assessment

Land Zoning

- C1 - National Parks and Nature Reserves
- C2 - Environmental Conservation
- RU1 - Primary Production
- RU3 - Forestry
- W1 - Natural Waterways

0 1 2 3 4 km

SCALE 1:100,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Built Environment
AUTHOR: NATALIE.WOOD
DATE CREATED: 17/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

A TETRA TECH COMPANY

FIGURE 2-1: BUILT ENVIRONMENT

2.3.2 Land Ownership

2.3.2.1 Project Area

The Project Area is predominantly privately owned. The Applicant has agreements with the two landholders.

There is a small pocket of Crown Land located at the northern boundary of the Project Area. 'Paper roads' are located through the centre of the Project Area and surrounding the Project Area on all sides. There are some paper roads located through the Development Corridor, in particular the access road in the north and the PV array in the centre.

Table 2-1 details the land within the Project Area. Land ownership is shown on **Figure 2-3**.

Table 2-1 Project Area Schedule of Lands

Land Type	Ha	Description
Private	808	• 1/DP33189 • 21/DP1046084 • 154/DP755612 • 48/DP755612 • 99/DP755612

2.3.2.2 Sensitive Receivers

Receivers which were subject to preliminary assessments are shown on **Figure 2-3**.

There are sensitive receivers within 4 km of the Project Area.

2.3.2.3 Agreements with Other Parties

There are no agreements are in place with adjacent landholders.

2.3.3 Leases

A search of MinView in August 2025 (NSW Government, 2025) indicated that there are no exploration licences or leases within or in close proximity to the Project Area.

2.3.4 Nearby Renewable Energy and Related Projects

The development of renewable energy projects in the Richmond Valley LGA is a recent occurrence, and there are currently few renewable energy projects within the Richmond Valley LGA. Based on statutory engagement for this Project, both Richmond Valley Council and Lismore City Council are supportive of the renewable energy transition.

The two determined renewable energy projects are both solar farms as indicated in **Figure 1-1**.

Table 2-2 describes each nearby renewable energy project in relation to its proximity to the Project and includes a description and status.

Table 2-2 Nearby Renewable Energy Projects

Development	Location / Distance to Project Area	Description	Current Status
Summerville Solar Farm	7605 Summerland Way, Rappville, NSW, 2469 / 12 km southwest	Development of a 90 MW solar farm and associated infrastructure, including battery storage and grid connection	Determined 13 May 2025

Development	Location / Distance to Project Area	Description	Current Status
Richmond Valley Solar Farm	420 Avenue Road, Myrtle Creek, NSW, 2469 / 10 km southwest	Development of a 500 MW solar farm and associated infrastructure.	Determined 16 October 2025
Myrtle Creek Solar Farm	420 Avenue Road, Myrtle Creek, NSW, 2469 / 10 km southwest	100MW Solar Farm and 100MW capacity Battery Energy Storage System with 200MWh storage	Withdrawn
Lismore BESS	1348 Bruxner Highway, Mckees Hill, NSW, 2480 / 16 km northeast	Development of a standalone 100 MW / 200 MWh battery storage system and ancillary infrastructure.	Withdrawn

2.4 Natural Environment

2.4.1 Topography, Geology and Soils

Topography within the Project Area ranges from 10 m to 40 m Australian Height Datum (AHD). The terrain is predominantly flat with some gentle rises occurring in the central and southern extents of the Project Area.

The Project Area is located within the Clarence Lowlands subregion of the South Eastern Queensland Bioregion, featuring predominantly low-lying, gently undulating terrain with elevations below 40 m. Soils are primarily alluvial floodplain and colluvial deposits, supporting a variety of native vegetation types including dry sclerophyll forests and forested wetlands.

2.4.2 Watercourses

The Project Area is within the Northern Rivers Catchment area. Five watercourses intersect the Project Area, including:

- Sandy Creek – 5th order perennial watercourse;
- Camp Creek – 4th order ephemeral watercourse; and
- Branch Creek – 3rd order ephemeral watercourse.

Several dams are located throughout the Project Area, the largest being located in the south-western portion of the Project Area.

2.4.3 Climate

Climate data for the Ellangowan region has been taken from the Casino airport weather station (ID 058208), 19 km north of the Project Area. Below is a summary of data commencing from 1995:

- The annual average rainfall is 1,097.8 mm;
- The highest temperature averages at 31.2 degrees Celsius in January and the lowest temperature averages at 21.1 degrees Celsius in July; and
- Annual average solar exposure is 17.9 milliJoules (mJ) per square metre. In 2024, the lowest solar exposure was 11.9 mJ per square metre in June, and the highest was 25.2 mJ per square metre in December.

The nearest air quality monitoring station to the Project Area is located in Grafton (Air Quality NSW, 2025) and measures particulate matter (PM_{10} and $PM_{2.5}$).

This station provides hourly pollutant concentrations data averages, as well as 48-hour and seven day summaries and air quality category (AQC) ratings. Pollutant levels are generally low and the air quality is generally ‘good’.

The solar resource map shows the Ellangowan area receives a daily mean global horizontal irradiance output of 4.82 kWh m^2 on average (Solar GIS, 2025).

The North Coast Climate Change Snapshot (NARCLiM, 2024) predicts an increase in average annual number of hot days in the North Coast by 5.9 days until 2050 in a low-emissions scenario. Hot days are defined as “prolonged hot days where maximum temperatures are to or above 35 degrees Celsius” (NARCLiM, 2024).

2.4.4 Vegetation

Vegetation within the Project Area has been subject to clearing for forestry, timber plantation, and historic grazing since the 1980s, which has subsequently led to gaps in connectivity and fragmentation within the landscape. Category 2 land is present in the Project Area where the land has not been cleared, primarily in the centre. The Development Corridor consists of approximately 198 ha of native dry sclerophyll forest and forested wetland, comprising five Plant Community Types (PCTs). Further detail on biodiversity and vegetation is located in **Section 6.4.2**.

2.4.5 National Parks and Conservation Areas

The Bungawalbin State Conservation area is adjacent to the south of the Project Area. Ellangowan is comprised of a combination of cleared land utilised for agriculture and forest.

Table 2-3 details the National Parks and Conservation areas near the Project Area. These are shown on **Figure 1-1**.

Table 2-3 Nearby National Parks and Conservation Areas

Park / Area	Distance to Project Area
Bungawalbin State Conservation Area	0 km south
Bungawalbin National Park	6 km southeast
Bungawalbin Nature Reserve	6 km southwest
Yarringully State Conservation Area	11 km southeast
Yarringully Nature Reserve	13 km southeast
Tucki Tucki Nature Reserve	20 km northeast
Tuckean Nature Reserve	22 km northeast
Wilson Nature Reserve	25 km northwest

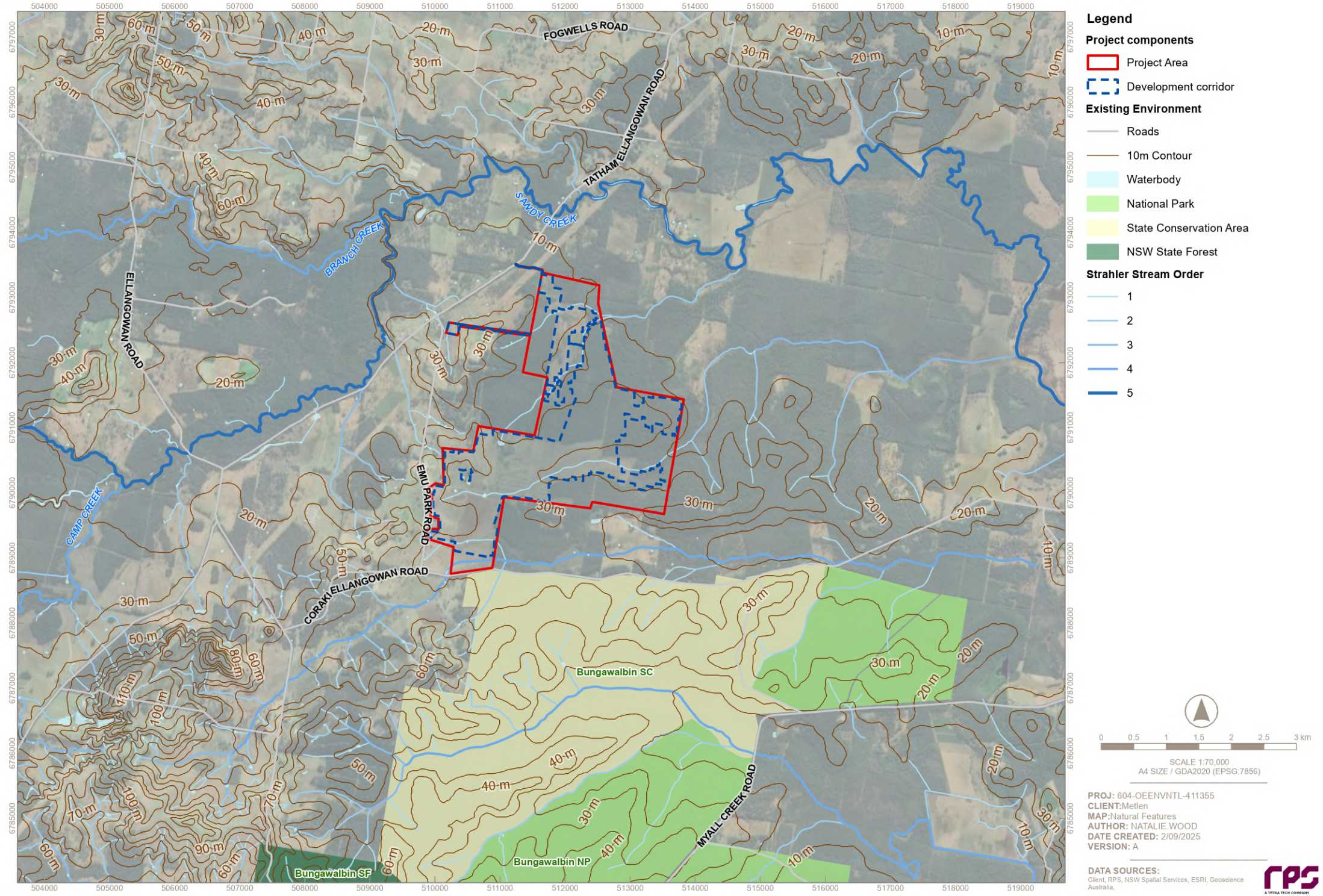


FIGURE 2-2: NATURAL FEATURES

2.5 Land Use

The Project Area is entirely zoned RU1 – Primary Production under the Richmond Valley LEP. The Project Area covers five land parcels (i.e. individual lot / DPs). Previous land uses for the Project Area include soybean farming, cattle and timber production The land parcels within the Project Area are described in **Section 2.3.2.**

The Project Area is situated on two properties, which is currently used for cattle and timber production.

2.6 Risks and Hazards

Solar farm developments require land to accommodate solar arrays and ancillary infrastructures. Therefore, these developments are often located in rural areas, which typically result in changes to landscape character and may generate impacts from Project construction and/or operation. Impacts that require more detailed assessment, due to an increased risk of significant impacts include biodiversity, noise and vibration, landscape and visual, and social factors.

2.7 Cumulative Impacts

The Project will be assessed in accordance with the requirements of the 'Cumulative Impact Assessment Guidelines for State Significant Projects' (DPIE, 2022b). The EIS and its associated technical studies will consider relevant construction, industrial and employment generating projects within the locality (surrounding general area where people live and work) and assess potential cumulative impacts.

Projects in proximity to the Project as shown on **Figure 1-1** with each at varying approval stages as described in **Table 2-2.** Cumulative impacts are further discussed at **Section 6.17**.

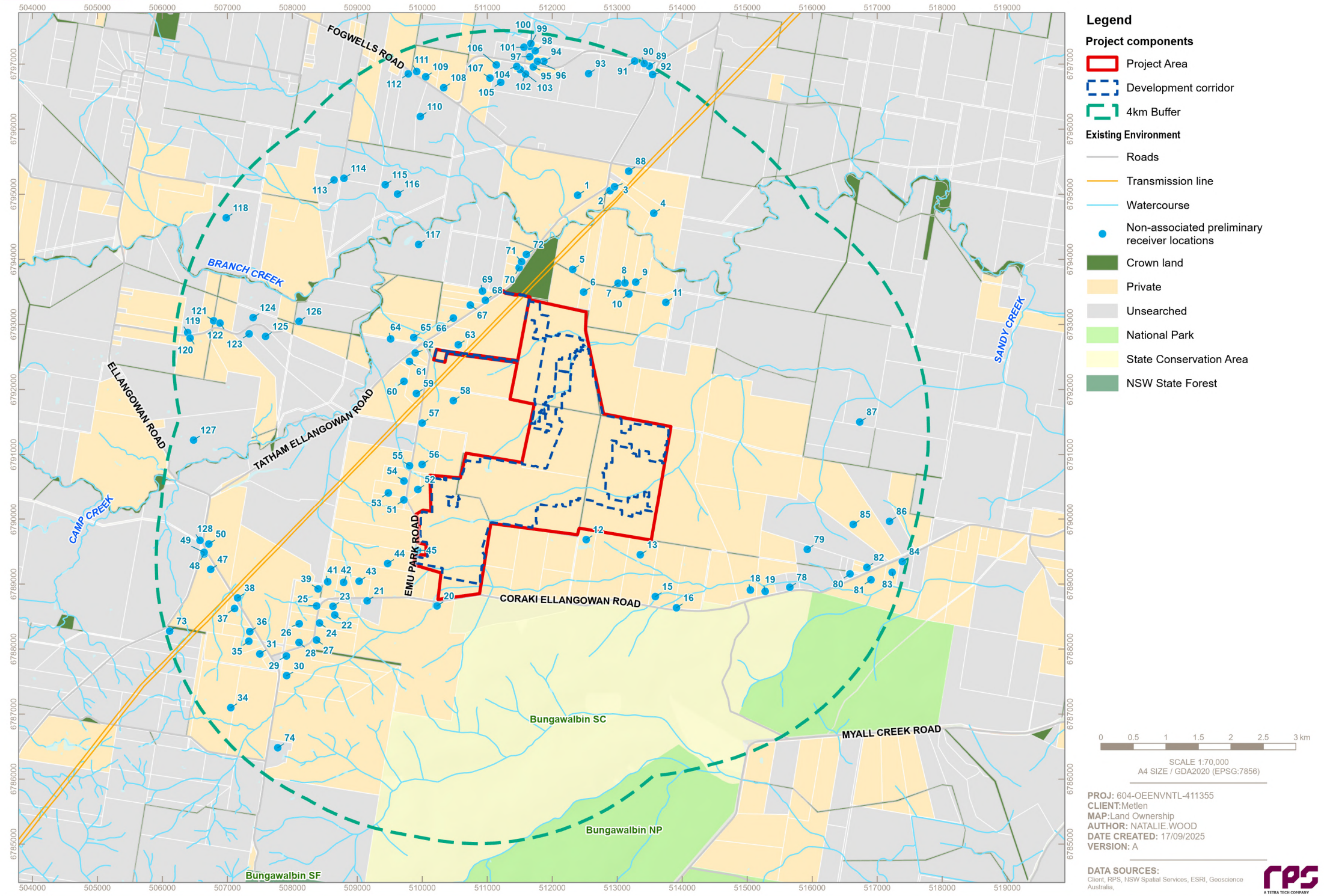


FIGURE 2-3: LAND OWNERSHIP

2.8 Project Justification

This section provides a summary on why the Project has been selected and what the expected benefits and outcomes are. These benefits include long-term strategic benefits to NSW as well as to Australia's renewable energy generation prospects.

The Australian Renewable Energy Agency (ARENA) (2023) states that solar arrays generated approximately 10% of Australia's electricity in 2020-2021 and is the fastest growing generation type in Australia. Large scale solar farms (LSS) are also on the rise in Australia, with almost 7 GW of generation connected to Australia's electricity grid. ARENA (2023) also outlines the benefits of LSS farms:

- More than 100 LSS projects have been accredited as registered generators by the Clean Energy Regulator, including over 80 which were connected in 2018 or later;
- The capital cost of LSS projects in Australia decreased by 25% from $1.87 to $1.39 per watt between 2015 and 2020; and
- LSS played a significant role in meeting the Australian Government's mandated RET of generating at least 20% of electricity from renewable energy by 2020.

The Project will provide renewable, low-cost energy to the NEM, and will contribute to the Commonwealth and NSW Government's emission reduction targets. This will be achieved by continuing to support the transition from large fossil fuel generation, towards renewable energy production and assist in GHG emission reduction.

Other benefits include:

- Energy bill savings from reduced wholesale electricity costs;
- Emissions reduction from a cleaner energy sector;
- Reliable energy from significant amounts of new energy supply;
- Host community benefits through strategic planning and best practice engagement and formalised benefit sharing arrangements;
- Approximately 300 FTE construction jobs in the Ellangowan region at the peak of construction;
- Direct investment in the Ellangowan region;
- Opportunities for local contractors and businesses;
- Diversified income stream for rural landholders;
- Renewable low-cost energy to the national grid; and
- Development of new skilled labour in the region within the growing renewable energy industry.

The 'Large Scale Solar Energy Guideline' (DIPE, 2022) details the importance of appropriate site selection to avoid or minimise negative impacts at the outset of development. The Project Area is considered suitable for development as it is:

- Located within a high solar radiation area as consistent with the 'Global Solar Atlas' (Solar GIS, 2025);
- Proximate to a number of other existing and proposed regional renewable energy projects;
- Located at a distance that is proximate to towns to facilitate workers' access but distant from a significant number of receivers;
- Easily accessible via the sealed Tatham Ellangowan Road; and
- Consistent with the RU1 – Primary Production zoning and will meet the following objective of the zone: "to encourage sustainable primary industry production with the encouragement of agrisolar".

The Project will contribute to creating greater diversity within the local economy, currently dominated by agriculture and mining (ABS, 2021).

3 THE PROJECT

This section provides a simple and accurate overview of the preliminary Project description and includes a conceptual layout of the development for which approval is sought. It details the likely staging of Project, preliminary disturbance footprint, feasible alternative options considered and notes preliminary benefits of the preferred Project.

3.1 Project Area

The Project will largely occur within the Project Area as shown on **Figure 3-1** (unless otherwise stipulated in this section).

The Project is within the Richmond Valley LGA in NSW and is largely zoned RU1 Primary Production. A pocket of crown land is located on the northern border of the Project Area. The Project Area is privately owned by two landowners as shown on **Figure 2-3**.

The Project is located in Ellangowan, NSW approximately 14 km southeast of Casino and 800 km northeast of Sydney (by road) as shown on **Figure 1-1**.

3.2 Project Components

The Project includes the construction, operation, maintenance and decommissioning of a solar farm with a generation capacity of up to 350 MW, and a 200 MW 800-hour BESS, including associated infrastructure and ancillary activities.

The preliminary conceptual Project layout is shown in **Figure 3-1.**

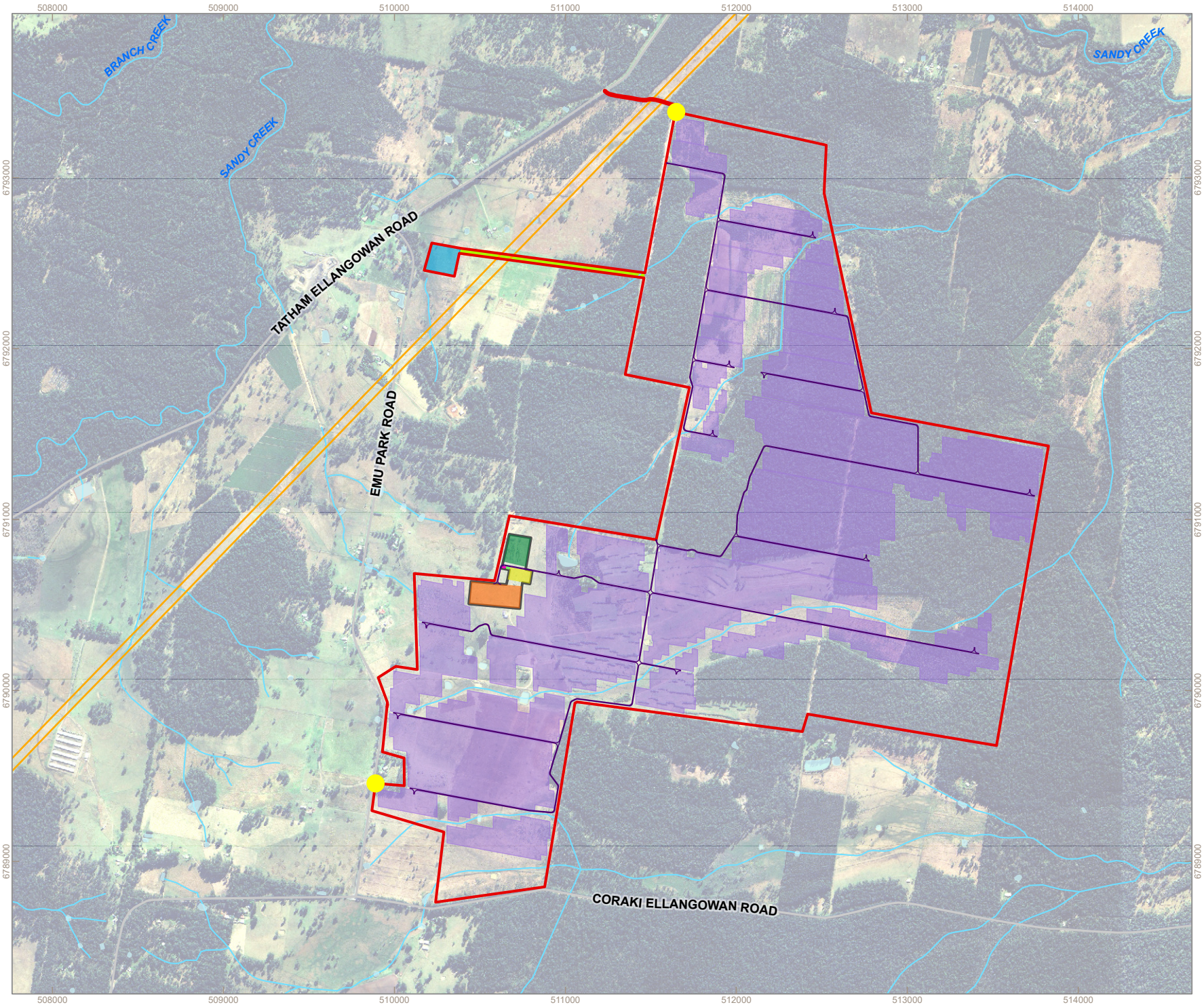
Components described in **Table 3-1** but not shown in **Figure 3-1** will generally be located within the Project Area and will be confirmed in the EIS. The design and location of the Project elements will be subject to further detailed design and assessment, including consideration of the outcomes of technical and environmental assessments as part of the EIS. Additional disturbance areas (e.g. 'cut and fill' and Asset Protection Zones (APZ)) will also be considered during this process.

The preliminary Project design components and specifications are summarised in **Table 3-1.** All values are approximate.

Table 3-1 Preliminary Project Summary

Element	Feature	Specification
Energy generation	Solar arrays	Approximately 560,000 PV panels
Power conversion units	Power station (inverter, transformer and associated equipment)	• 85 units for PV array • 57 inverters for BESS • 6 m x 3 m x 2.4 m (L x H x W) dimensions
Electrical Reticulation Network	Substation site	• 33 kV switching room • Hamonic filter • Capacitor banks • Auxiliary and earthing transformers • 360MVA 330/33/33kV high voltage transformer • High voltage switchgear • SCADA
	On site switching station	• 330 kV switching station • Auxiliary power supply for switching station from transmission network • Incoming 330 kV bay from onsite substation • Two outgoing 330 kV bays to transmission network • Duplicate line protection on 330 kV bays
	On site switching station and external connection to the TransGrid Network	• Transmission line easement to connect to the existing 330kV TransGrid overhead powerlines (line 89 cut-ins)

Element	Feature	Specification
		• Optical ground wire (OPGW) upgrades from the onsite switching station to the 330 kV transmission substations • All reticulation may be either underground or overhead cables
	Internal electrical reticulation network	• 33 kV electrical reticulation network • Internal solar low voltage cables • Electrical reticulation will generally follow rows of panels and internal access routes, where practical • The solar array/s and BESS will connect into the onsite substation directly • All reticulation may be either underground or overhead cables
Other infrastructure	Operations and Maintenance (O&M) facility	Site office, maintenance, storage facilities and other associated infrastructure
Energy Storage	Lithium-ion phosphate (LFP) containerised BESS	• 200 MW / 800 MWh • 228 units 60 inverters • 6 m x 3 m x 2.4 m (L x H X W) dimensions
	Temporary storage and Construction	Additional temporary areas to facilitate storage and construction
	Construction and operational infrastructure	• Site office, parking, maintenance and storage facilities, communications, fencing, meteorological masts • Construction compounds (including office buildings, work areas, parking, waste disposal, storage facilities and associated amenities and infrastructure) • Water management structures
Ancillary activities	Resources for construction and maintenance	• Water, gravel, concrete, aggregate for construction from external sources • Rock crushing, blasting, geotechnical investigations, concrete batching • Pre-construction activities (including but not limited to geotechnical investigations, met mast installation, site establishment works)
Access	Internal access tracks	Nominally 6 m wide unsealed gravel access roads
	Port to site access	Brisbane (and associated road upgrades if required)
Interactions with other projects	None	No other infrastructure projects within 5 km of the Project Area.
Workforce	Construction Operations	300 FTE 5 FTE
Preliminary Disturbance	Maximum project disturbance	Up to 580 ha within the Project Area
Subdivision	Preliminary disturbance	Subdivision and purchase of land for substation/s and access



Legend

Project components

- Project Area
- Infrastructure
- PV Array
- BESS
- Building OM & Storage
- Amenities
- Laydown Area
- Main Substation Area
- Powerline Easement
- Collector Substation
- Internal Access Roads
- Optional Site Access

Existing Environment

- Roads
- Electricity Transmission Line
- Watercourse
- Waterbody

0 0.5 1 km

SCALE 1:30,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Conceptual Layout
AUTHOR: NATALIE.WOOD
DATE CREATED: 31/07/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

RPS A TETRA TECH COMPANY

FIGURE 3-1: PRELIMINARY CONCEPTUAL PROJECT LAYOUT

3.2.1 Electrical Infrastructure

The Project encompasses electrical infrastructure designed to harness, store, and distribute solar energy to the NEM. Solar energy is captured in the solar photovoltaic (PV) panels as direct current (DC) electricity, where it is then converted within the power conditioning unit (PCU) to usable alternating current (AC) electricity. The electricity is then distributed through the electrical reticulation system which is made up of a network of underground and overhead cables to the BESS for storage. Electricity is discharged from the BESS when required and sent to the substation where the voltage is stepped up via a transformer to the external grid network.

3.2.1.1 PV Modules

The Project will use solar photovoltaic (PV) panels with a maximum installed capacity of up to 350 MW peak (MWp) and an alternating current (AC) capacity of up to 300 net MW (MWn).

The solar arrays will be mounted to steel structures with single axis tracking systems.

The PV panels will be up to 15 m from the ground when in the horizontal position, while the lower edge of the PV panels will be no less than 0.5 m from the ground (or as defined by environmental constraints). The final number and specifications will be confirmed in the EIS.

The rows of PV modules will be aligned in a north-south direction, allowing the modules to rotate from east to west during the day, tracking the sun's movement.

3.2.1.2 Power Conversion Units

The Project will include up to 142 PCUs containing inverters, medium voltage transformers, medium and low voltage switchgear and other protections and systems to ensure efficient energy output from the Project.

The indicative dimension for each unit is 6 m in length, 2.4 m in width, and 3 m in height. The indicative unit weight is approximately 22 tonnes (t), which will be within "container like" structures located within the Project Area. The number and specification of the PCUs will be confirmed in the EIS.

3.2.1.3 Internal Electrical Reticulation Network

Low voltage direct current reticulation will connect solar arrays and BESS to the power convertor units (PCU) which contain the inverters to convert the electrical power from DC to AC. The AC 33 kV internal electrical reticulation network will contain underground cabling from PCS units to the substation.

3.2.1.4 Battery Energy Storage System

The BESS will connect to the national electricity market (NEM) via the switching station. Approximately 60 skid mounted power conversion systems comprising of inverters and a medium voltage transformer will connect to approximately 228 containerised BESS units containing lithium-ion phosphate cells. The indicative dimension for each unit is 6 m in length, 2.4 m in width, and 3 m in height. The indicative unit weight is approximately 46 t, which will be within "container like" structures. The number and specification of the BESS units will be confirmed in the EIS.

The BESS is indicatively located on **Figure 3-1**.

3.2.1.5 Substation and Grid Connection

One substation (inclusive of associated transformers) and one switching station may be required for the PV arrays and BESS, inclusive of system strength equipment, protection, communications equipment, switchgear and a control room.

From the substation the voltage will be stepped up to 330 kV via the onsite high voltage transformer and connect to the switching station via overhead/underground cabling. The high voltage overhead powerlines will connect the switching station to the TransGrid 330 kV distribution network located to the west of the Project Area, as shown in **Figure 3-1**.

3.2.2 Site Access and Transport Route

3.2.2.1 Port to Site Transport Route

The transport route from Brisbane to the Project Area, as well as any required road upgrades, will be identified as part of the EIS. No road upgrades are expected to be required.

3.2.2.2 Site Access

Access to the site during construction and operation will utilise the access off the existing road network. Primary access will be via Emu Park Road or Tatham-Ellangowan Road.

Two site access options are currently shown on **Figure 3-1**. It is likely that detailed design will confirm a single entrance or primary entrance with the remaining being used as an emergency exit. This will be confirmed in the EIS.

3.2.2.3 Internal Access Tracks

Internal access tracks will be required for the movement of equipment and materials throughout the Project Area. These tracks will facilitate the construction of the Project, as well as maintenance works required during operation and decommissioning. Where practical, these will align with existing tracks.

3.2.3 Other Associated Infrastructure

The Project will comprise various supporting infrastructure including (but not limited to) offices, workshops, laydown areas, construction and operational compounds (including but not limited to site office, maintenance and storage facilities, car parking and lighting).

Temporary workers accommodation for construction activities may also be required offsite. This will be confirmed in the EIS. An onsite accommodation camp is not proposed.

3.2.4 Ancillary Activities

Ancillary activities will be required to support the Project and may include communication cables, water storage tanks and other water management, environmental monitoring equipment, hardstands, road works and access tracks, landscaping and fencing, subdivision and boundary adjustments.

3.3 Preliminary Disturbance Footprint

The Project will involve a temporary and permanent footprint that is subject to design refinement. For the purposes of this Scoping Report, up to 580 ha has been assumed to be disturbed.

The permanent development footprint is the area that will remain altered after construction of the Project is complete and indicatively includes areas that the following are situated on crane pads, permanent access roads, transmission line poles and associated tracks, substations, switchyards, operation and maintenance facilities and road upgrades required for the transport haul route.

The temporary development footprint is the area that will be disturbed during construction of the Project and rehabilitated after construction and generally includes (but is not limited to): construction compound, underground transmission lines, transmission line access, laydown and assembly areas.

3.4 Project Duration

Table 3-2 provides a summary of indicative staging for the Project with key stages discussed further below. Development of arrays and power generation may also be staged (e.g. 250 MW to 350 MW).

Table 3-2 Project Duration

Stage	Estimated Completion Date
Site selection and feasibility	2024
Planning approvals process	2026
Construction	2027
Operation	2029
Decommissioning	After 50 years from operational commencement (or as stipulated in the EIS)

3.4.1 Construction

Construction activities are anticipated to commence in Q4 2027 after the final design and procurement stage has been completed, and certainty once grid connection is confirmed. The construction of the solar arrays, electrical reticulation network and ancillary infrastructure is estimated to take 24 months including commissioning of the Project.

The Project will employ approximately 300 FTE throughout the construction stage.

Existing site water management structures (including but not limited to pipelines, pumps, levees, drains and dams) will be either removed or maintained and potentially enlarged and utilised for the Project during construction and operation.

3.4.2 Operations

The Project will operate with individual PV panels requiring replacement at periods up to 30 years. During operation, approximately 5 FTE permanent staff will be employed.

Maintenance works will occur as needed during operations. Additional contractors may be required to attend site spontaneously. Site maintenance activities will include management of internal roads, drainage, fencing and vegetation.

Additional maintenance of key infrastructure will also be required and will include service, repair or replacement of PV panels, inverters, transformers or components of the BESS, substation, or switchyard. The employed operational staff will also complete preventative maintenance and/or breakdown/damages works to ensure service intervals are met.

Existing site water management structures will be maintained, potentially enlarged and utilised for the Project during construction and operation.

3.4.3 Decommissioning

Potential options for the decommissioning of the Project will be outlined in the EIS. PV arrays, BESS and infrastructure will continue to be upgraded and replaced within the assessed parameters of the EIS and decommissioned (at the appropriate time).

At decommissioning, rehabilitation (i.e. restoration of groundcover) will occur and all infrastructure related to the Project will be removed, subject to consultation with associated landowners (i.e. roads and other required infrastructure may be retained).

3.5 Other Approvals

The Project will not rely on any other approvals.

3.6 Alternatives Considered

3.6.1 No Project or "Do Nothing"

The Project Area is currently used for primary production which is not highly productive. The "do nothing" scenario would allow for this land use to continue however it would forgo up to 300 FTE jobs during construction and economic benefits to the local and regional economy during construction and operations. The Project's capital investment and associated flow on effects would also not be realised.

Proposed community contributions through a Voluntary Planning Agreement (VPA) and Community Benefit Fund would also not be realised.

The "do nothing" approach does not meet the objectives to develop renewable energy projects in NSW and does not support NSW and Federal Government targets to increase renewable energy generation.

The Project aims to generate renewable energy and limit production of GHGs. To not progress the Project would mean that powering of approximately 200,000 households annually through renewable energy would not be realised. Not developing the Project would be a missed opportunity to contribute to the reduction of Australia's use of fossil fuels for energy generation.

3.6.2 Alternative Sourcing of Energy

The Project will generate up to 350 MW of clean renewable energy.

The expected benefits of renewable energy projects in NSW are the provision of more reliable energy from significant amounts of renewable energy supply, energy bill savings, reduced emissions, and creating community partnerships (EnergyCo, 2023).

These benefits would not be realised through an alternative source of energy.

3.6.3 Alternative Site Location

During pre-feasibility studies, the Applicant assessed multiple separate locations in the vicinity of Ellangowan. Other locations were deemed not suitable at this time due to engineering, agricultural or ecological constraints.

3.6.4 Maximum Site Layout

During pre-feasibility, a maximum site layout was designed to consider the maximised energy output of a broader Project Area. The maximum site layout contained 942 ha, an additional 422 ha area to the west of the current Project Area.

A desktop constraints assessment for the maximum site layout was prepared which mapped environmental, social and planning constraints as 'low', 'medium' or 'high' risks for the Project. The constraints were considered on a worst-case scenario basis to allow for impact minimisation through project design refinement.

A priority was placed on ecological constraints to prioritise development on cleared, exotic vegetation and Category 1 mapped land (low constraints). Development was then prioritised on native vegetation not associated with TECs, avoiding watercourses and riparian buffers, mapped Biodiversity Values and habitat and Category 2 mapped land (medium constraints). Development was reduced on land with native vegetation associated with BC Act and EPBC Act listed TECs and land highly likely to provide suitable habitat for threatened species, including connectivity values with the surrounding landscape (high constraints).

These constraints are identified on **Figure 3-2**. Further detail is provided in **Appendix D**. Environmentally constrained areas that the Project has been designed around is detailed in **Table 3-3.**

A summary of identified ecological constraints includes:

- Biodiversity Values and Key Fish Habitat (KFH);
- Threatened flora and fauna;

- Native vegetation associated with BC Act and EPBC Act listed threatened ecological communities (TECs);
- Category 2 regulated land under the *Local Land Services Act 2013*; and
- Watercourses.

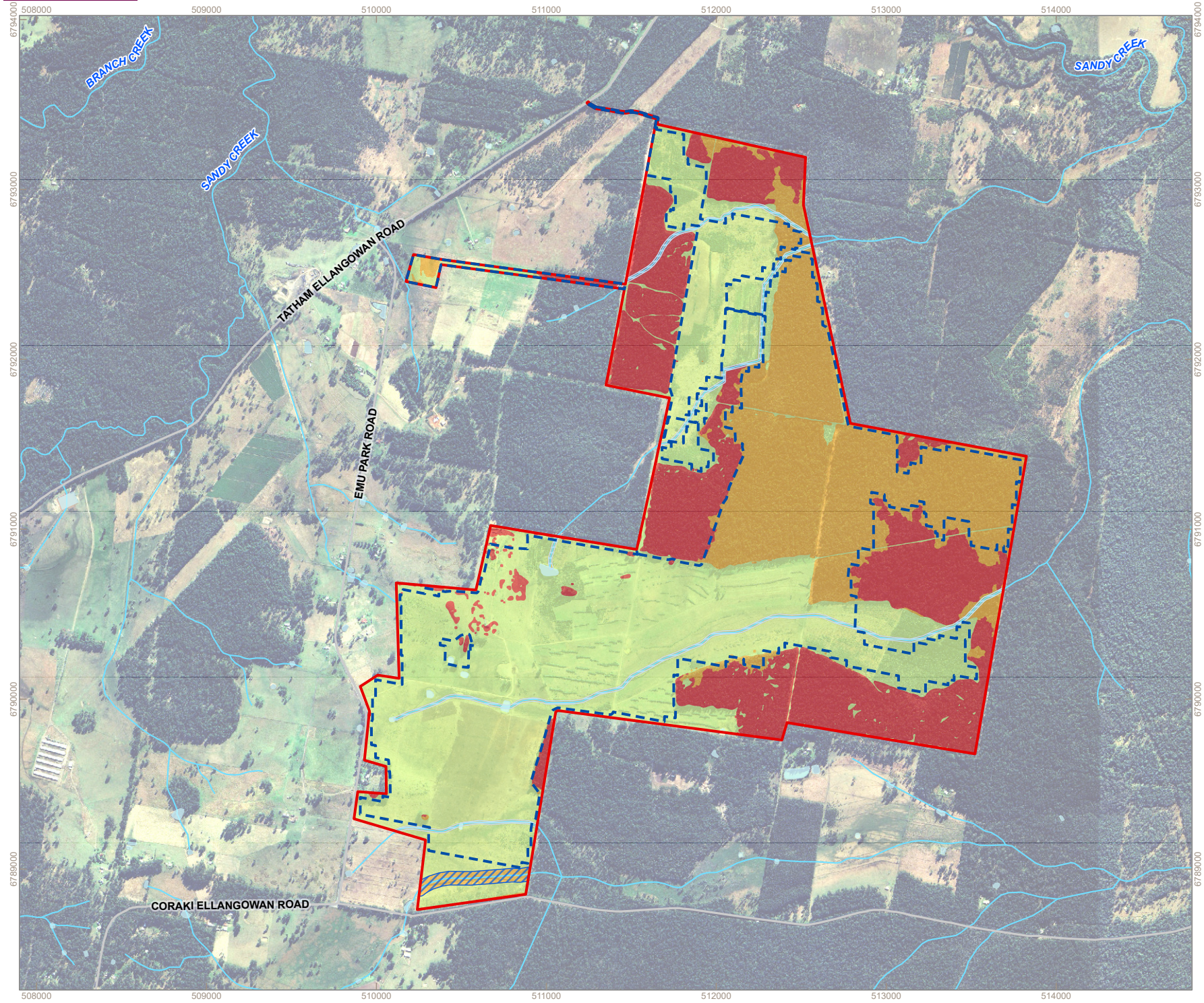
3.6.5 Benefits of the Project compared to Maximum Site Layout

The maximum site layout initially included approximately 942 ha of disturbance over two areas; to the east of Emu Park Road, and west of Ellangowan-Myrtle Creek Road. The maximum site layout has been refined (refer **Table 3-3**) to avoid a number of environmental constraints.

The Project Area has now been reduced to up to 580 ha.

Table 3-3 Environmental Benefits of the Project Compared to Maximum Site Layout

Changes	Benefits
Mapped Biodiversity Values within the Western area have been avoided through removal of the Western area.	• Current Project Area does not contain Biodiversity Values, avoiding impacts to sensitive areas. • Demonstrates the avoid and minimise principles of the biodiversity offset scheme (BOS). • Project offset liability reduction.
Mapped KFH within the Western area has been avoided through removal of the Western area.	• There is KFH within the Project Area, however this area has been designed around and avoided as part of the internal preliminary constraints assessment for the Project. The Development Corridor does not contain any KFH. • Demonstrates the avoid and minimise principles of the BOS.
Avoidance of 'high' constraint areas that included native vegetation associated with State and Commonwealth listed TECs and remnant vegetation likely to provide suitable threatened species habitat in addition to connectivity.	• Avoidance of potential significant impacts on TECs and threatened species. • These areas are of higher quality condition and are likely to incur high biodiversity credit requirements.
Avoidance of streams and their riparian buffers.	• Streams and riparian buffers have been avoided which reduces impacts on aquatic flora and fauna. • Watercourses are an identified Aboriginal landscape feature indicative of landscape sensitivity. Avoidance of development within watercourses and riparian areas would reduce the potential for impacts to unknown Aboriginal cultural heritage.
Avoidance of mapped Category 1 bushfire prone land in Western area.	Reduced bushfire risk across the Project Area.
Avoidance of two local listed heritage items adjacent to the Western area. Avoidance of a State listed heritage item to the west of the Western area.	Avoidance of the Western Area has increased the distance between the Project Area and listed heritage items, reducing potential visual and vibration impacts. The closest historic heritage item is located approximately 3 km from the Project Area.
Avoidance of C2 and W1 zoned land within and adjacent to the Western area.	• Removal of the Western area has avoided potential impacts to Braemar State Forest which is adjacent to the Western area. • C2 and W1 zoned land are not prescribed non-residential zones under the T&I SEPP. Avoidance of this zoning has removed planning constraints for the Project.



Legend

Project components

- Project Area
- Development corridor

Existing Environment

- Roads
- Watercourse
- Waterbody
- 10m Riparian Buffer
- 40m Riparian Buffer

Ecological Constraints

- High
- Moderate
- Low

0 0.5 1 km

SCALE 1:30,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Constraints
AUTHOR: NATALIE.WOOD
DATE CREATED: 9/09/2025
VERSION:

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

RPS A TETRA TECH COMPANY

FIGURE 3-2: PROJECT CONSTRAINTS

4 STATUTORY CONTEXT

This section identifies the relevant statutory requirements for both NSW and Commonwealth legislation in relation to the Project. It identifies all relevant statutory requirements that must be considered before the Application is determined. A discussion on how each is relevant to the justification and evaluation of the Project is included. It includes a grouped and tabulated summary of requirements.

4.1 Power to Grant Approval

Development consent for the Project will be sought under Part 4, Division 4.7 of the EP&A Act, which outlines the planning assessment pathway in NSW for development that is SSD.

Section 4.36(2) of the EP&A Act states:

"(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development."

Relevant SEPPs include the Planning Systems SEPP and the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP).

Under section 2.6(1) of the Planning Systems SEPP, a development is classified as SSD if:

"(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and (b) the development is specified in Schedule 1 or 2…"

Schedule 1, section 20 in Chapter 2 of the Planning Systems SEPP determines "electricity generating works" to be SSD if it meets the following applicable criteria:

"Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that: (a) has an estimated development cost of more than $30 million…"

The term "electricity generating works" is not specifically defined in the Planning Systems SEPP. However, Clause 2.2(3) of the Planning System SEPP provides that language used in Chapter 2 of the Planning Systems SEPP has the same meaning as per the standard local environmental planning instrument prescribed by the *Standard Instrument (Local Environmental Plans) Order 2006*, which defines "electricity generating works" as follows:

"electricity generating works means a building or place used for the purpose of—

(a) making or generating electricity, or

(b) electricity storage."

As the Project involves development for the purpose of "electricity generating works" using solar power and will have an estimated development cost of more than $30 million, the Project is SSD and subject to the planning assessment pathway under Part 4 of the EP&A Act.

Accordingly, under section 4.5 of the EP&A Act and section 27 of the Planning Systems SEPP, the consent authority for the SSD development application is the Minister for Planning and Public Spaces or, if any of the circumstances under clause 2.7(1) of the Planning Systems SEPP apply, the Independent Planning Commission (IPCN).

4.2 Permissibility

4.2.1 Transport and Infrastructure SEPP 2021

The permissibility of solar farm developments in NSW is determined by the T&I SEPP.

The Project Area is largely zoned RU1 Primary Production within the 'Richmond Valley Local Environment Plan 2012' (LEP). Development for the purpose of "electricity generating works" is prohibited within zone RU1 under the Richmond Valley LEP. However, clause 2.36(1)(b) of the T&I SEPP states that development for the purpose of "electricity generating works" may be carried out by any person with consent on any land

in a “prescribed non-residential zone”. Clause 2.35 of the T&I SEPP defines “prescribed non-residential zone” to include zone RU1 Primary Production.

Under clause 2.7(1) of the T&I SEPP, the provisions of the T&I SEPP prevail where there are inconsistencies with any other Environmental Planning Instruments (EPIs), including LEPs. Therefore, the Project is permissible with development consent.

4.2.2 Housing SEPP 2021

Part 13 of the Housing SEPP 2021 provides a planning pathway for accommodation for renewable energy workers.

The ‘Guidelines for Construction Workers Accommodation’ (DPHI, 2024) (Accommodation Guidelines) provides guidance on how to apply for consent for housing infrastructure for renewable energy workers under part 13 of the Housing SEPP 2021. Section 3.3 of the Accommodation Guidelines and section 141E of the Housing SEPP 2021, do not identify the Richmond Valley LGA as land the Part applies to. Therefore, any workers accommodation associated with the Project would need to be subject to a relevant Development Application (DA).

4.2.3 Electricity Infrastructure Investment Act 2020

The *Electricity Infrastructure Investment Act 2020* aims to improve the affordability, reliability, security and sustainability of electricity supply in NSW. The Act aims to coordinate investment in new generation, storage, network and related infrastructure. It also aims to support economic development, create employment, invest in education and training, promote local industry, manufacturing and jobs, and promote export opportunities for generation, storage and network opportunities.

The Project is generally consistent with the aims and objectives of the Act, as it will create affordable, reliable, secure and sustainable electricity through solar power generation. The Project will create employment opportunities throughout its lifecycle from construction to decommissioning.

4.3 Other Approvals

Table 4-1 identifies other approvals and pre-conditions required for exercising the power to grant approval for the Project and justifies each in relation to sections 4.42 of the EP&A Act and other NSW approvals. **Table 4-2** also describes approvals that do not apply to SSD in accordance with section 4.41 of the EP&A Act. Commonwealth legislation is also considered. Further detail will be provided in the EIS.

Mandatory considerations that must be satisfied before the relevant consent authority may determine the Project are preliminarily described in **Table 4-3**.

Pre-conditions to exercising the power to grant development consent (including mandatory conditions) will be further addressed in the EIS.

Table 4-1 Other Required Approvals

Category	Legislation	Requirement
New South Wales		
Approvals that cannot be refused and must be applied substantially consistent with the SSD development consent (section 4.42 of the EP&A Act)	*Roads Act 1993* (Roads Act)	Consent from the appropriate roads’ authority under section 138 of the Roads Act is required for any works undertaken on or under public roads. **An approval for works will be required for the Project to facilitate the site entry and potentially if public road network upgrades are required as a direct result of the Project**.
	Crown Land Management Act 2016 (Crown Lands Act)	The Crown Lands Act provides for the administration and management of Crown land in NSW. Crown land may not be occupied, used, sold, leased, licensed, dedicated, reserved, or otherwise dealt with unless authorised by the CLM Act. **Some Crown land access will be required to facilitate site access and transmission. A relevant Crown Lands Act approval will be sought if required and detail provided in the EIS.**

Category	Legislation	Requirement
	Protection of the Environment Operations Act 1997 (POEO Act)	An environmental protection licence (EPL) regulated under the POEO Act is generally not required for a large-scale solar development. However, an EPL is needed where the development is a hybrid system or combined energy generating system that incorporates other energy sources such as gas. **An EPL will not be required for the Project for either construction or operation.**
	Mining Act 1992	The *Mining Act 1992* aims to encourage and facilitate the discovery and development of mineral resources in NSW. A review of MinView (MinView, 2025) on 01/08/2025 indicates there are no exploration licences that encompass the Project Area. **The Project Area is not located on or adjacent to any lands where an exploration licence exists, no engagement or approvals in this regard are required.**
	NSW Native Title Act 1994 (NSW NT Act)	The NSW NT Act recognises and protects native title rights of Aboriginal persons. **Crown paper roads exist within the Project Area. This will be considered further by the Applicant during the preparation of the EIS.**
Other NSW Approvals	*Aboriginal Land Rights Act 1983* (AL Act)	The AL Act establishes Aboriginal Land Councils at State and Local levels. These Land Councils have a statutory obligation under the Act to take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area. Under the Act, Aboriginal Land Councils can claim Crown land which is not lawfully used or occupied and that are not needed, nor likely to be needed, for an essential public purpose. Management of Aboriginal Heritage matters in the Richmond Valley LGA is overseen by Bogal Local Aboriginal Land Council. A search of the National Native Title Tribunal on 01/08/2025 identified no current claims or applications under the AL Act within the Project Area. **Any AL Act matters will be considered further by the Applicant during the preparation of the EIS.**
	Water Management Act 2000 (WM Act)	Any person or organisation, including a local water utility, taking water from a water source must be authorised to take water by a water access licence and a water supply work approval under section 60A of the WM Act unless an exemption applies. **The methodology of the water assessment is discussed at Section 6.8 which will determine if any approval under section 60A is required for the Project.**
	Conveyancing Act 1919 (Conveyancing Act)	The Project Area will require lease of premises under the Conveyancing Act. Subdivision consent is generally not required under section 23G of the Conveyancing Act, may apply if subdivision for the purpose of construction, operation and maintenance of a substation is required. **The need for any lease from the owners of the land and/or subdivision will be considered as part of the EIS.**
	Biodiversity Conservation Act 2016 (BC Act)	Part 7, Division 2 of the BC Act specifies the requirements for a biodiversity assessment depending on the planning pathway under the EP&A Act. If an activity is likely to have a significant impact or will be carried out in a declared area of outstanding biodiversity value, the proponent must apply the Biodiversity Assessment Method (BAM) and prepare a Biodiversity Development Assessment Report (BDAR). **Biodiversity is further discussed in Section 6.4.** **An application under Part 9 of the EPBC Act will be submitted.**

Category	Legislation	Requirement
	Local Land Services Act 2013 (LLS Act)	Division 5 clause 60S, clearing of native vegetation in a regulated rural area is authorised without any approval or other authority under this part if it is clearing carried out by or on behalf of the landholder in accordance with a land management (native vegetation) code under this Division. **Biodiversity is further discussed in Section 6.4.**
	'Amending Agreement – No.1 - New South Wales Assessment Bilateral Agreement' (Bilateral Agreement)	Where a NSW SSD Project is deemed a "Controlled Action" under the EPBC Act it can be assessed in accordance with the "Bilateral Agreement" (Commonwealth of Australia & NSW, 2020). Under the Bilateral Agreement, the NSW determining authority's Assessment Report will be provided to the Commonwealth DCCEEW inclusive of a recommendation as to whether the Project should be approved and conditions that may be applied to any Commonwealth approval. **Biodiversity is further discussed in Section 6.4.** **An application under Part 9 of the EPBC Act will be submitted.**
Commonwealth		
Native Title (Cwlth)	*Native Title Act 1993* (NT Act)	For any Crown land within the Project Area where Native Title has not been extinguished under the NT Act a strategy should be developed. There are no claims under the NT Act that exist within the Project Area (National Native Title Tribunal, 2025). **Any NT Act matters will be considered further by the Applicant.**
EPBC Act Approval (Cwlth)	*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	Approval from the Australian Minister for the Environment and Water is required for any action that will or is likely to have a significant impact on one or more Matters of National Environmental Significance (MNES) under the EPBC Act. The Project will be assessed in the manner specified in Schedule 1 to that Agreement including addressing the matters outlined in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulation 2000. **Biodiversity is further discussed in Section 6.4.** **An application under Part 9 of the EPBC Act will be prepared.**

Table 4-2 Other Approvals Unlikely to be Required

Category	Legislation	Requirement
New South Wales		
Approvals that cannot be refused and must be applied substantially consistent with the SSD development consent (section 4.42 of the EP&A Act)	*Coal Mine Subsidence Compensation Act 2017* (CMS Act)	Part 3 clause 22 of the CMS Act specifies that an application for approval to alter or erect improvements, or to subdivide land, within a mine subsidence district is to be made. **As the Project Area is not located on or adjacent to mine subsidence land, no engagement or approvals are required.**
	Petroleum (Onshore) Act 1991	The *Petroleum (Onshore) Act 1991* aims to encourage and facilitate the discovery and development of petroleum resources in NSW. A review of MinView indicated there are no existing petroleum production leases within the Project Area. **The Project Area is not located on or adjacent to any lands where a petroleum production lease exists, no engagement approvals in this regard are required.**
	Pipelines Act 1967	The *Pipelines Act 1967* controls pipeline construction, operation, and licensing in NSW. Part 3 section 11 of the *Pipelines Act 1967* requires a person to be a registered holder of a licence before any construction of a pipeline commences.

Category	Legislation	Requirement
		The Project does not involve the construction and operation of water pipelines and as such, no approvals in this regard are required.
Approvals not required under Section 4.41 of the EP&A Act	*Fisheries Management Act 1994* (FM Act)	Section 201, 205 and 219 require a permit for the purpose of dredging works, any harm to marine vegetation, or for any activities that block the passage of fish, respectively. **An approval under section 201, 205 or 219 will is unlikely to be required but will be confirmed subject to section 4.41 of the EP&A Act.** **The proposed methodology of the preliminary ecological assessment, including riparian and aquatic species, is discussed at Section 6.4.**
	Heritage Act 1977 (Heritage Act)	Approval is required to carry out an act, matter or thing referred to in Section 57(1), or an excavation permit under section 139. **The Project will not require an approval under section 57 or 139 subject to section 4.41 of the EP&A Act.** **The proposed methodology of the historic heritage assessment is discussed in Section 6.6.**
	National Parks and Wildlife Act 1974 (NPW Act)	Sections 86, 87 and 90 require approval for any works which may impact an item of Aboriginal heritage. **The Project will not require approvals under sections 86, 87 or 90 subject to section 4.41 of the EP&A Act.** **The proposed methodology of the Aboriginal heritage assessment is discussed at Section 6.5.** **National Parks in proximity to the Project are discussed in Section 2.4.5.**
	Rural Fires Act 1997 (RF Act)	Where a project requires subdivision for residential or rural residential development, a bush fire safety authority under Section 100B is required. **An approval under section 100B will not be required subject to section 4.41 of the EP&A Act.** **The methodology of the bushfire assessment is discussed at Section 6.14.**
	Water Management Act 2000 (WM Act)	A water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the WM Act is required where impacts are predicted. **An approval under section 89-91 will not be required subject to section 4.41 of the EP&A Act.** **The methodology of the water assessment is discussed at Section 6.8 which will determine if a water use approval under the WM Act is required for the Project.**
	Contaminated Land Management Act 1997 (CLM Act)	**A preliminary site assessment for contaminated land will be undertaken as part of the EIS to determine the relevance of this Act.**

Table 4-3 Mandatory Considerations - Planning

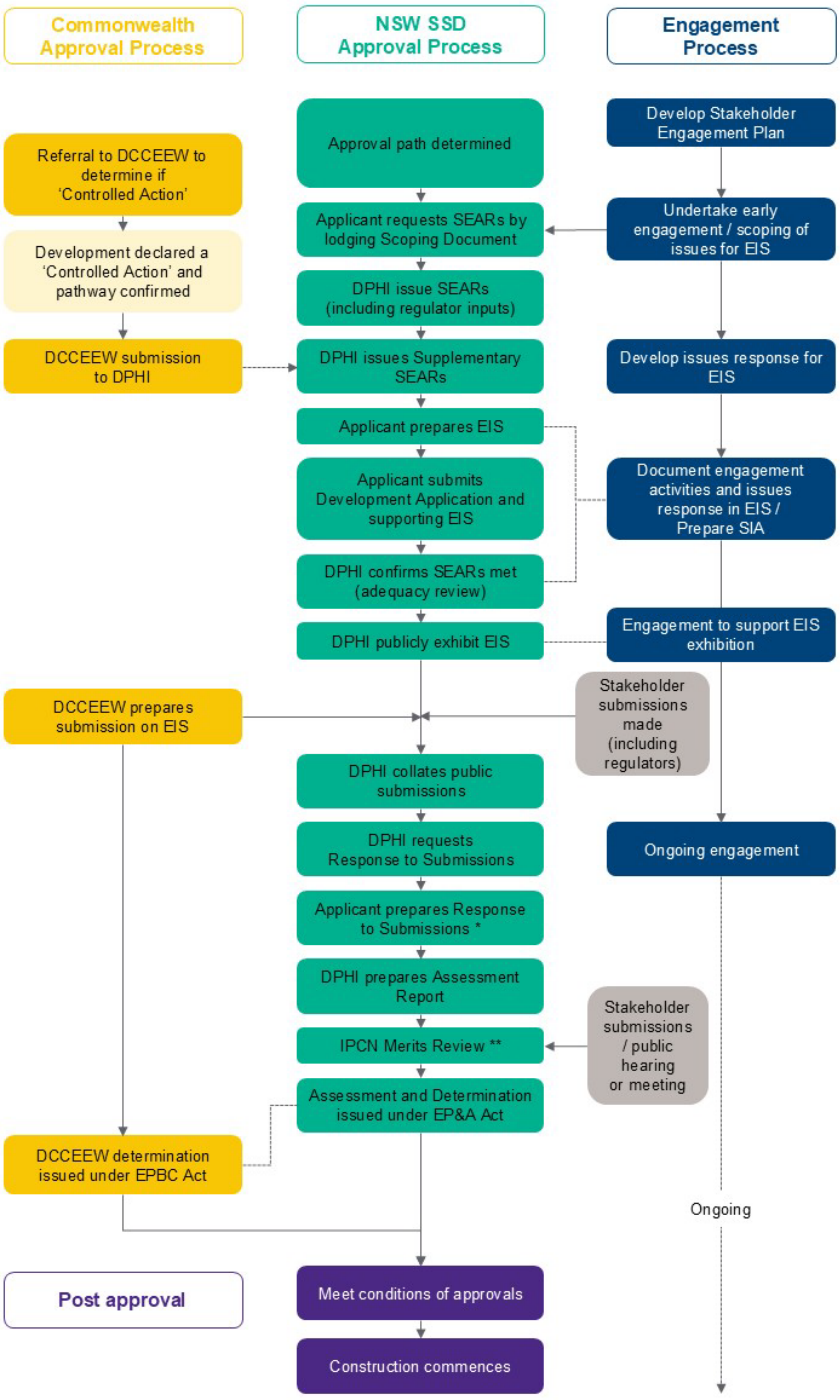
Category	Requirement
EP&A Act and Regulation	
Section 1.3 – Objects of the Act	The Objects of the Act are: *a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*

Category	Requirement
	b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment, *c) to promote the orderly and economic use and development of land,* *d) to promote the delivery and maintenance of affordable housing,* *e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,* *f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),* *g) to promote good design and amenity of the built environment,* *h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,* *i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,* *j) to provide increased opportunity for community participation in environmental planning and assessment.* **The EIS will address each relevant Object of the Act and provide a justification on how the Project meets each.**
Section 4.15 – Evaluation	The consent authority is required to take the following matters into consideration in determining a development application: • Relevant environmental planning instruments including: – T&I SEPP – *State Environmental Planning Policy (Resilience and Hazards) 2021* (Hazards SEPP) – *State Environmental Planning Policy* (*Biodiversity and Conservation) 2021* – Richmond Valley LEP 2012 • The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality • The suitability of the site for the development • Any submissions made in accordance with this Act or the regulations • The public interest **The EIS will address each evaluation matter and provide relevant detail in relation to how the Project is consistent with each matter.**
Relevant EPIs	
T&I SEPP	See **Section 4.2.1.**
Resilience and Hazards SEPP – Chapter 3	Chapter 3 of the Hazards SEPP assesses the potential hazards associated with a project by providing definitions and guidelines for hazardous industry, offensive industry, hazardous storage establishments, and offensive storage establishments. In accordance with Section 3.7 of Hazards SEPP, consideration will be given to current circulars or guidelines published by DPHI relating to hazardous or offensive development, including: • Hazardous Industry Planning Advisory Paper No 3 – Risk Assessment • Hazardous Industry Planning Advisory Paper No 12 – Hazards **A preliminary risk screening assessment will be undertaken for the Project as described in Section 6.12.7.**
Resilience and Hazards SEPP – Chapter 4	Chapter 4 of the Hazards SEPP provides a state-wide planning approach to the remediation of contaminated land. Under section 4.6(1) of the Resilience and Hazards SEPP, a consent authority is required to consider whether a proposed development site is contaminated before granting consent. **An assessment will be prepared to determine the potential contamination risk associated with the Project as described in Section 6.9.2.2.**
Richmond Valley LEP 2012	Relevant components of the Richmond Valley LEP include: • Section 1.2 – Aims of Plan

Category	Requirement
	• Land Use Table – Objectives and permissible uses of the RU1 – Primary Production zone **The EIS will address relevant sections of the Richmond Valley LEP.**
Development Control Plans (DCP)	Under Section 2.10 of the Planning Systems SEPP, DCPs do not apply to SSD projects as: *"Exclusion of application of the development control plans* *Development control plans (whether made before or after the commencement of this policy) do not apply to-* *a) State significant development, or* *b) development for which a relevant council is the consent authority under section 4.37 of the Act."* **Therefore DCPs do not apply to the Project.**

4.4 NSW SSD Approvals Process

Figure 4-1 conceptually illustrates the NSW SSD process and how it interacts with the Commonwealth EPBC approval (should the Project be deemed "controlled" and assessed under the Bilateral Agreement) and the proposed stakeholder engagement (see **Section 5** for further detail). Should the Project be deemed "not controlled" the EPBC process would cease at step 2.



* and / or Amendment Report
** option available to the Minister if 50 unique objections, council objection or political donation has been made

Figure 4-1 Indicative NSW SSD Process

5 STAKEHOLDER ENGAGEMENT

This section describes the community and stakeholder engagement activities undertaken to support the scoping phase of the Project.

Table 5-1 Glossary

Term/Acronym	Definition
CSEP	Community and Stakeholder Engagement Plan
DPE	Department of Planning and Environment
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
IAP2	International Association for Public Participation
LALC	Local Aboriginal Land Council
NGO	Non-Government Organisation
SEARs	Secretary's Environmental Assessment Requirements
SSDA	State Significant Development Application
BESS	Battery Energy Storage System

5.1 Introduction

This section outlines the community and stakeholder engagement undertaken to support the preparation of the Scoping Report. Metlen is committed to early, inclusive, and transparent engagement throughout the Project lifecycle aligning to the Department of Planning, Housing and Infrastructure's 'Undertaking Engagement for State Significant Project Guidelines' ('Engagement Guidelines') (DPHI, 2024), 'State Significant Development Application (SSDA') guidelines, the Community and Stakeholder Engagement Plan (CSEP), and the International Association for Public Participation (IAP2) framework.

The engagement activities undertaken during the scoping phase are designed to:

- inform the community and stakeholders about the Project scope, purpose, and preliminary impacts;
- gather feedback to identify community values, concerns, and aspirations;
- inform the Secretary's Environmental Assessment Requirements (SEARs) and Environmental Impact Statement (EIS) preparation; and
- statement (EIS) preparation.

5.2 Community and Stakeholder Engagement Plan

A Community and Stakeholder Engagement Plan (CSEP) has been developed to guide the engagement approach for this Project. The full CSEP is in **Appendix E**.

The CSEP is intended to guide Emu Park Energy Hub, its representatives, and contractors in engaging with communities and stakeholders potentially impacted by or interested in the Project.

Specifically, the engagement activities outlined in the CSEP support the following Project phases:

- preparation of the Scoping Report (request for Secretary's Environmental Assessment Requirements (SEARs)) – outcomes outlined in this section;
- preparation of the Environmental Impact Statement (EIS); and
- all project milestones, including throughout construction and operation.

The engagement approach aligns with the IAP2 Public Participation Spectrum, primarily focusing on informing and consulting the public. The objectives for this scoping phase included:

- ensuring the engagement is purposeful and inclusive, promoting meaningful participation from a diverse range of stakeholders, including underrepresented groups, so all voices can contribute to shaping the Project;
- providing timely, accurate, and accessible information on the Project in plain English to establish transparency and build trust with the community;
- enable stakeholders to provide input that will meaningfully influence project design and assessment, fostering genuine and collaborative relationships with the local community, Traditional Owners, government agencies, and other interested parties;
- minimise disruption and maintain respectful, responsive communication throughout the scoping process;
- recognise the importance of authentic engagement during this phase to build community trust and support transparent and accountable decision-making consistent with statutory and regulatory requirements;
- minimising disruption and ensuring respectful, responsive communication throughout; and
- adopting a flexible engagement approach that can adapt to community needs and preferences as the Project evolves beyond the scoping phase.

The engagement approach was adapted from the IAP2 Public Participation Spectrum. The engagement objectives during scoping aligned with the goals of **informing** and **consulting** with stakeholders and the community to obtain public feedback to inform the preparation of the EIS.

Table 5-2 IAP2 Spectrum

	Inform	Consult	Involve	Collaborate	Empower
Public participation goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/ or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
Promise to the public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

This engagement methodology and its outcomes were informed by and are consistent with the NSW Department of Planning, Housing, and Infrastructure (DPHI) 'State Significant Development Guidelines – Preparing a Scoping Report, including the Undertaking Engagement for State Significant Projects Guidelines' ('Engagement Guidelines') (DPHI, 2024).

The engagement approach ensured:

- adjoining landholders, stakeholders and local communities were provided with timely and relevant information about the Project, in plain English, and have opportunity to provide feedback;
- communication to and from landholders and other community stakeholders was adequately documented;
- all interested stakeholders were provided with a responsive point of contact for any enquiries, complaints, or suggestions;
- stakeholders with potential interest in the Project were identified and provided with consistent messages and opportunity to be heard;
- minimal disruption to landholders, other impacted stakeholders, and the wider community; and
- engagement activities supported the broader program to meet planning approval requirements and secure the required approvals from regulators and decision makers in a timely manner.

The Applicant will continue to implement these engagement objectives throughout the lifecycle of the Project.

5.3 Community Profile

Understanding the socio-economic context of the Richmond Valley Local Government Area (LGA), and specifically the Ellangowan locality, has been fundamental to shaping the engagement approach and interpreting stakeholder feedback.

5.3.1 Regional and demographic overview

The Project is located within a predominantly rural and agricultural landscape, where cattle grazing is the primary land use contributing to the area's rural character and lifestyle. The local population is dispersed and consists mainly of farming families, rural landholders, and small-scale businesses. The community has a higher representation of Aboriginal and Torres Strait Islander peoples compared to the NSW average, with the Galibal people of the Bundjalung Nation recognised as the Traditional Custodians of the land.

Historically, the Project Area has been used for various agricultural and industrial purposes, including a fast-growth timber plantation, which was later discontinued, followed by wood chipping operations associated with community concerns about noise. Additionally, bio waste spreading activities previously undertaken on site generated odour and increased traffic, as noted by community members. Currently, the Project Area supports cattle grazing. Notably, each of these land use activities was implemented without consultation of adjoining neighbours. Given the impacts of noise, traffic, and odour, this has led to a level of frustration among some neighbours regarding the proposed use of the Project Area.



Figure 5-1 Images Taken from the Proposed Project Area

5.3.2 Economic profile and opportunities

The Ellangowan, Coraki, Lismore and Casino areas form an integral part of the Northern Rivers region, characterised by a diverse rural economy anchored in agriculture, forestry, and related industries. The region's economic profile reflects a strong reliance on primary production, including cattle grazing, horticulture, and timber, alongside emerging sectors such as renewable energy and tourism.

Significant challenges, including devastating flood events in 2017 and 2022 and periodic bushfires, which have affected homes, infrastructure, and local businesses. These natural hazard events have underscored the need for sustainable development and adaptive strategies to support long-term community stability.

Community concerns about the inability to use the Project Area due to flooding due to excessive rainfall were addressed by explaining the proposed technology, which is designed to withstand the levels of flooding previously experienced on the Project Area.

5.4 Stakeholder Identification and Mapping

A robust process was undertaken to identify relevant stakeholders, which will be maintained and refined through the Project. A detailed stakeholder mapping was undertaken to ensure all relevant groups are identified and engaged appropriately throughout the Project. This can be found in the CSEP.

Table 5-3 identifies stakeholder groups relevant to the Project and that would be consulted in the preparation of the EIS.

Table 5-3 Stakeholders Identified

Stakeholder Group	Description
Adjacent properties / landowners	Non-associated and Associated
Local residents and property owners (business owners)	Local communities including Ellangowan, Coraki, Casino
First Nations stakeholders	Local Aboriginal Communities and Agencies, Local Aboriginal Land Councils, Registered Aboriginal Party (RAPs) and Elders.
Local Council	Richmond Valley Council (project LGA), Lismore City Council (neighbouring LGA) and Ballina Shire Council (neighbouring LGA)
Elected Officials / Members of Parliament	The Hon Kevin Hogan MP, Member for Page (Federal MP) Mr Richie Williamson MP, State Member for Clarence (State MP) MP Janelle Saffin, Member for Lismore
Special Interest Groups	NSW Farmers
Industry and Business	Casino Chamber of Commerce
State and Federal Government Agencies	DPHI, EPA, Heritage NSW, NSW Rural Fire Service, Emergency Services, TfNSW, NSW DCCEEW
Utilities	Transgrid
Media	The Northern Rivers Times

5.4.1 Understanding the Community and Environment

The Applicant's approach was informed by a detailed analysis of the surrounding community and local environment.

A community demographic profile was developed to understand those who may be impacted by or have an interest in the Project.

5.5 Community Engagement

This section summarises the engagement activities undertaken to inform the Scoping Report.

Engagement activities to inform scoping were undertaken between August and October 2025. Activities were designed to introduce the Project to nearby landowners, local council, Members of Parliament and the local community.

5.5.1 Community Newsletter

Between 22 September and 7 October 2025, a community newsletter was distributed to businesses and residents surrounding the Project Area within a 14 km radius. Given the dispersed, rural nature of the community, a larger radius was selected to try and capture surrounding communities. This was approximately 990 newsletters. The newsletter shared Project details, including a location map, planning and approvals process, contact information (phone, email, website), and details of the information session held at Coraki Youth Hall on Tuesday 14 October 2025.

Figure 5-2 shows the distribution areas for the community newsletter. This area has been used to identify near neighbours and the surrounding community.

Although the supplier stated that all newsletters had been distributed by hand, some community members reported not receiving a copy. To address this, additional newsletters were hand-delivered to nearby neighbours, and an advertisement was placed in the local paper (see **Figure 5-3**). At drop-in sessions, the SSDA process was explained, emphasising that the Project was at the scoping stage and that this was an opportunity for the community to understand the Project and build a relationship with the developer. This improved transparency helped increase the comfort levels of nearby neighbours by assuring them they would have the opportunity to contribute to shaping the Project.

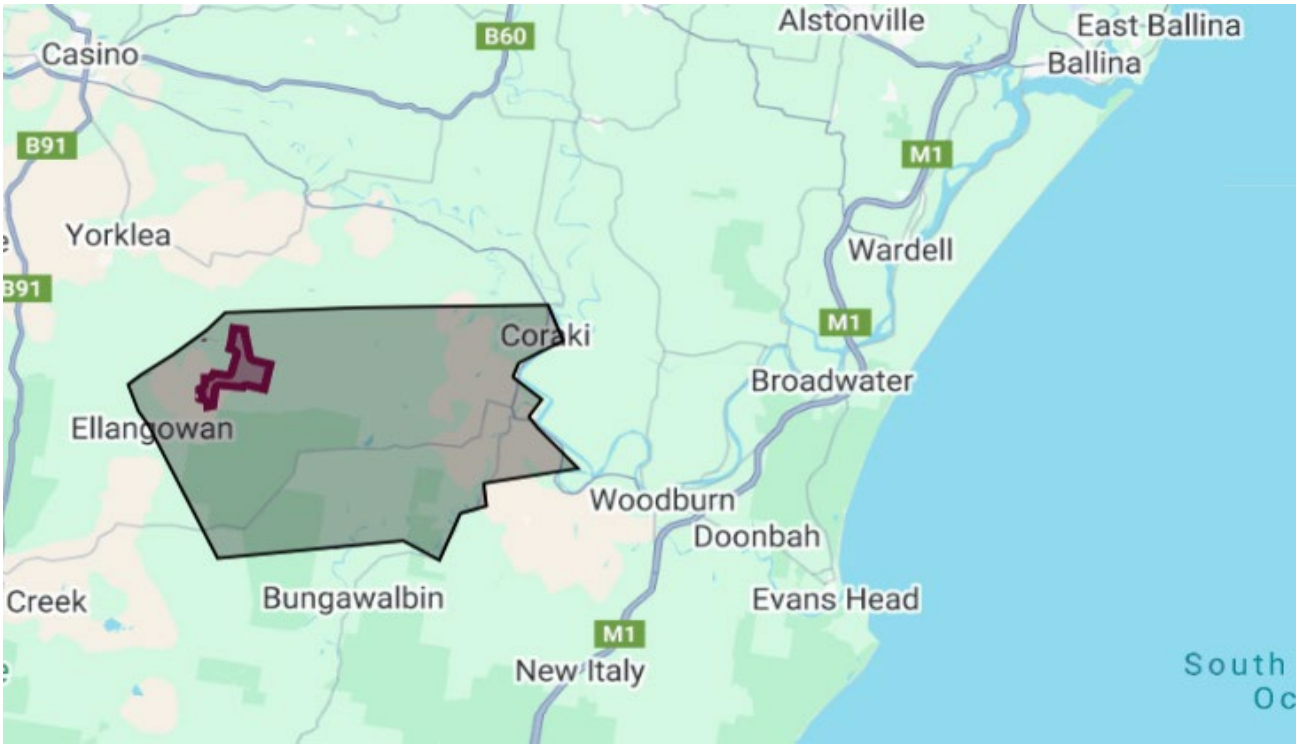


Figure 5-2 Newsletter Distribution Area – September / October 2025

5.5.2 Surrounding Community Identification

The nearest residential receiver to the Project Area is receiver 45 (see **Figure 2-3**) located approximately 67 m west. The majority of nearby receivers are located approximately 300 m west of the Project Area

(separated by Emu Park Road). The main surrounding land use is cattle farming, with Namoon Trig Senepols Cattle Farm located 800 m to the west. The distribution area (shown above) considered traffic on Emu Park Road, Tatham-Ellangowan Road and Coraki Ellangowan Road. The distribution area also captures nearby communities including Ellangowan, West Coraki and Coraki to ensure all potentially affected stakeholders were consulted, including Fire and Rescue NSW Coraki Fire Station.

This distribution area ensured that residents up to 14 km to the east were included, to ensure residents in West Coraki and Coraki areas were included to raise Project awareness.

5.5.3 Project Webpage

In addition to the newsletter distribution, multiple communication channels were employed including a project webpage and a dedicated phone line, to ensure information reached a broad audience and provided various opportunities for community engagement.

A dedicated project webpage was created to provide information on the purpose and location of the proposed Project. The webpage features an overview of the Project, maps, frequently asked questions and contact details including a dedicated phone number and an online contact form.

5.5.4 Local Media

To promote the event to the broader community, an advertisement was published in the 8 October 2025 edition of The Northern Rivers Times (refer to **Figure 5-3**).



Figure 5-3 Emu Park Energy Hub Advertisement

5.5.5 Community Information Session

A community information session was held at Coraki Youth Hall in Coraki on Tuesday 14 October 2025 to introduce the Project to the local community and capture feedback.

There were six members of the Project team in attendance. Fifteen members of the community attended and engaged in discussions regarding the Project. WA representative from Richmond Valley Council LGA attended the morning session.

Maps and display boards illustrating the SSDA planning framework, outlining the planning assessment process, and explaining the proposed specifications for development of the Project Area were available during the session for community members to review.



Figure 5-4 Images from the Community Information Session at Coraki Youth Hall on 14 October 2025

5.5.5.1 Community Feedback

The community information session provided near neighbours and the community with an opportunity to review site plans, gain an understanding of the planning and assessment process and where the Project currently sits in that process and raise concerns.

A summary of key topics raised at the community information session is summarised in **Table 5-4**.

Table 5-4 Community Feedback and Applicant Response

Ref	Impact Area	Issues Raised	Applicant Response
1	Noise	Community members recalled elevated noise associated with previous wood chipping operations on the site. No specific concerns were raised about noise from the proposed solar farm or BESS. Understanding the expected noise profile of the BESS and its onsite location provided community members with comfort that noise impacts would be minimal.	A Noise Impact Assessment will be prepared as part of the EIS (refer to **Section 6.3.3**).
2	Traffic, Transport and Access	• Preference expressed for use of unsealed roads to keep traffic low and concerns about heavy truck use on unsealed roads. • Impact of heavy vehicles on local road quality. • Queries about likely access routes during construction.	A Traffic and Transport Impact Assessment will be prepared as part of the EIS (refer to **Section 6.7.3**).
3	Safety and Fire Risk	• Concern for safe and reliable access to properties given previous fire (2019) and flood (2022) events. • Desire to keep boundary tracks clear for safety purposes. • Water availability for firefighting. • Safety and health risks of solar panels. • BESS fire risk.	A Bushfire Risk Assessment (see **Section 6.14.3**) and a Preliminary Hazards Assessment Report (see **Section 6.13.3**) will be prepared as part of the EIS. Access arrangements and track maintenance requirements will be discussed with neighbouring landowners to ensure reliable access is retained during construction and operation.

5.6 Engagement Activities Register

The consultation activities highlighted in **Table 5-5** have been delivered to introduce stakeholders and community to the Project and provide opportunity to answer questions and understand key concerns.

Table 5-5 Scoping Report Consultation Activities

Stakeholder	Date	Details
Adjacent properties/landowners		
• 1321 Coraki-Ellangowan Road • 1660 Coraki-Ellangowan Road • 1700 Coraki-Ellangowan Road • 1720 Coraki-Ellangowan Road • 1830 Coraki-Ellangowan Road • 2035 Coraki-Ellangowan Road • 80 Emu Park Road • 95 Emu Park Road • 121 Emu Park Road • 185 Emu Park Road • 194 Emu Park Road • 220 Emu Park Road • 238 Emu Park Road • 245 Emu Park Road • 250 Emu Park Road • 325 Emu Park Road • 90 Mothersoles Road • 155 Mothersoles Road • 160 Mothersoles Road • 165 Mothersoles Road • 204 Mothersoles Road • 740 Tatham-Ellangowan Road • 760 Tatham-Ellangowan Road • 770 Tatham-Ellangowan Road • 830 Tatham-Ellangowan Road • 840 Tatham-Ellangowan Road • 860 Tatham-Ellangowan Road • 885 Tatham-Ellangowan Road • 890 Tatham-Ellangowan Road • 905 Tatham-Ellangowan Road • 960 Tatham-Ellangowan Road • 985 Tatham-Ellangowan Road • 995 Tatham-Ellangowan Road • 999 Tatham-Ellangowan Road • 1010 Tatham-Ellangowan Road	7 October	• Community newsletter – letterbox drop • Invitation to attend pop up session
Surrounding businesses		
All businesses (commercial, industrial and retail) located on the following streets: • Emu Park Road	7 October 2025 (newsletter issued)	• Community newsletter – letterbox drop • Invitation to attend pop up session

Stakeholder	Date	Details
• Coraki-Ellangowan Road • Tatham Ellangowan Road • Mothersoles Road • Myrall Creek Road • Avenue Road • Springville Road • Woodburn Coraki Road • Queen Elizabeth Drive • Union Street • Surry Street • Martin Street • Greenfell Street • Bridge Street • Richmond Terrace		• Access to 1800 number and email for ongoing project communications
Members of Parliament		
The Hon Kevin Hogan MP, Member for Page	• 22 August 2025 (letter) • 25 August 2025 (email) • 10 September 2025	• Letter issued via email 22 August 2025 • Email 25 August 2025 • Meeting held 10 September 2025 (no concern raised)
Mr Richie Williamson MP State Member for Clarence	• 22 August 2025 (letter) • 27 August 2025 phone call • 15 September 2025 Meeting at Parliament House, Sydney	• Letter issued via email 22 August 2025 • Phone 27 August 2025 – meeting postponed to meet at Parliament House in Sydney • Meeting held 15 September (no concern raised)
MP Janelle Saffin, Member for Lismore	• 9 September 2025 (letter) • 17 September 2025 (email) • 24 September 2025 (email)	• Letter issued via email 9 September 2025 • Email 17 September 2025 • Email 24 September 2025 (unable to meet in person, online meeting offered)
Local Government		
GM of Richmond Valley Council, Vaughan Macdonald and Stacey Mills, Manager Invest and Live Richmond Valley	• 22 August 2025 (letter) • 9 September (meeting) • 10 September (email) • 14 October 2025 (Community Information Session)	• Letter issued via email 22 August 2025 • Pre-DA meeting held on 9 September 2025 • Shared community newsletter via email 10 September 2025 • Attendance at Community Information Session on 14 October 2025
GM Lismore City Council, Eber Butron, Jamie van Iersel Strategic Planning, Kulwant Singh-Pangly, Head of Finance	• 27 August 2025 (letter) • 19 September 2025 (email) • 25 September 2025 (email)	• Letter issues via email 27 August 2025 • Email 19 September 2025 • Email 25 September 2025 • Email 26 September

Stakeholder	Date	Details
	• 26 September 2025 (email) • 15 October 2025 (in-person meeting at Lismore City Council)	• Pre-DA meeting held on 15 October 2025 (no concern raised)
Surrounding Residential Community (within 14 km of the Project Area)		
Surrounding residential community across the following areas: • Ellangowan • West Coraki • Coraki • Bora Ridge	7 October 2025	• Community newsletter – letterbox drop • Invitation to attend pop up session • Access to 1800 number and email for ongoing project communications
Industry and Business Groups		
Casino Chamber of Commerce	• 22 August 2025 (letter) • 30 September (email)	• Letter sent via email 22 August 2025 • Email 30 September 2025
NSW Farmers Northern Rivers, Mark Bulley	• 28 August (letter) • 19 September (email) • 25 September (phone) • 25 September (email) • 9 October (phone)	• Letter sent via email 28 August 2025 • Email 19 September 2025 • Phone call 25 September 2025 • Email 25 September 2025 • Phone 9 October 2025
Sensitive Receivers (Education Facilities) (within 14 km of the Project Area)		
Coraki Public School, Coraki	7 October 2025	• Community newsletter – letterbox drop Invitation to attend pop up session • Access to 1800 number and email for ongoing project communications
St Joseph's Primary School, Coraki	7 October 2025	• Community newsletter – letterbox drop Invitation to attend pop up session • Access to 1800 number and email for ongoing project communications
First Nations Stakeholders		
Casino Boolangle Local Aboriginal Land Council (LALC)	• 22 August 2025 (letter) • 2 September 2025 (email and phone)	• Letter issued via email 22 August 2025 • Email and phone call 2 September 2025 • Advised to coordinate with Bogal LALC
Bogal Local Aboriginal Land Council (LALC)	• 25 September (letter) • 30 September (letter) • 9 October (phone) • 16 October (phone)	• Letter issued via email 25 September 2025 • Contact information shared by Richmond Valley LGA • Letter issued via email 30 September 2025

Stakeholder	Date	Details
		• Phone call to Acting CEO – Donna Nixon at Bogal LALC 9 October and 16 October
Bandjalang Local Aboriginal Land Council	25 September (phone and letter)	• Phone call 25 September • Letter issued via email 25 September

5.7 Agency Consultation

Table 5-6 summarises the preliminary meetings with relevant government agencies and the purpose of each.

Table 5-6 Agency Consultation

Agency	Date/Tool	Engagement Summary
Department of Planning, Housing and Infrastructure (DPHI)	16 July (MS Teams)	Project briefing
Department of Planning, Housing and Infrastructure (DPHI)	17 October (MS Teams)	Scoping report briefing prior to lodgement
Transport for New South Wales (TfNSW)	28 October (email)	Request for consultation
Department of Planning, Housing and Infrastructure (DPHI)	29 October (email)	Notification of lodgement
Transport for New South Wales (TfNSW)	6 November (MS Teams)	Project briefing. TfNSW raised the requirement for swept path assessments for the OSOM route in the EIS stage, and to ensure to continue to liaise with Council particularly where removal of parking might be required for the OSOM route.

5.8 Community Views

Figure 5-5 provides a summary of engagement to date.

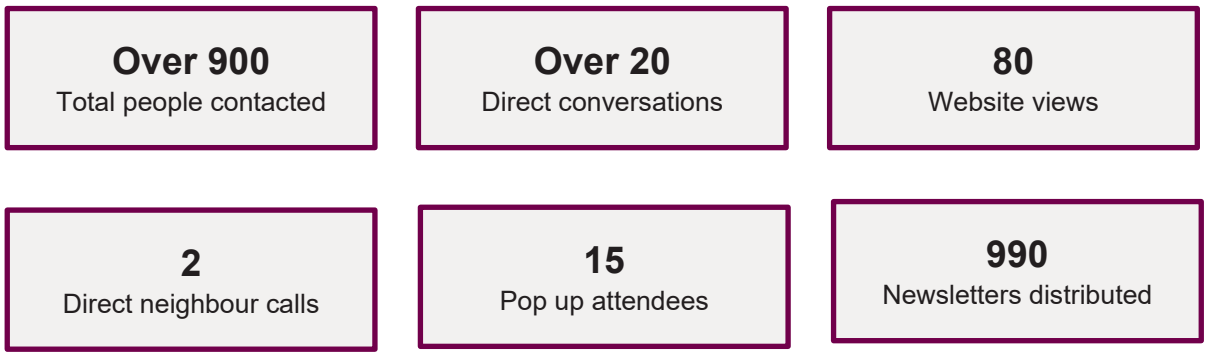


Figure 5-5 Engagement to Date

Table 5-7 summarises feedback received from engagement to inform scoping.

Table 5-7 Scoping Report Consultation Activities

Topic	Community sentiment and key topics
General sentiment	• The community around Coraki demonstrated a relatively high level of understanding regarding solar and BESS and their role in supporting the electricity network. • Community sentiment toward renewable energy ranged from negative concerns to positive support. • Residents generally recognised the benefits of increased grid storage capacity. • The community feedback reflected a mix of initial concerns and frustrations, which, following explanations of the process and opportunities for involvement, generally shifted toward a more constructive and **neutral** stance.
Noise generation	Community members expressed concerns regarding elevated noise levels associated with previous wood chipping activities on the Project Area; however, no concerns were raised about noise related to the proposed solar farm or BESS. Understanding the potential noise to be generated from the BESS, and the location of the BESS within the Project Area, provided community members comfort that there would be minimal-to-no noise impact.
Traffic, transport and access	• Preference for existing unsealed roads to retain low traffic volumes. The community also expressed some concerns about increased truck access on these unsealed roads, noting the potential for additional wear and the desire to maintain the quiet and safety of the local area. • The access route to be used during construction was raised by community members who had concerns about the impact that heavy vehicles would have on the quality of their roads. A number of potential route options were discussed. • Metlen shared the responsibility they would most likely have with respect to road maintenance or improvements, which was received positively by community members. • It was also noted that temporary traffic management measures may be implemented during peak construction periods to ensure safety and maintain access. These will be communicated in advance to affected residents and businesses.
Safety and fire risk	• A neighbouring landowner explained a concern about safe and reliable access to their property from Coraki-Ellangowan Road, especially in light of recent fire (2019) and flood (2022) events. • Neighbours explained a need for a secure and clear access road and keeping the track between properties clear. • Questions and concern were raised about water availability during fire seasons for firefighting purposes. • Questions were raised regarding the safety of solar panels, including concerns about potential health risks. • Questions were raised about the fire risk of a BESS, which were answered to community members satisfaction by the Metlen team.

Other questions raised during the information session include:

- “Why was this land chosen?”
- “Who will own the property? Have the current owners been forced to sell?”
- “What does this mean for me and my power bill?”
- “Will we be able to get energy for our homes from the project?”
- “Will residents have input into landscaping and screening around the site?”
- “How much land will be cleared?”

- "What opportunities exist for local employment and economic benefits during construction and operation?"
- "How will the Project impact visual amenity and the rural character of the area?"

5.9 Consultation Key Findings to Date

Neighbouring properties that received the community newsletter, either by letterbox drop or hand delivery to ensure effective reach, expressed a range of sentiments from negative to positive. Those spoken with at the community information session appreciated the early engagement and raised some concerns about screening, traffic, and emergency access. Several neighbours also engaged positively, discussing job creation and demonstrating an understanding of the benefits of renewable energy.

Stakeholder meetings with Richmond Valley Council, local MPs, and Lismore City Council highlighted key priorities for the Project, including minimising impacts on neighbours, exploring community benefits such as infrastructure upgrades, and supporting local employment and business participation. Councils emphasised collaboration on workforce and accommodation strategies, waste management challenges, and the importance of transparent, ongoing engagement. MPs expressed interest in community investment and landowner negotiations. Lismore City Council acknowledged the Project's regional significance, encouraged economic and skills development partnerships, and supported leveraging local training and innovation opportunities to deliver lasting benefits to the wider region.

Both the local community and council have expressed particular interest in employment opportunities associated with the Project and a strong desire to retain jobs within the region. The Project presents an opportunity to contribute to this evolving economic landscape by generating construction and operational employment, fostering local business participation, and supporting renewable energy sector growth.

5.10 Future Engagement

The Community and Stakeholder Engagement Plan (CSEP) (**Appendix E**) outlines the engagement approach for the Project across three phases:

- preparation of the Scoping Report (request for Secretary's Environmental Assessment Requirements (SEARs);
- preparation of the Environmental Impact Statement (EIS); and
- all project milestones, including throughout construction and operation.

Following the initial engagement activities and feedback received, the CSEP has been refined to enhance communication and participation during the EIS phase:

1. **Additional communications will be employed to follow up with the community and stakeholders after engagement in October 2025.**
    - the dedicated project website will be updated to summarise feedback received so far;
    - there will be more opportunities to brief the Richmond Valley Council as the Project progresses;
    - contact Ballina Shire Council as a neighbouring LGA as suggested by Richmond Valley LGA.
    - attempts to engage with the Bogal Aboriginal Land Council (LALC) are continuing and will persist throughout planning, construction, and operation. Proposed future engagement includes:
        - continuing to follow-up by phone and email at regular intervals;
        - send a registered mail/posted hard copy of the Project introduction letter to the LALC postal address (if available) to ensure receipt;
        - offer multiple engagement options including a face-to-face meeting, telephone meeting, or an introductory briefing by videoconference to accommodate preferences; and
        - if no response after the above measures, request DPHI advice on alternative next steps or endorsement to proceed with the assessment in parallel while continuing to seek engagement.
2. **Refine newsletter distribution area to include transport routes**

- to enhance the reliability of communication distribution, the Project team will refine the newsletter distribution area to focus on key transport corridors, including residents and businesses along Summerland Way (B91) and other primary access routes.

3. **The Applicant will continue to provide information on the dedicated webpage and offer multiple ways for feedback, including:**
    - the dedicated project email address and phone number will remain live and active; and
    - in-person pop-up information sessions will be held during EIS engagement.
4. **The monitoring and evaluation of engagement activities will be assessed against key metrics, including engagement reach and the effectiveness in capturing feedback. Adjustments will be made as necessary.**

Aligned with objectives within the CSEP, the next phase aims to continue to:

- engage the community actively throughout the EIS process, ensuring outreach is tailored to the needs of each stakeholder group for meaningful participation;
- provide clear, accessible, and timely information on project scope, design, timing and potential impacts to build awareness and understanding among affected stakeholders;
- establish effective feedback mechanisms that allow community input to be genuinely considered and integrated by the Project team; and
- deliver engaging, transparent communications that highlight the Project's drivers, benefits and commitment to regulatory compliance, helping to build trust and mitigate reputational risks.

The proposed future newsletter distribution area for the EIS phase is indicated in **Figure 5-6**. This will be updated to include key transport routes in the EIS phase. The engagement plan for the Project is outlined in **Table 5-8**.

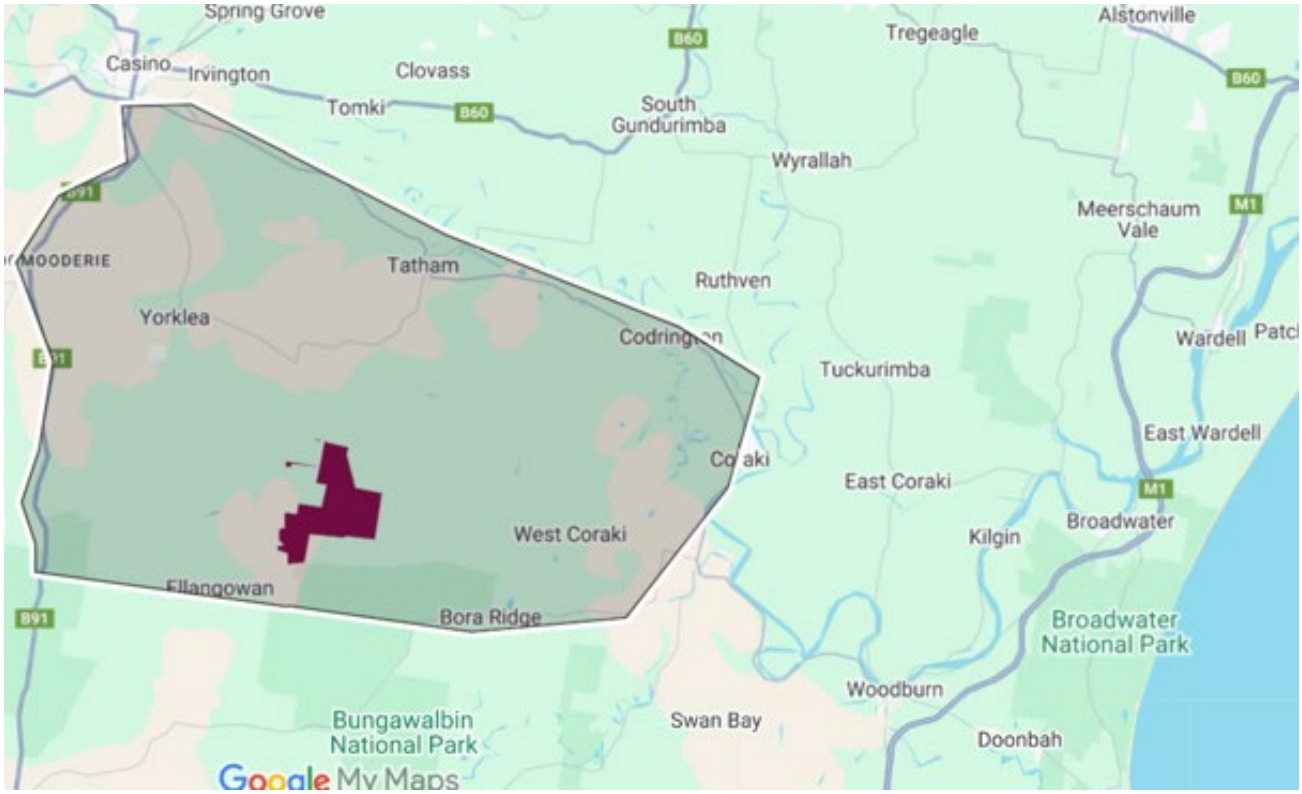


Figure 5-6 Proposed Future Newsletter Distribution

Table 5-8 Community Engagement Plan

Timing	Activity and Engagement Methods	Purpose	Target audience
To inform EIS			
February 2026	Direct stakeholder contact via letters, emails, phone calls, and meetings (in-person or virtual)	Provide project updates, answer questions, explain the EIS process and potential impacts, and understand concerns and possible mitigation measures	• Non-government organisations (NGOs), utilities and government agencies • Elected officials
February 2026	Community update through newsletter, website updates, email broadcasts, and dedicated phone/email lines	Share project updates, answer questions, describe the EIS process and potential impacts, promote upcoming engagement opportunities	• Surrounding residential community • Neighbouring businesses
	Direct phone calls to adjacent neighbours supported by community newsletter	Provide project updates, answer questions, explain the EIS process and potential impacts, promote engagement opportunities	Adjoining businesses
March 2026	Community pop-up events with FAQs, factsheets, information boards, and feedback forms (both paper and online)	Inform about the Project, potential impacts, and SSDA process; understand community values, priorities, concerns, risks and mitigation; collect feedback	• Surrounding residential community • Neighbouring businesses
	Website update including factsheets, digital advertising, and direct communications (letters/emails/phone calls) to registered stakeholders	Thank community and stakeholders for input, provide timeline and next engagement steps	• Non-government organisations, utilities and government agencies • Neighbouring and nearby businesses and properties • Surrounding residential community
September 2026	Community newsletter and website updates, digital advertisements, letters, emails, phone calls	Announce EIS submission, provide Planning Portal access, summarise key feedback and how it influenced the project, outline next steps	• Non-government organisations, utilities and government agencies • Neighbouring and nearby businesses and properties • Surrounding residential community
To inform public exhibition			
Upon exhibition start	Stakeholder letters	Announce EIS exhibition period, invite feedback via Planning Portal, offer briefings or meetings	All stakeholders that have had meetings to date

Timing	Activity and Engagement Methods	Purpose	Target audience
	Community updates via website, newsletter (timed to exhibition), and direct community emails	Inform public about exhibition period, invite feedback, promote engagement activities and key dates	• Surrounding community • Adjacent properties
Upon determination	Stakeholder letters	Summarise feedback received and engagement undertaken, thank contributors, outline application of feedback and next steps	All stakeholders that have had meetings to date
	Website and community updates including newsletter and emails	Summarise engagement activities, key themes and outcomes, describe use of feedback and next steps	• Surrounding community • Neighbouring businesses
Ongoing engagement – throughout construction and operation The Applicant will continue to engage with the community post EIS approval. This will include regular updates, information about construction and detailed enquiry and complaints protocols. At this time, the CSEP will be updated to include an engagement methodology and approach to frequency of communication.			

6 ASSESSMENT OF IMPACTS

6.1 Aspect Categorisation

Appendix A provides potential environmental and social issues which have a potential to occur as a result of the Project and have been identified in relation with the Scoping Report Guidelines.

Each aspect provided in **Appendix A** has been considered in relation to the project description at **Section 3** and allocated a relevant level of assessment for consideration in the EIS.

The key matters requiring more detailed assessments have been identified on a preliminary assessment of the Project Area and by taking into consideration other solar farm developments in NSW.

6.2 Visual and Lighting

*A Preliminary Landscape and Visual Impact Assessment (PLVIA) has been prepared by RPS and is included in full at **Appendix C**. Relevant guidelines and policies are listed in **Appendix B.***

A summary of the key background, preliminary assessment and EIS assessment approach is provided below.

6.2.1 Background

The Project Area is located within a rural setting and is characterised as a combination of modified agricultural land with patches of vegetation, particularly in the central and northern portion. The Project Area is comprised of low-lying, gently undulating terrain with elevations below 40 m. Areas of scattered paddock trees and remnant native bushland also occur within or near the Project Area, and a vegetated forest area is located to the south of the Project Area.

The following public roads are located within 2.5 km of the Project Area:

- Tatham Ellangowan Road;
- Emu Park Road; and
- Coraki Ellangowan Road.

12 public viewpoints have been selected to represent potential views of the Project from these public roads, shown as PV1 – PV12 on **Figure 6-2**.

6.2.2 Preliminary Assessment

The PLVIA provides a preliminary assessment of the potential landscape character and visual impacts of the Project. The assessment was undertaken in accordance with the Visual Technical Supplement.

The following has been undertaken to develop the PLVIA:

- Desktop Assessment:
  - Preparation of a baseline landscape character assessment of the surrounding landscape;
  - Identification of private receivers within 4 km of the Project Area;
  - Identification of public viewpoints from roads within 2.5 km of the Project Area;
  - Conduct a viewshed mapping to identify areas from which the Project may be visible to receivers;
  - Reverse viewshed mapping to identify which parts of the Project Area are more visible to public viewpoints and private receivers; and
  - Identification of public viewpoints and private receivers that require detailed assessment during the EIS phase in accordance with the Visual Supplement.

- Community Engagement
  - Community engagement has been undertaken through the scoping phase of the Project as described in **Section 5**. Findings have been utilised to gain perspective on the landscape values held by the community to inform the PLVIA.

6.2.2.1 Landscape Character

Landscape character zones (LCZs) were identified within 5 km of the Project Area in accordance with the Visual Supplement. LCZs divide the landscape based on distinguishing characteristics including vegetation type/cover, water bodies, landforms, land use and planning overlays. The PLVIA identified five LCZs in the Visual Study Area as shown on **Figure 6-1.**

- LCZ 01 – Conservation areas;
- LCZ 02 – Power easement;
- LCZ 03 – Forested non-conservation areas;
- LCZ 04 – Larger scale agricultural use; and
- LCZ 05 – Smaller scale agricultural use.

6.2.2.2 Visual impact

6.2.2.2.1 Private receiver and public viewpoint identification

Using aerial photography sensitive receivers were identified with 4 km of the Project Area and public viewpoints were identified with 2.5 km of the Project Area.

In total the following were identified within the visual scoping study area:

- 119 sensitive receivers; and
- 12 public viewpoints.

6.2.2.3 Viewshed Mapping

A viewshed map identifies all areas from which a project may be viewed. Viewshed mapping was undertaken using a Digital Elevation Model (DEM) to eliminate viewpoint locations that will not have a line of sight to the Project.

The PLVIA is based on a theoretical worst-case scenario that accounts only for topography and does not consider intervening elements such as buildings and vegetation.

6.2.2.4 Reverse Viewshed Mapping

Reverse viewshed mapping is used to highlight parts of the Project that can be seen from the greatest number of viewpoints. The PLVIA is based on a theoretical worst-case scenario that does not consider the impact of vegetation or structures.

Reverse viewshed mapping of the Project shows the northern area of the Project would be most visible to the identified public viewpoints and private receivers, as well as some aspects of the east and south of the Project Area.

6.2.2.5 Simple Assessment

A “simple assessment” was carried out in accordance with the Technical Supplement to assess worst-case scenarios for the visibility of the Project from public viewpoints and private receivers. The simple assessment determines and combines horizontal and vertical fields of view to ascertain the potential maximum magnitude of visual impact for each receiver. Receivers that have a magnitude rating of 8 or more using the simple assessment method require intermediate assessment during the EIS phase.

The simple assessment found that 42 sensitive private receivers and ten public viewpoints would require intermediate assessment during the EIS phase of the Project. Receivers and viewpoints are shown on **Figure 6-2**.

Table 6-1 identifies the sensitive receivers requiring detailed assessment.

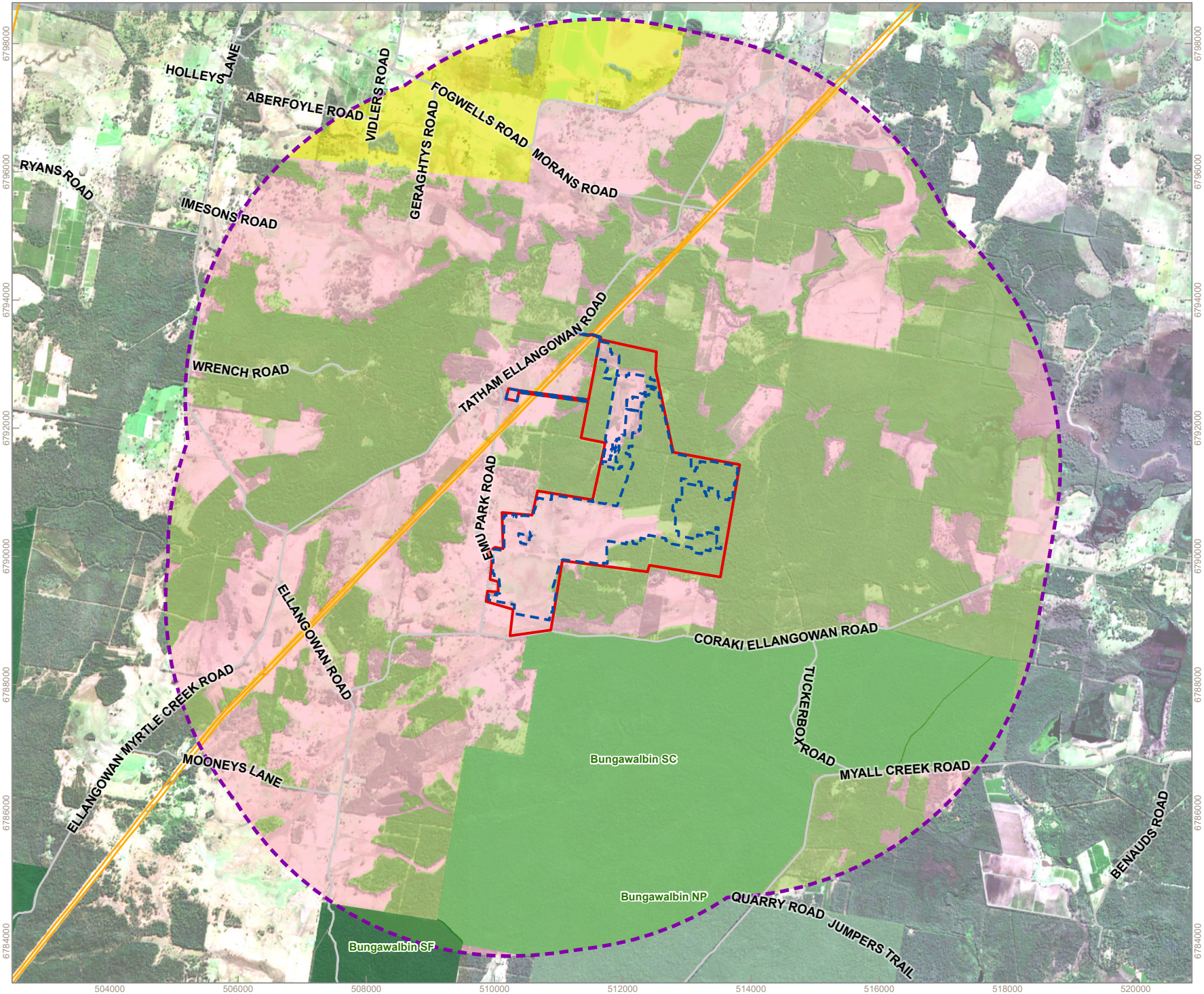
Table 6-1 Private Receivers and Public Viewpoints Requiring Detailed Visual Assessment

Ref	Receiver/ Viewpoint ID	Ref	Receiver/ Viewpoint ID	Ref	Receiver/ Viewpoint ID	Ref	Receiver/ Viewpoint ID
1.	05	**14.**	39	**27.**	58	**40.**	71
2.	06	**15.**	41	**28.**	59	**41.**	72
3.	07	**16.**	42	**29.**	60	**42.**	126
4.	08	**17.**	43	**30.**	61	**43.**	PV02
5.	09	**18.**	44	**31.**	62	**44.**	PV03
6.	10	**19.**	45	**32.**	63	**45.**	PV04
7.	11	**20.**	51	**33.**	64	**46.**	PV05
8.	12	**21.**	52	**34.**	65	**47.**	PV06
9.	13	**22.**	53	**35.**	66	**48.**	PV07
10.	15	**23.**	54	**36.**	67	**49.**	PV08
11.	16	**24.**	55	**37.**	68	**50.**	PV09
12.	20	**25.**	56	**38.**	69	**51.**	PV10
13.	21	**26.**	57	**39.**	70	**52.**	PV11

6.2.3 EIS Assessment Approach

A Landscape Character and Visual Impact Assessment (LCVIA) will be prepared in accordance with the Technical Supplement during the EIS phase and will include:

- Intermediate assessment including 3D visualisation of public viewpoints and private receivers with potential moderate or higher visual impacts;
- Detailed assessment including site investigation to capture data for final visual impact rating of public viewpoints and private receivers;
- Onsite assessment of landscape character;
- Specialised modelling tools and visualisations (including photomontages where required);
- An assessment of the landscape character and visual impact resulting from all associated infrastructure and ancillary structures, and consideration of cumulative impacts of nearby infrastructure;
- Where moderate or higher visual impacts are identified, assessment against the performance criteria in the Technical Supplement;
- Assessment of potential glint and glare impacts;
- Ongoing community consultation as described in **Section 5**;
- Cumulative impacts of surrounding developments will also be assessed; and
- On-site and off-site visual landscape mitigation strategies in response to the assessment and community consultation.



Legend

Project components

- Project Area
- Development corridor
- 5km Landscape character assessment study area

Existing Environment

- Roads
- NPWS Reserve
- NSW State Forest

Landscape Character Zones

- LCZ01 = Conservation area
- LCZ02 = Power easement
- LCZ03 = Forested non-conservation areas
- LCZ04 = Larger scale agricultural use
- LCZ05 = Smaller scale agricultural use

0 0.5 1 1.5 2 2.5 3 3.5 km

SCALE 1:80,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP:LCZ
AUTHOR: NATALIE.WOOD
DATE CREATED: 9/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

RPS A TETRA TECH COMPANY

FIGURE 6-1: VISUAL LANDSCAPE CHARACTER ZONES

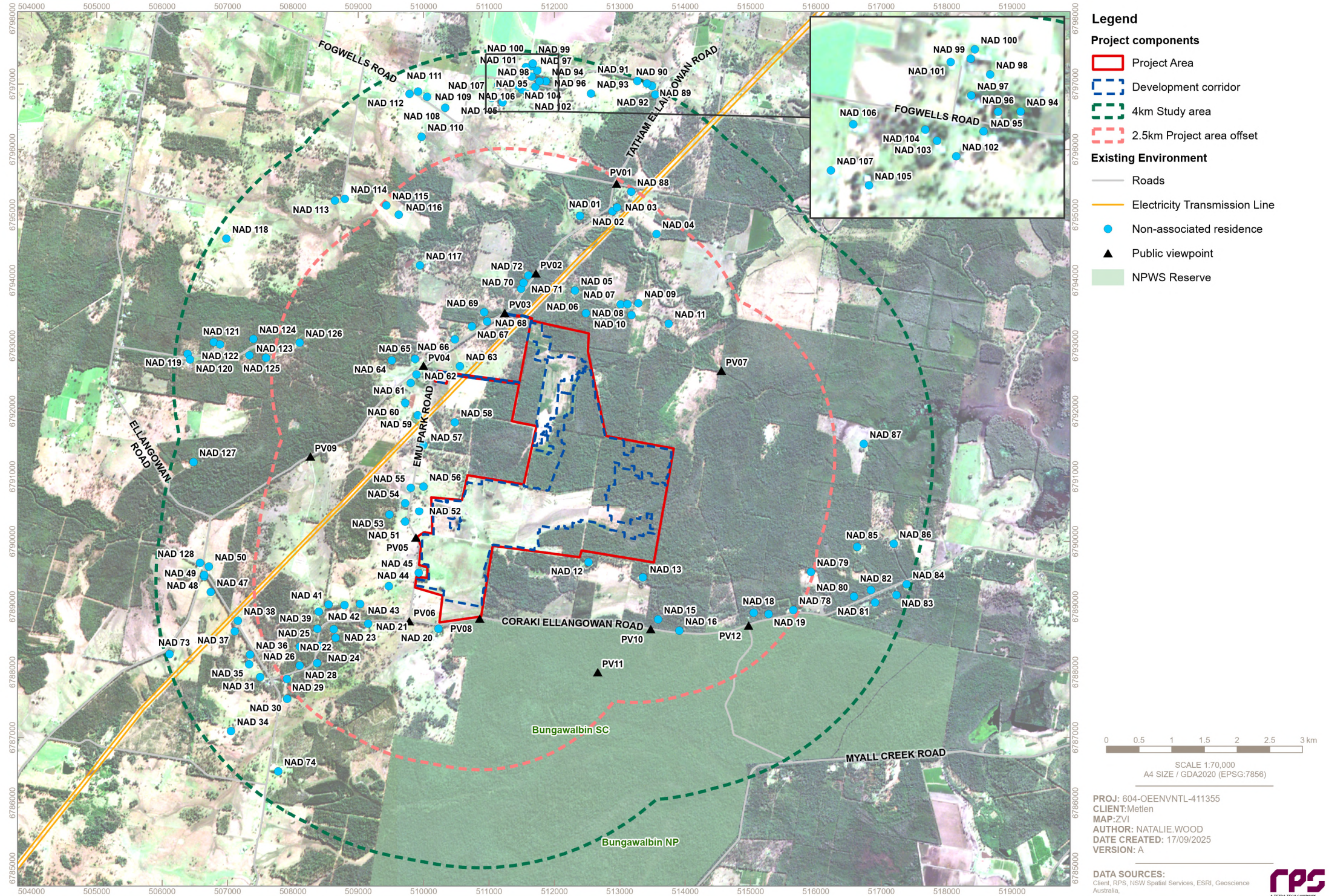


FIGURE 6-2: VISUAL ZONE OF THEORETICAL INFLUENCE

6.3 Noise and Vibration

A summary of the key background, preliminary noise and vibration assessment and proposed EIS assessment approach is provided below.

6.3.1 Background

The Project Area is located within a rural setting and the associated ambient noise levels are expected to be largely from environmental sources (such as birds and insects), agricultural activities and road traffic on Tatham Ellangowan Road, Emu Park Road and Coraki Ellangowan Road. The Project Area and locality typically comprise a relatively flat landscape. There are no receivers within the Project Area as described in **Section 2.3.2**.

The closest sensitive receivers are located adjacent to the Project Area to the west and to the south of the Project Area (refer **Figure 2-3**). Other nearby receivers at least 500 m from the Project Area are primarily located to the west of the Project Area (refer **Figure 2-3**). There are 119 sensitive receivers within 4 km of the Project (refer **Figure 2-3**).

6.3.2 Preliminary Assessment

Construction vehicles and machinery during the construction phase would contribute to noise impacts to nearby receivers, however these activities are temporary in nature. Topographical noise barriers are limited but some noise would be dampened by ground absorption due to soft ground and existing vegetation (see **Figure 2-2**), particularly to the west and south of the Project Area.

Operation of the Project is not expected to have significant noise impacts on sensitive receivers due to the relatively quiet nature of solar electricity generation. Agricultural machinery and construction vehicles and machinery would largely cease during operation of the Project. Noise will likely be generated from the solar tracking system, BESS, substation, switchgear and maintenance works undertaken at the Project Area.

The nearest sensitive receiver is receiver 45 (see **Figure 2-3**), which is located approximately 67 m west of the Project Area. Preliminary modelling was undertaken by Muller Acoustics Pty Ltd, which identified the potentially most affected receivers and associated predicted noise levels. As indicated in **Table 6-2**, the most potentially affected receiver is receiver 52.

Table 6-2 Potentially Most Affected Receivers

Receiver ID	Predicted LAeq(15min) Noise Levels, dBA	
	Standard BESS	Silenced BESS
67	<20	<20
58	<20 to 32	<30
52	31 to 40	<30 to 35
45	<20 to 32	<30
12	<20	<20

Based on minimum assumed rating background noise levels, the criteria for noise levels would be 40dBA for the day period and 35dBA for the evening and night periods.

An annoying characteristics analysis, including tonality and low frequency noise was undertaken on the most affected receiver (receiver 52). Results of this analysis indicated that the Project would not result in annoying characteristics.

6.3.3 EIS Assessment Approach

A Noise Impact Assessment will be prepared to support the EIS, with consideration of the following guidelines:

- 'NSW Large-Scale Solar Energy Guidelines' (DPIE, 2022);
- 'Interim Construction Noise Guideline' (ICNG) (DECC, 2009); and
- 'NSW Noise Policy for Industry' (NPI) (EPA, 2017).

The scope of the Noise Impact Assessment will include:

- Establishment of criteria in accordance with the Noise Policy for Industry;
- Predictions which account for the sound power levels and locations of solar farm, BESS and ancillary infrastructure;
- Construction noise assessment;
- Traffic noise assessment;
- Commentary on vibration impacts; and
- Noise reduction measures where the relevant operational or construction assessment criteria are not achieved.

The Project will be refined as part of the ongoing design process to seek to minimise noise impacts at all sensitive receivers.

Potential modifications to the Project layout or agreements with landowners are options that will be further considered in the EIS process to ensure that compliance with relevant criteria at all residences is maintained.

6.4 Biodiversity

A Preliminary Biodiversity Assessment Report (PBAR) has been prepared by RPS AAP Consulting Pty Ltd (RPS) and is included in full in **Appendix D**.

The PBAR describes biodiversity values and known constraints associated with the Project. The Survey Boundary is the area that applies to the Biodiversity Assessment Method (BAM) inside the Project Area. This area ensures the EIS will adequately identify potential disturbance impacts but also provide flexibility for the proposed layout to be refined within the surveyed area during detailed design. For reference, the Survey Boundary and the Development Corridor are the same.

A summary of the key background, preliminary assessment and EIS assessment approach is provided below.

6.4.1 Background

The Project Area is currently used for cattle and timber production. Much of the vegetation within the Project Area has undergone significant modification due to historic grazing and clearing for forestry. However, there is still a large expanse of land within the Project Area which provides connectivity for fauna species particularly within the central, northern, and eastern extents.

6.4.2 Preliminary Assessment

The following has been undertaken to develop the PBAR:

- Desktop research including review of databases, spatial datasets and likely of occurrence analysis;
- Field surveys:
    - Vegetation surveys including rapid data points, PCT identification and vegetation mapping;
    - Threatened flora searches; and
    - Fauna habitat survey for threatened and native fauna.
- Biodiversity constraints mapping: landscape features and mapped biodiversity values present outside the Project Area were considered.

Surveys were completed in tandem with one another and occurred in September and October 2024.

6.4.2.1 Land Category Assessment

A desktop assessment revealed areas of “Category 1 - Exempt Land” and “Category 2 – Regulated Land” within the Project Area (refer **Appendix D**). Areas that are currently mapped as Category 1 and 2 require in-field assessment to confirm the land category. These assessments will be conducted as part of the EIS.

6.4.2.2 Vegetation Communities

A total of five native PCTs along with cleared / exotic vegetation was confirmed as present across the Project Area during the field investigations.

Vegetation condition ranged from moderate condition in areas of high canopy cover and native groundcover, to poor condition in largely cleared areas.

A summary of PCTs and Threatened Ecological Communities (TECs) within the Project Area are provided in **Table 6-3**. PCTs are preliminary mapped based on the State Vegetation Type Map (STVM) and rapid floristic survey data. TECs are presumed present (based on PCT associated) as per the precautionary principle.

Table 6-3 Plant Community Types and Threatened Ecological Communities in the Project Area

PCT	Description	BC Act	EPBC Act	SAII
N/A		Not listed	Lowland Rainforest of Subtropical Australia (Critically Endangered)	N/A
3420	Clarence Lowland Ironbark-Spotted Gum Grassy Forest	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (Endangered)	Not listed	N/A
3421	Clarence Sandstone Pink Bloodwood Grassy Forest	Not listed	Not listed	N/A
3428	Northern Lowland Red Gum-Swamp Turpentine Grassy Forest	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (Endangered)	Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions (Endangered)	N/A
3987	Far North Floodplain Paperbark-Swamp Oak Forest	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered)	Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community (Endangered)	N/A
4001	Northern Floodplain Paperbark Fern Swamp Forest	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered)	Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland (Endangered)	N/A

6.4.2.3 Aquatic Habitats

The Project Area is within the Richmond River catchment on gently sloped country and contains several dams, all of which will be retained. The largest dam is located within the southwestern extent of Survey Boundary and is approximately 100 m in length. It is subject to inundation and ponds frequently, providing potential habitat for a range of waterbird species, amphibians and fish species.

The dams were almost all observed to hold water and would be an essential water source and foraging habitat for fauna moving through the Project Area.

Five unnamed ephemeral watercourses intersect the Project Area (refer **Figure 2-2**), including include four 1st order watercourses and one 4th order watercourse. The 4th order watercourse is mapped as Category 2 Land. The unnamed 4th order watercourse contains Key Fish habitat (KFH) – Modelled Threatened Species Distribution for the Southern Purple Spotted Gudgeon (*Mogurnda adspersa*) (refer **Appendix D**).

All watercourses within the Project Area drain into Sandy Creek, which is a 5th order watercourse that drains into Bungawalbin Creek, and then the Richmond River approximately 12.5 km east. Sandy Creek, Bungawalbin Creek and the Richmond River are also mapped as KFH lines.

Groundwater dependant ecosystems (GDEs) rely on the presence of groundwater to function and sustain resident assemblages of species, populations, and ecological communities. High potential GDEs occur in low lying areas and consist of PCT 3987 - Far North Floodplain Paperbark-Swamp Oak Forest and PCT 4001 - Northern Floodplain Paperbark Fern Swamp Forest (forested wetlands).

6.4.2.4 Threatened Ecological Communities

Four BC Act listed TECs and three EPBC Act listed TECs are associated with PCTs within the Project Area and may occur within the Development Corridor and immediate surrounds. An additional EPBC Act listed TEC was identified from the PMST and may occur within the Development Corridor and immediate surrounds. These include:

- *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion* (BC Act listed EEC);
- *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion* (BC and EPBC Act listed EEC);
- *Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* (BC and EPBC Act listed EEC);
- *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* (BC and EPBC Act listed EEC) and
- *Lowland Rainforest of Subtropical Australia* (EPBC Act listed CEEC).

6.4.2.5 Threated Flora and Fauna Species

Database searches identified 39 threatened fauna species and 18 threatened flora species as having a moderate to high potential to occur within a 10 km radius of the Project Area (refer **Table 6-4**).

Field investigations have focused on evaluating the importance of habitat located within the survey boundary for these species. The complete Likelihood of Occurrence (LoO) analysis completed as part of the PBAR is contained in **Appendix D**.

Table 6-4 Threatened Species with a Moderate or Greater Likelihood of Occurrence

Scientific Name	Common Name	BC Act	EPBC Act	LoO
Amphibia				
Crinia tinnula	Wallum Froglet	V	-	Moderate
Litoria brevipalmata	Green-thighed Frog	V	-	Moderate
Litoria olongburensis	Olongburra Frog	V	V	Moderate
Mixophyes iteratus	Giant Barred Frog	V	V	Moderate
Aves				
Anthochaera phrygia	Regent Honeyeater	CE	CE	Moderate
Burhinus grallarius	Bush Stone-curlew	E	-	Moderate
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	Moderate
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	V	Moderate
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	CE	E	Moderate
Dromaius novaehollandiae - endangered population	Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	EP	-	High
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Moderate
Erythrotriorchis radiatus	Red Goshawk	E	E	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	LoO
Falco hypoleucos	Grey Falcon	V	V	High
Hirundapus caudacutus	White-throated Needletail	P	V,M,MAR	Moderate
Lathamus discolor	Swift Parrot	E	CE,MAR	Moderate
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	E	E	Moderate
Ninox connivens	Barking Owl	V	-	High
Ninox strenua	Powerful Owl	V	-	Moderate
Parvipsitta pusilla	Little Lorikeet	V	-	High
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	-	Moderate
Turnix melanogaster	Black-breasted Button-quail	CE	V	Moderate
Tyto novaehollandiae	Masked Owl	V	-	High
Insecta				
Argynnis hyperbius	Laced Fritillary	E	CE	Moderate
Mammalia				
Aepyprymnus rufescens	Rufous Bettong	V	-	Moderate
Chalinolobus dwyeri	Large-eared Pied Bat	E	E	Moderate
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Moderate
Miniopterus australis	Little Bent-winged Bat	V	-	Moderate
Myotis macropus	Southern Myotis	V	-	Moderate
Notamacropus dorsalis	Black-striped Wallaby	E	-	Moderate
Petauroides volans	Greater Glider	E	E	High
Petaurus australis	Yellow-bellied Glider	V	V	Moderate
Petaurus norfolcensis	Squirrel Glider	V	-	High
Phascogale tapoatafa	Brush-tailed Phascogale	V	-	High
Phascolarctos cinereus	Koala	E	E	High
Potorous tridactylus tridactylus	Northern long-nosed potoroo	V	V	Moderate
Pseudomys novaehollandiae	New Holland Mouse	P	V	Moderate
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	High
Reptilia				
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	V	V	Moderate
Saltuarius moritzi	Moritz's leaf-tailed gecko	-	E	Moderate
Flora				
Arthraxon hispidus	Hairy Jointgrass	V	V	Moderate
Cryptostylis hunteriana	Leafless Tongue Orchid	V	V	Moderate
Eucalyptus glaucina	Slaty Red Gum	V	V	High
Hibbertia marginata	Bordered Guinea Flower	V	V	Moderate
Macadamia integrifolia	Macadamia Nut	-	V	Moderate
Macadamia tetraphylla	Rough-shelled Bush Nut	V	V	Moderate
Marsdenia longiloba	Slender Marsdenia	E	V	Moderate
Myrsine richmondensis	Ripple-leaf Muttonwood	E	E	Moderate
Owenia cepiodora	Onion Cedar	V	V	Moderate
Pedleya acanthoclada	Thorny Pea	V	V	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	LoO
Persicaria elatior	Tall Knotweed	V	V	High
Phaius australis	Southern Swamp Orchid	E	E	Moderate
Polygala linariifolia	Native Milkwort	E	-	High
Rhodamnia rubescens	Scrub Turpentine	CE	CE	Moderate
Rhodomyrtus psidioides	Native Guava	CE	CE	Moderate
Syzygium hodgkinsoniae	Red Lilly Pilly	V	V	Moderate
Thesium australe	Austral Toadflax	V	V	Moderate
Tylophora woollsii	Cryptic Forest Twiner	E	E	Moderate

V = Vulnerable, E = Endangered, CE = Critically Endangered, MAR = Marine, M = Migratory, - = Not listed

Flora

No threatened flora species were recorded within the Survey Boundary during preliminary surveys. Three occurrences of *Polygala linariifolia* and two occurrences of *Eucalyptus glaucina* have been previously recorded outside of the Project Area on neighbouring properties (refer **Figure 6-3**).

A total of 43 flora candidate species were identified as relevant to this assessment, of which ten are listed as entities at risk of a SAII:

- Green-leaved Rose Walnut (*Endiandra muelleri subsp. Bracteate)*
- Mason's Grevillea (*Grevillea masonii)*
- Narrow-leaf Melichrus (*Melichrus gibberagee)*
- Ripple-leaf Muttonwood (*Myrsine richmondensis)*
- Sweet False Galium (*Oldenlandia galioides)*
- Swamp Mint-bush (*Prostanthera palustris)*
- *Prostanthera sejuncta*
- Scrub Turpentine (*Rhodamnia rubescens)*
- Native Guava (*Rhodomyrtus psidioides)*
- *Rotala tripartite.*

Fauna

One threatened fauna species, the Brown Treecreeper - eastern subspecies (*Climacteris picumnus victoriae*) was opportunistically identified within the Survey Boundary. The species is an ecosystem credit species and is listed as Vulnerable under the BC Act and EPBC Act.

Fifty-four threatened fauna species have been identified as candidate species relevant to this assessment of which 14 are listed entities at risk of a SAII:

- Regent Honeyeater *(Anthochaera phrygia) (Breeding)*
- Laced Fritillary *(Argynnis hyperbius)*
- Curlew Sandpiper *(Calidris ferruginea) (Breeding)*
- Red-tailed Black-Cockatoo *(Calyptorhynchus banksii banksia)*
- Large-eared Pied Bat *(Chalinolobus dwyeri)*
- Red Goshawk *(Erythrotriorchis radiatus)*
- Beach Stone-curlew *(Esacus magnirostris) (Breeding)*
- Swift Parrot *(Lathamus discolor) (Breeding)*

- Little Bent-winged Bat *(Miniopterus australis) (Breeding)*
- Large Bent-winged Bat *(Miniopterus orianae oceanensis) (Breeding)*
- Eastern Curlew *(Numenius madagascariensis) (Breeding)*
- Coastal Petaltail *(Petalura litorea)*
- Mitchell's Rainforest Snail *(Thersites mitchellae)*
- Eastern Cave Bat *(Vespadelus troughtoni)*

6.4.2.6 Matters of National Environmental Significance

Based on the results of a Protected Matters Search Tool and the findings of the preliminary field investigations, Matters of National Environmental Significance (MNES) under the EPBC Act include:

- Four Commonwealth listed TECs are predicted to occur within the Project Area and/or a 10 km buffer around the Project Area;
- 40 listed threatened species are predicted to occur within the Project Area and/or a 10 km buffer around the Project Area. One EPBC Act listed threatened fauna species, the Brown Treecreeper - eastern subspecies (*Climacteris picumnus victoriae*), was opportunistically identified within the survey boundary; and
- One listed migratory species are predicted to occur within the Project Area and/or a 10 km buffer around the Project Area.

The MNES listed above, along with any other MNES recorded or predicted as likely to occur within the Project Area, will require consideration as part of ongoing ecological assessments.

A referral of the Project to DCCEEW will provide a determination as to whether the Project is considered a "Controlled Action" under the EPBC Act. The above listed MNES will form the basis of potential impacts included in the Referral. The MNES search results are contained within **Appendix D**.

6.4.2.7 Biodiversity Values and Direct Impacts

The indicative Development Corridor has been developed following initial efforts to avoid and minimise impacts to biodiversity values as shown in **Table 6-5** and **Figure 3-2**.

There are no mapped Biodiversity Values within the Project Area. The nearest Biodiversity Value area is Sandy Creek which is located approximately 850 m north and Branch Creek which is located approximately two km northwest of the Project Area. Both watercourses contain biodiverse riparian land.

Native vegetation disturbance is approximately 198.04 ha and preliminary TEC impacts of 48.46 ha.

Table 6-5 Estimated Project Direct Impacts to Biodiversity

Biodiversity value	Estimated impacts
Native vegetation	
• PCT 3420: Clarence Lowland Ironbark-Spotted Gum Grassy Forest • PCT 3421: Clarence Sandstone Pink Bloodwood Grassy Forest • PCT 3428: Northern Lowland Red Gum-Swamp Turpentine Grassy Forest • PCT 3987: Far North Floodplain Paperbark-Swamp Oak Forest • PCT 4001: Northern Floodplain Paperbark Fern Swamp Forest	Total: 198.04 ha
TECs	
• *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion* (BC Act listed EEC) • *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion* (BC and EPBC Act listed EEC) • *Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* (BC and EPBC Act listed EEC)	• 27.14 ha • 20.95 ha • 0.22 ha • 0.15 ha Total: 48.46 ha

Biodiversity value	Estimated impacts
• *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* (BC and EPBC Act listed EEC)	

6.4.3 EIS Assessment Approach

6.4.3.1 Overview

Project infrastructure has been predominantly located in areas considered to be of lower risk to biodiversity values. Potential impacts to native vegetation and TECs, threatened species and watercourses and riparian buffers will require further assessment as part of the EIS.

6.4.3.2 Biodiversity Development Assessment Report

In accordance with Section 7.9 of the BC Act, biodiversity impacts will be assessed through a biodiversity development assessment report (BDAR) prepared by an accredited person under the BC Act, in accordance with the *Biodiversity Assessment Methodology 2020* (BAM 2020) (DPIE 2020b).

The targeted and seasonal surveys that will inform the BDAR have commenced and will be delivered as part of the EIS.

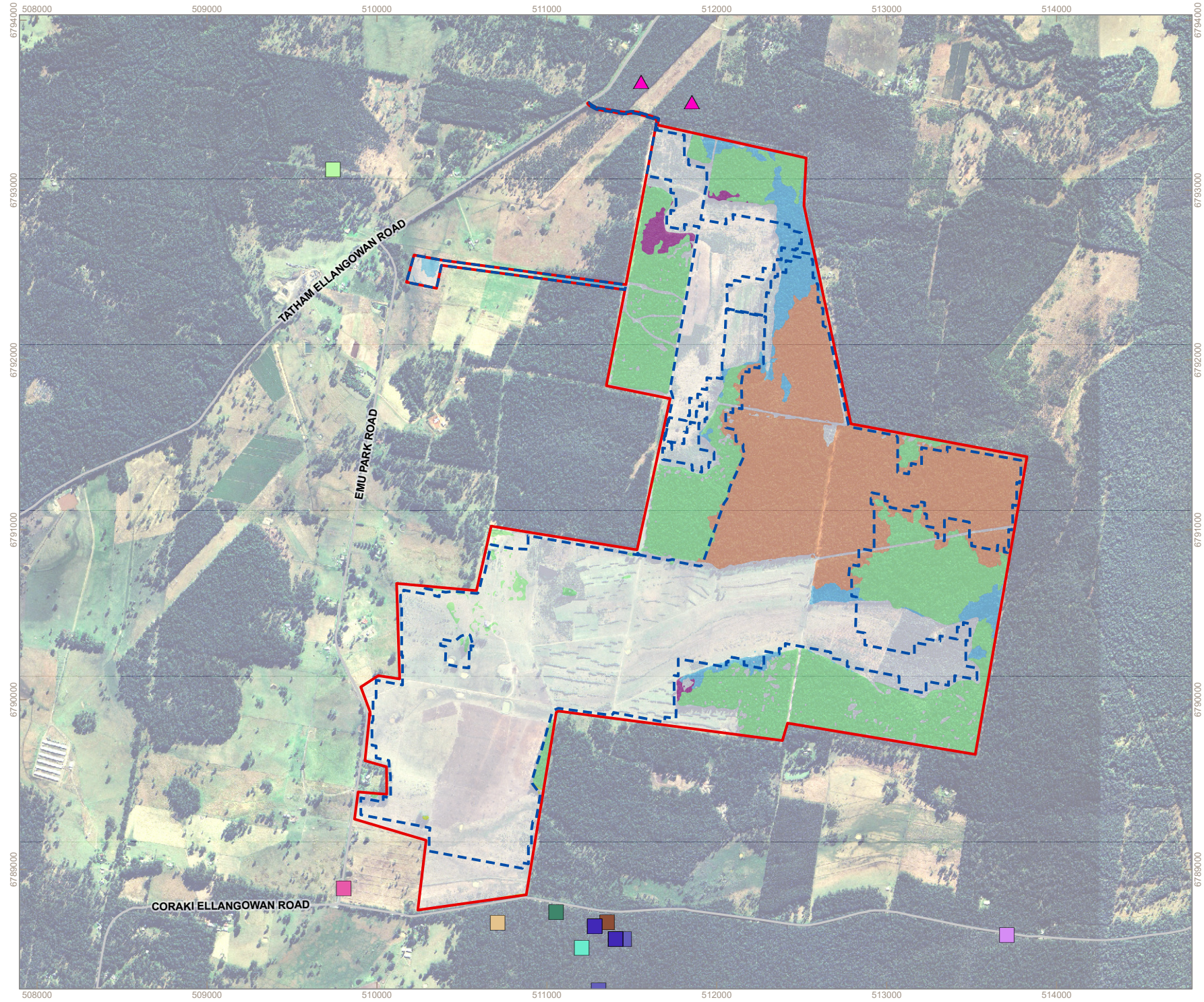
Where the project is likely to impact habitat for a threatened species (identified through the preparation of a species polygon), and / or native vegetation with a vegetation integrity score greater than 17, the project will require biodiversity offsets. The BDAR will calculate the number and type of credits required in accordance with the BAM. These biodiversity offsets would be secured through the establishment of a biodiversity stewardship agreement to generate the credits.

Impacts to SAII candidate species will be considered in accordance with Section 9.1 of the BAM, allowing the Minister of Planning to decide whether the project is likely to result in an SAII.

6.4.3.3 EPBC Referral

The Project is considered unlikely to significantly impact MNES however, EPBC Act assessment requirements will be considered and addressed with an EPBC Referral and if deemed “controlled” would be assessed under the Bilateral Agreement.

The Biodiversity Offset Scheme (BOS) will apply to the assessment, generating an offset requirement for the Project. Establishment of Biodiversity Stewardship Sites to satisfy the Project’s offset credit obligation is likely to be the most effective approach for the Project.



Legend

Project components

- Project Area
- Development corridor

Threatened Flora

- Polygala linariifolia

Threatened Fauna

- Barking Owl
- Black-necked Stork
- Brush-tailed Phascogale
- Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area
- Grey-headed Flying-fox
- Koala
- Masked Owl
- Regent Honeyeater
- South-eastern Glossy Black-Cockatoo
- Southern Greater Glider
- Squirrel Glider

Plant Community Types

- 3420 - Clarence Lowland Ironbark-Spotted Gum Grassy Forest
- 3421 - Clarence Sandstone Pink Bloodwood Grassy Forest
- 3428 - Northern Lowland Red Gum-Swamp Turpentine Grassy Forest
- 3987 - Far North Floodplain Paperbark-Swamp Oak Forest
- 4001 - Northern Floodplain Paperbark Fern Swamp Forest
- 0 - Planted or Exotic Dominant

0 0.5 1 km

SCALE 1:30,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Ecology
AUTHOR: NATALIE.WOOD
DATE CREATED: 9/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

rps
A TETRA TECH COMPANY

FIGURE 6-3: ECOLOGY

6.5 Aboriginal Heritage

A summary of the background, preliminary Aboriginal heritage assessment and proposed EIS assessment approach is provided below.

6.5.1 Background

The Project Area is situated on the lands of the Bundjalung people within the Bogal Local Aboriginal Land Council (LALC). There are an estimated 20 different language groups that make up the lands of the Bundjalung people. The Bundjalung people are the traditional custodians of the northern coastal region of NSW encompassing an area that stretches from the Clarence River in the south to the Richmond River in the north and inland to the Great Dividing Range. Bundjalung history dates back tens of thousands of years, with rich cultural traditions deeply connected to the land, waterways, and natural environment (Richmond Valley Council, 2025).

Bundjalung cultural practices included large resource-based gatherings, corroborees and ritual fighting. Traditional ways of living depended on a variety of natural resources for sustenance. The Project Area is situated within a wider cultural environment that includes songlines, native foods, and signs of seasonal trading between inland and coastal communities. This indicates a strong connection and interaction between different regions of the Bundjalung Nation (OzArk, 2023).

The Project Area is located within the North Coast Bioregion. The high diversity and abundance of natural resources available to the Aboriginal people of the North Coast Bioregion resulted in a high density of Aboriginal occupation in the bioregion, particularly around the northern rivers close to the coast (NSW NPWS, 2003). The marine environment coupled with the lush vegetation along the coast provided the people with much of what they needed to survive. The Bundjalung people lived as hunters, gatherers, and fishers (NSW NPWS, 2003).

The North Coast Bioregion is located upon Devonian and Permian bedrocks that are part of the New England Fold Belt. Past plate tectonic activity and volcanic processes formed the Tweed Volcano and Mount Warning Shield Volcano (now a caldera) on the NSW-Queensland border, the Glass House Mountains further north and Mount Surprise in North Queensland (Geoscience Australia, 2014). The region also contains plateaus that over time have eroded back to form river systems. Rapid headward erosion of these streams formed the Great Escarpment and cut deep gorges back into the plateau areas (NSW NPWS, 2003). The Bioregion covers the coastline to the Great Escarpment along the Great Dividing Range.

These geological processes have formed steep slopes, rugged hills and large river systems across area the Project Area is located upon. Alluvial sediment underlies most of the Project Area, which is susceptible to erosion, resulting in less potential for subsurface archaeological deposits to occur.

The Study Area does not contain any perennial watercourses, however, several ephemeral waterways are present. This may indicate that more permanent nearby watercourses may have been preferred for long-term Aboriginal occupation (Umwelt, 2024) such as Sandy Creek in the north, Bungawalbin Creek in the south-east and the larger Richmond River to the east. However, there is potential for Aboriginal heritage sites to be located on the surface, or in shallow deposits, along watercourses. Native trees near water channels could have been harvested for their bark to make watercraft.

6.5.2 Preliminary Assessment

An extensive AHIIMS search was completed on 5 August 2025 and did not identify any sites within the Project Area. Two AHIMS sites were identified four and 4.5 km southeast from the Project Area (refer **Figure 6-4**).

A search of the Native Title Tribunal Register on 5 August 2025 did not identify any Native Title Claim land within the Project Area. There is Native Title adjacent to the Project Area (NCD2013/002) within the Bungawalbin State Conservation Area and State Forest. There is also a small parcel of land to the north-west of the Project that is part of this claim as shown on **Figure 2-3**.

Based on the geological landscape and identified AHIMS sites in the surrounding area, there is potential for unknown Aboriginal sites and cultural heritage values to be present within the Project Area.

6.5.3 EIS Assessment Approach

An Aboriginal Cultural Heritage Assessment Report (ACHAR) will be prepared to support the EIS in accordance with:

- 'Code of Practice for the Investigation of Aboriginal Objects in New South Wales' (DECCW, 2010);
- 'Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW' (OEH, 2011); and
- 'Aboriginal Cultural Heritage Consultation Requirements for Proponents' (ACHCRs) (DECCW, 2010a).

The ACHAR will consider the archaeological potential of the Project Area and document environmental mitigation measures that will need to be implemented.

The ACHAR will include:

- Literature review and predictive model development (as required);
- Comprehensive investigation (including adequate pedestrian field survey, consultation with RAPs, sensitivity mapping, and results from any archaeological test excavation (if required)). Any required investigations will be undertaken in accordance with all relevant guidelines as outlined in **Appendix B;**
- Identification of potential Project impacts on items of Aboriginal heritage and cultural values;
- Definition of any required management and mitigation measures in relation to identified impacts; and
- As required by conditions of development consent, commitment to the preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) in consultation with RAPs to ensure appropriate management of any identified Aboriginal heritage.

6.6 Historic Heritage

A summary of the background, preliminary historic heritage assessment and proposed EIS assessment approach is provided below.

6.6.1 Background

British settlement of the Richmond Valley commenced in the early 1800s. British settlers gravitated towards the fertile land adjacent to the river which encouraged the prosperity of agricultural, cattle and forestry industries. In the late 1800s, the cultivation of sugarcane also arose as a key industry, supported by the fertile soils along the river. Approximately 20 years later, the dairy industry was introduced to the area and became a key industry over the next century.

The town of Casino was established in the 1850s as a river port for the transportation of goods. The erection of the port enabled a growth in agriculture and became a key centre of trade and commerce in the area. Transportation of goods was largely undertaken through river and road transport. The connection of the North Coast railway to Casino in 1905 enabled a boom in population, as well as the growth of cattle and agriculture industries (Stubbs 2007, Gardiner 2007).

Richmond Valley provided support during World War II and was utilised as a military training area. Post World War II, the area continued to develop through the continuation of the sugar industry and the emergence of new industries including tourism, beef cattle and horticulture.

Prior to British settlement, Richmond Valley was populated by the Bundjalung Aboriginal people, who inhabited the area for thousands of years. The Bundjalung people had a close connection to the land and the river and surrounding resources were utilised for cultural practices and nourishment.

6.6.2 Preliminary Assessment

6.6.2.1 Heritage Register Searches

Commonwealth Heritage List

The Commonwealth Heritage List includes natural, Indigenous and historical heritage places owned or controlled by the Australian Government. Items on the list have satisfied the Minister as having one or more Commonwealth Heritage values.

A search of the Commonwealth Heritage Register was conducted in August 2025. There are no Commonwealth Heritage listed places within or in proximity to the Project Area. The closest Commonwealth listed heritage site is the Casino Post Office, located 16 km northwest of the Project Area.

National Heritage List

The Australian National Heritage List contains natural, historic, and Indigenous places deemed to be of outstanding national heritage significance. Before a site is placed on the list, a nominated place is assessed against nine criteria by the Australia Heritage Council.

A search of the National Heritage List was conducted in August 2025. There are no National Heritage listed places within or in proximity to the Project Area.

State Heritage Register

A search of the NSW State Heritage Inventory (SHI) was conducted in August 2025. No historic heritage listings have been identified in the Project Area. Proximate listings are identified on **Figure 6-4** and outlined below:

- Ellangowan Public Hall (located approximately 3 km west of the Project Area) (LEP item #I119); and
- 'Hindmarsh Grave' (located approximately 6 km southwest of the Project Area) (LEP item #I120).

A small portion 'High Conservation Value Old Growth Forest' (State Heritage Register item #01487) is located approximately 2.3 km southeast of the Project Area.

Section 170 Heritage Register

Section 170 of the *Heritage Act 1977* requires all NSW state agencies to identify, conserve and manage the heritage assets owned, managed and occupied by that agency. In order to facilitate this, Section 170 heritage registers were established for all NSW government agencies. These registers are held and maintained by each state agency and updated as assets are acquired, altered, or decommissioned.

A search of the Section 170 Heritage Register was conducted in August 2025. No Section 170 heritage places are located within or in close proximity to the Project Area. 'Casino Railway Precinct and Locomotive Depot' is listed on the Section 170 Heritage Register located in Casino, 18 km northwest of the Project Area.

6.6.3 EIS Assessment Approach

This preliminary assessment did not identify any historic heritage items within the Project Area listed on National, State or Local statutory heritage registers. There remains the potential for historical archaeological relics to be present in the Project Area considering the continuous European presence since the 1800s.

Further assessment is required to establish the historic archaeological potential for the Project Area. A Historic Heritage Impact Assessment (HHIA) will be prepared to support the EIS, following:

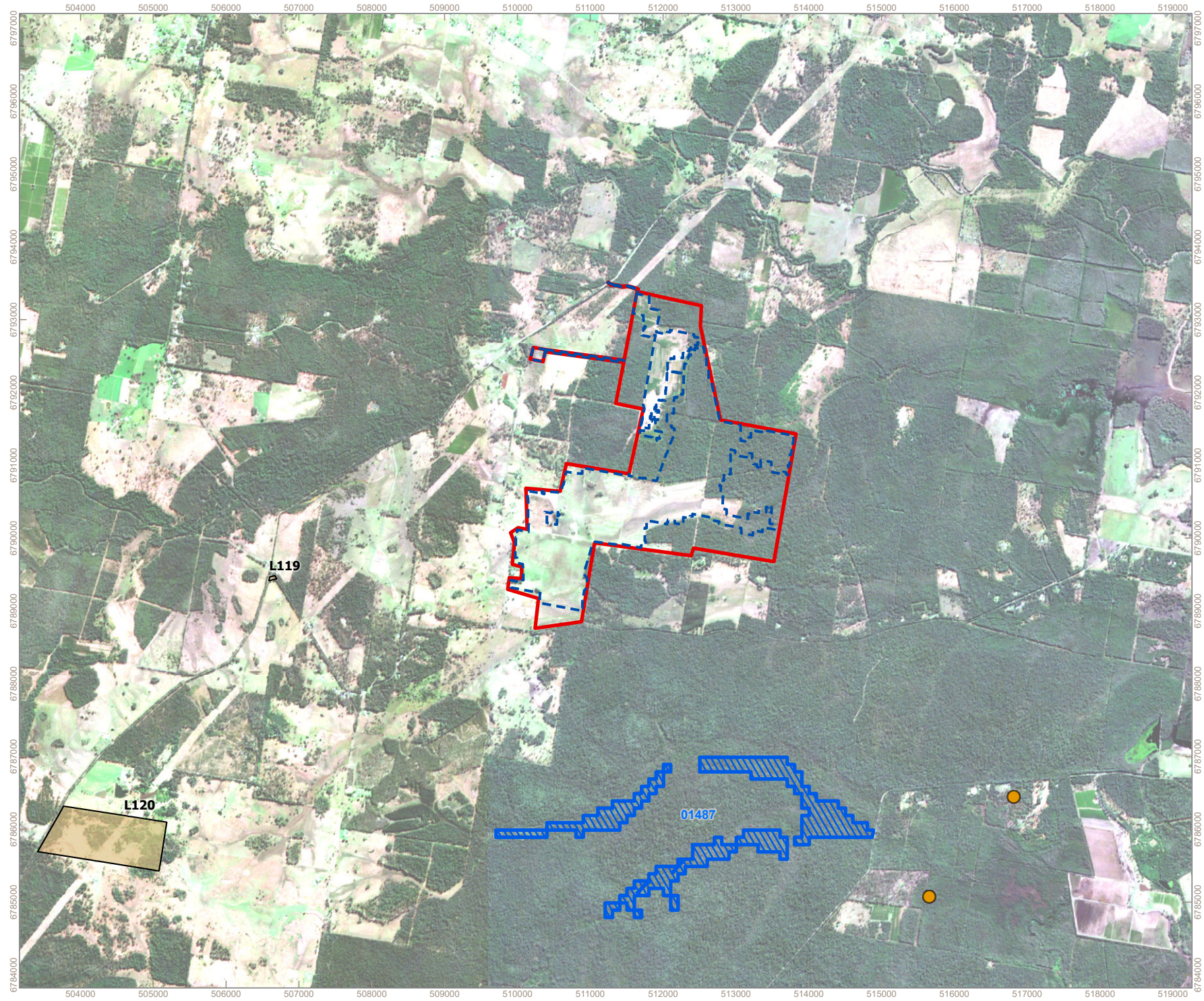
- 'Archaeological assessment guidelines' (NSW Heritage Office & DUAP, 1996) and
- 'Assessing Significance for Historical Archaeological Sites and Relics' (NSW Heritage Branch, Department of Planning 2009).

The scope of the HHIA will include (but not be limited to):

- A desktop assessment;
- Site inspection to ground-truth the desktop assessment;

- Significance assessment;
- Impact assessment; and
- Identification of any required mitigation and management for any items of significance.

The HHIA would align with the guidelines outlined in **Appendix B.**



Legend

- Project Area
- Development corridor
- State Heritage Register
- Local heritage item
- AHIMS

0 0.5 1 1.5 2 2.5 3 km

SCALE 1:70,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Heritage
AUTHOR: NATALIE.WOOD
DATE CREATED: 9/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

A TETRA TECH COMPANY

FIGURE 6-4: HERITAGE

6.7 Traffic and Transport

A summary of the background, preliminary traffic assessment and proposed EIS assessment approach is provided below.

6.7.1 Background

Site Access

Construction of the Project will result in increased volumes of traffic, including both light and heavy vehicles used to transport construction workers, materials and other equipment to and from the Project Area.

Once construction of the Project has been completed, traffic associated with ongoing operations of the Project will be negligible and will generally involve only light vehicle movements for operational personnel.

As discussed in **Section 3.2.2.2**, up to two site entrances are proposed at present, one from Tatham Ellangowan Road and the other from Emu Park Road. It is likely that detailed design will confirm a single entrance or primary entrance with the remaining being used as an emergency exit. Some towns may need to be intersected during haulage routes such as Tweeds Head, Ocean Shores, West Ballina and Grafton. Towns along the motorway from Brisbane include Woodburn, Bangalow and Ewingsdale.

Port to Site

The Project Area is located 21 km southeast of Casino, 243 km south of Brisbane, 570 km north of Newcastle and 710 km north of Sydney by road. The major components for the Project (e.g. solar arrays, transformer, etc) are anticipated to be delivered to Port of Brisbane and transported by road to the Project Area. This will be confirmed in the EIS.

The Project Area is immediately serviced by Summerland Way, a major road which likely has the capacity to carry oversize and overmass (OSOM) vehicles to and from the Project Area. This will be confirmed in the EIS.

The Port of Brisbane Motorway (M4) and the Gateway Motorway (M1) would likely be used from Brisbane, and the Pacific Motorway from Ellangowan.

The transport route of the major components and other Project related materials will be subject to a Port and Transport Route Assessment, which will be prepared as part of the EIS, the outcomes of which will be incorporated into the Traffic and Transport Impact Assessment (TTIA). This will identify a proposed transport route from the receiving port(s) to the Project Area, as well as any required road upgrades.

Whilst a port and transport route has not yet been determined, the ports of origin identified above will be refined, and/or the preferred route(s) confirmed in the EIS.

6.7.2 Preliminary Assessment

The construction of internal access tracks will also be required throughout the Project Area to facilitate construction and to allow for maintenance to occur throughout the operational and decommissioning phases of the Project.

The Project may require upgrades to roads along the transport route. The details and specifications of these upgrades will be dependent on the size of the vehicles and infrastructure required to be delivered to the Project Area and are subject to assessment in a Transport Route Assessment. Traffic impacts to local road users will also be assessed.

A Scoping Assessment was undertaken by Amber to provide a preliminary assessment of traffic related matters for the Project, including site access and a preliminary Oversize Overmass (OSOM) route study. The preliminary route is indicated in **Figure 6-5**. A summary of the preliminary route is outlined in **Table 6-6**.



Figure 6-5 Preliminary OSOM Route – Port of Brisbane via Grafton

Table 6-6 Preliminary OSOM Route Overview - Port of Brisbane via Grafton

Ref	Road
1	Port Drive
2	Port of Brisbane Motorway
3	Gateway Motorway
4	Pacific Motorway
5	Tugun Currumbin Road
6	Gold Coast Highway
7	Pacific Motorway
8	Big River Way
9	New Grafton Bridge
10	Pound Street
11	Villiers Street
12	Oliver Street
13	Turf Street

Ref	Road
14	Summerland Way
15	Ellangowan Road
Access option 1:	
16	Fogwells Road
17	Tatham Ellangowan Road
Access option 2:	
18	Coraki Ellangowan Road
19	Emu Park Road

Further assessment will include detail of potential road upgrades, interaction and any potential conflict between heavy vehicles and school buses and a sight distance assessment in accordance with the *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* for each site access point and local road intersection will be completed as part of the EIS.

An OSOM Route Assessment was undertaken by Amber from the Port of Brisbane to assess the route options available for the transportation of the transformer, anticipated to be the largest and heaviest component delivered to the Project Area. This route assessment may be updated as part of the EIS.

6.7.3 EIS Assessment Approach

A Transport Route Assessment will be included as an appendix to the TTIA which will consider potential transportation routes for construction traffic and potential impacts of the size, loads, and volumes of vehicles on the road network. The TTIA will generally be prepared in accordance with the guidelines outlined in **Appendix B.**

The scope of the TTIA will likely involve:

- Re-assessment of haulage routes, access points, and swept paths through intersections to determine potential risks and impacts from the largest vehicles (OSOM);
- Review of any previous traffic impact assessments undertaken for the surrounding area and traffic counts in selected areas;
- Assessment of likely project and cumulative traffic impacts during the construction and operational phases of the project (including intersection performance, capacity, safety and site access);
- Assessment of the potential traffic impacts of the Project on road network function including intersection performance, site access arrangements, site access and haulage routes, and road safety (including school bus routes and school zones);
- Identification of any road upgrades required, if any;
- Assessment of the potential impacts of the proposed works on residences and access ways; and
- Identification of mitigation and management measures.

6.8 Water Resources

A summary of the background, preliminary water resources impact assessment and proposed EIS assessment approach is provided below.

6.8.1 Background

Soils will be subject to disturbance during construction activities associated with site establishment, installation of infrastructure and replacement of soils for revegetation. Therefore, the Project has a potential to result in impacts to downstream watercourses without appropriate management and mitigation measures.

Operational and maintenance activities require water use and may also lead to impacts on water resources in the absence of management and mitigation measures.

6.8.2 Preliminary Assessment

6.8.2.1 Surface Water

The Project Area is located within the Northern Rivers Catchment area.

'Stream order' is used to describe the hierarchy of streams from the top to the bottom of a catchment. The Strahler system is based on the confluence (joining) of streams of the same order. A 1st order stream has no other streams flowing into it. When two streams with different orders join, the resulting stream has the same order as the highest order of the two joining streams (DPIE Water, 2024).

The Project Area is located 13 km west of the Richmond River at its closet point.

Five unnamed watercourses intersect the Project Area (refer **Figure 2-2**), including include four 1st order ephemeral watercourses and one 4th order ephemeral watercourse.

There are three watercourses within 3 km of the Project Area, including:

- Sandy Creek – 5th order perennial watercourse
- Camp Creek – 4th order ephemeral watercourse
- Branch Creek – 3rd order ephemeral watercourse

There are several dams located across the Project Area. The largest being located in the south-western portion of the Project Area.

The Project Area is located between 10 to 40 m Above Surface Level (ASL). Casino and surrounding towns within the Richmond River catchment experience major flood events with the large watercourses and high annual rainfall. (BMT, 2023). The largest flood on record occurred in February/March 2022, with other significant floods occurring in February 1954, March 1974, January 2008 and May 2009 (BMT, 2023).

A flood study completed for the Richmond River Catchment in 2023 (BMT, 2023) did not model the area the Project Area is located upon. However, the proximity of the Project Area of the modelled area to the Project Area shows that it is unlikely to be included within the probable maximum flood (PMF) area.

6.8.2.2 Groundwater

Due to the nature of the proposed construction works, there would be limited to no impact to groundwater. Standard mitigation measures would manage the small risk of contaminants into groundwater.

Groundwater Dependent Ecosystems (GDEs) are discussed at **Section 6.4.2.3.**

6.8.3 EIS Assessment Approach

A relevant assessment of water resources will be undertaken for inclusion in the EIS which includes:

- Water Resources Assessment:
  - Identify the existing water resources and environment;
  - Assess the potential impacts of the Project on water resources and hydrology;
  - Assess the potential impacts of the Project on groundwater;
  - Consider water quality, water balance, water licensing and management; and
  - Identify and indicatively quantify sources of water required during construction and operation of the Project and determine whether any water access licences under the WM Act are required.
- A relevant assessment of the likely impacts on surface water resources, including local waterbodies and Groundwater Dependent Ecosystems (GDEs);

- Identification of any works within 40 m of the high bank of any waterfront land, impacts and required mitigation;
- A discussion of construction erosion and sediment control measures to ensure that impacts during excavation, road works, transport of machinery, etc. are adequately mitigated through avoidance, minimisation and management; and
- Measures to monitor, reduce and mitigate the impacts of the Project.

The water impact assessment will be generally undertaken in accordance with the guidelines outlined in **Appendix B**.

A detailed groundwater assessment is not required for the Project. Groundwater will only be addressed at a high level in the EIS in relation to proposed minor management measures as part of post-approvals' documentation.

Flood modelling is not proposed to be undertaken for the Project.

6.9 Agriculture and Land Resources

A summary of the background, preliminary agricultural and land resources assessment and proposed EIS assessment approach is provided below.

6.9.1 Background

Soils will be subject to disturbance during construction activities associated with site establishment, installation of infrastructure and rehabilitation of soils for revegetation. Operational and maintenance activities may also lead to impacts on land resources within the Project Area.

The majority of soils within the Project Area have been subject to previous disturbance by land clearing and agricultural activities as described in **Section 2.5**.

6.9.2 Preliminary Assessment

6.9.2.1 Soils

A preliminary review of the Soil and Land Capability (LSC) Mapping data for NSW (NSW SEED Database, 2025) was undertaken in July 2025. The mapped LSC classes within the Project Area are illustrated on Figure 6-6 and are regionally mapped as the following:

- LSC Class 4 – moderate capability land: 549.69 ha of land within the Project Area has moderate to severe limitations and typically cannot sustain high impact land uses. Lower impact land uses such as grazing can managed by utilising readily available practices;
- LSC Class 5 – low capability land: 149.35 ha of land within the Project Area has severe limitations for high-impact land uses, with the exception of specialised land management practices to manage resources such as high value crops. Lower impact land uses such as grazing can managed by utilising readily available practices;
- LSC Class 6 – very low capability land: 79.46 ha of land within the Project Area has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation (NSW OEH, 2012); and
- LSC Class 3 – high capability land: 29.08 ha of land within the Project Area has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation (NSW OEH, 2012).

A review of the Australian Soil Classification (ASC) Soil Type Map of NSW (NSW Seed Database, 2025) in July 2025 identified that the Project Area mostly contains Kurosols, followed by a portion of Kurosols-natric in the north and small parcels of Dermosols in the west.

Kurosols are classified as soils that contain a clear or abrupt textural B horizon and where the major part of the upper 0.2 m of the B2t horizon (or the major part of the entire B2t horizon if it is less than 0.2 m thick) is strongly acidic. Dermosols are classified as other soils with B2 horizons that have a grade of pedality greater than weak throughout the major part of the horizon (Soil Science Australia, 2025).

A search of the Strategic Regional Land Use Policy Map in July 2025 showed small parcels of Biophysical Strategic Agricultural Land (BSAL) in the west of the Project Area, in line with the LSC Class 3 land.

6.9.2.2 Land Contamination

Contamination is managed under the *Contaminated Land Management Act 1997* (CLM Act). A search of the NSW EPA Contaminated Land Record of Notices in July 2025 for the Richmond Valley LGA showed one notice in Casino located 17 km northwest of the Project Area.

Acid Sulphate Soils (ASS) are naturally occurring soils that contain high concentrations of micro-crystalline iron sulphide (pyrite), which on contact with oxygen and water combines to become sulfuric acid, potentially making the soil highly acidic. A search of the NSW Planning Portal database in July 2025 did not identify any ASS within the Project Area.

A search the Protection of the Environment Operations (POEO) Public Register in August 2025 (EPA, 2025) found one EPL Licence within 5 km of the Project Area for extractive activities located 1.9 km west of the Project Area.

A search of the Contaminated Land Record within the Richmond Valley LGA in September 2025 found one notice within the LGA. The site is approximately 16 km north of the Project Area and as a result no risks associated with registered contaminated sites are considered likely due to the proximity of the site from the Project Area.

A search of the UXO Map (Defence, 2025) in August 2025 did not indicate potential for UXO presence within or in close proximity to the Project Area.

A search of the Naturally Occurring Asbestos SEED Map (NSW Government, 2025) in August 2025 indicated that the Project Area does not contain and is not in close proximity to naturally occurring asbestos.

6.9.3 EIS Assessment Approach

The Solar Guidelines (DPHI, 2022) provide guidance on the process for assessing impacts on agricultural land. The EIS will follow the process generally outlined in Appendix A of the Solar Guidelines.

Figure 4 in the Solar Guidelines contains a flow chart to determine the level of assessment required for the EIS as shown on **Figure 6-7**. From this, the Project:

- Is located on RU1 zoned land;
- Contains land mapped between LSC 1-4; and
- Contains land mapped as BSAL.

Therefore, site verification will be undertaken to determine whether the land within the Project Area is one of the following:

- LSC Class 1-3: in which a Level 3 Detailed assessment would be required; or
- LSC Class 4: in which a Level 2 Reduced assessment would be required; or
- LSC Class 5 – 8 land or adjacent to land zoned RU1: in which a Level 1 Basic assessment would be required.

Field confirmation will consider the regionally mapped Class 3 land as a priority. Further project adjustments including design avoidance may be undertaken as part of the EIS. Where verified LSC Class 3 land is unable to be avoided, a Level 3 Detailed Assessment would be required. This would include:

- A detailed assessment of whether the project would significantly impact the local or regional agricultural industry, including production and supply chains;
- Justification for the project considering other alternatives which would have lesser impacts on agricultural land. Applicants must demonstrate that other project sites and siting options have been considered and state the reasons why the site and layout was chosen over alternative options; and
- An analysis of whether site design could be amended to reduce impacts.

Further assessment requirements that will be adhered to are included within the Solar Guidelines (DPHI, 2022). The Agricultural and Soil Impact Assessment (ASA) will consider the requirements and guidelines outlined in **Appendix B.**

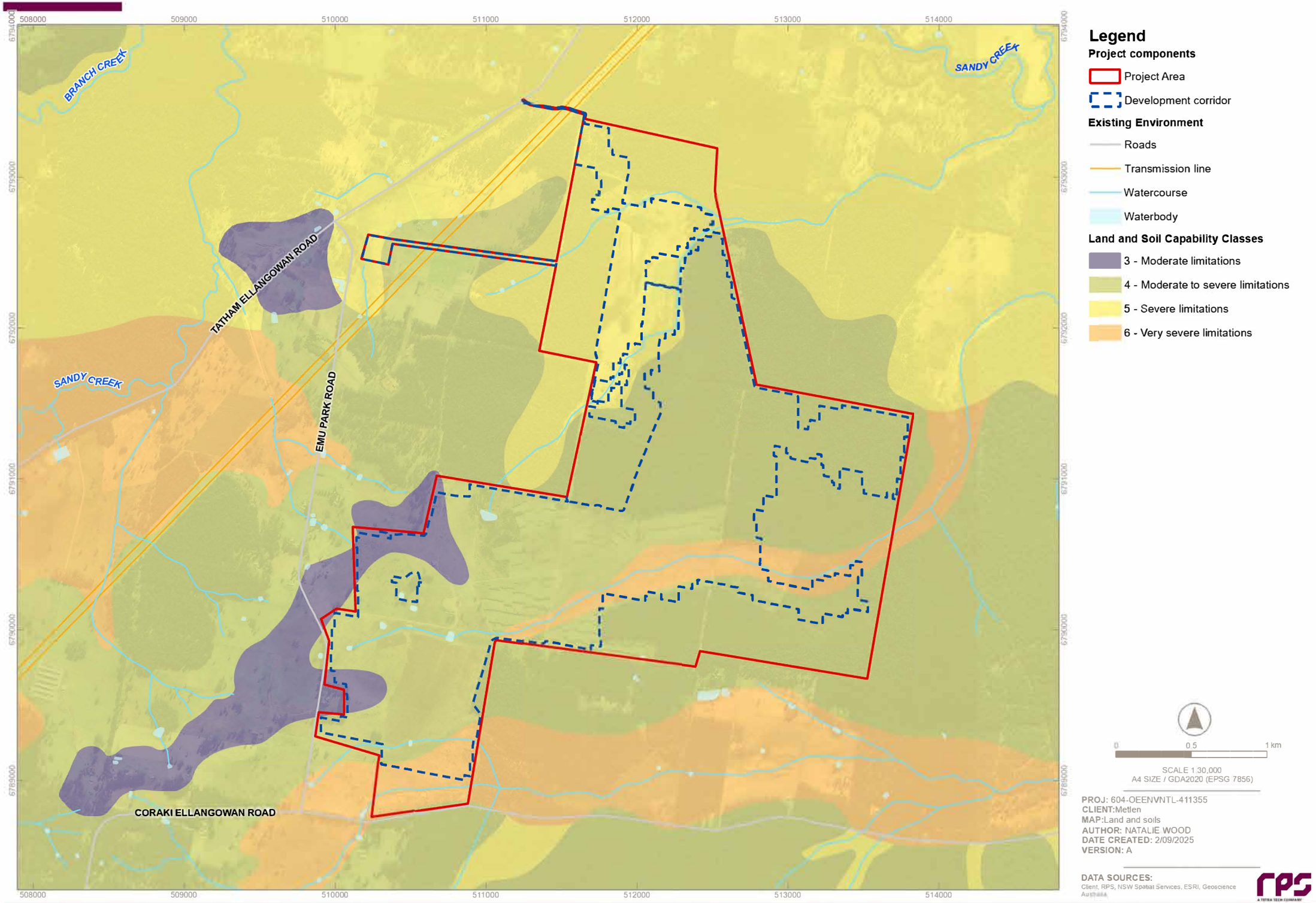


FIGURE 6-6: LAND AND SOIL CAPABILITY

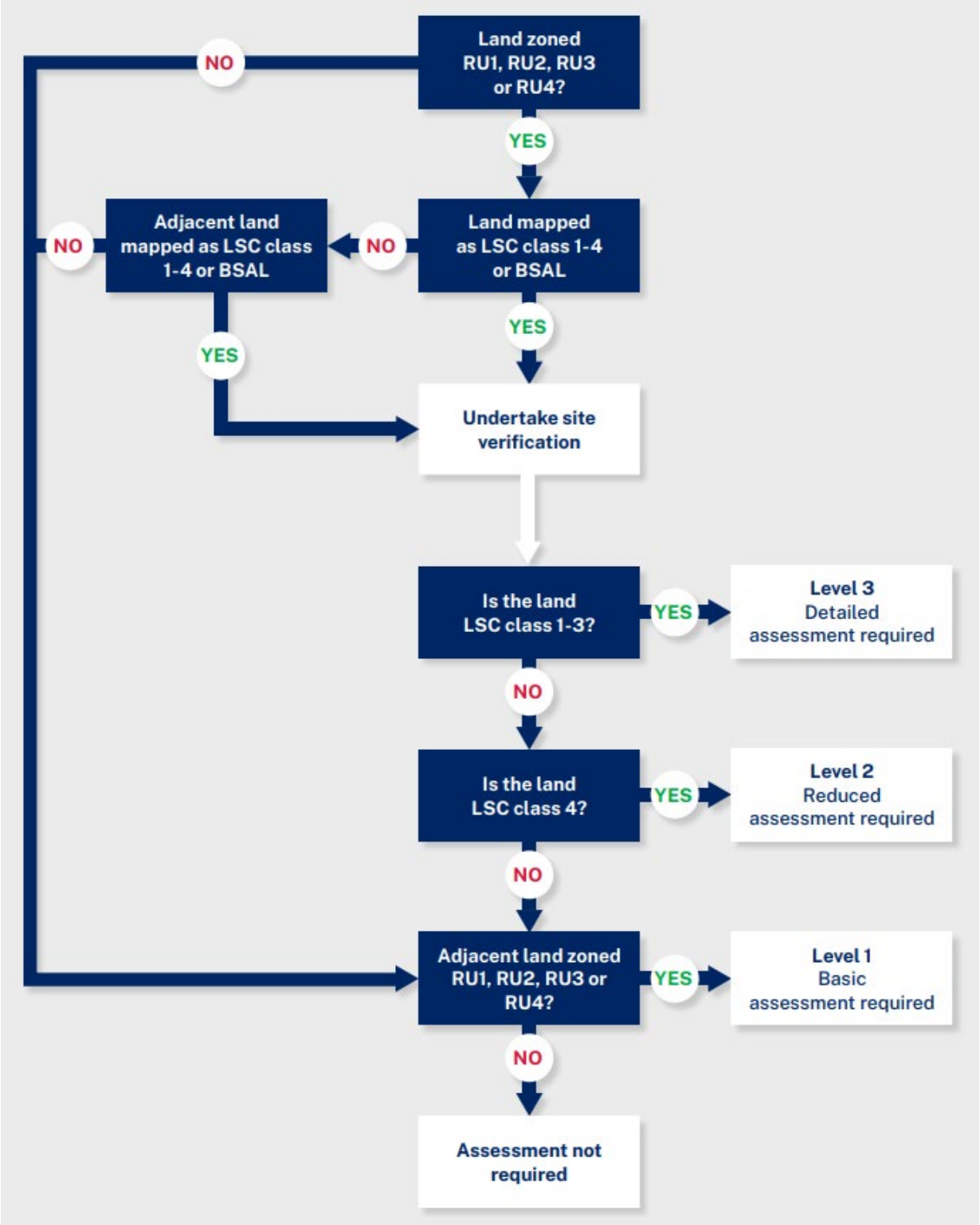


Figure 6-7 Large Scale Solar Agricultural Assessment Requirements (DPIE, 2022)

6.10 Economics

A summary of the background, preliminary economics assessment and proposed EIS assessment approach is provided below.

6.10.1 Background

The employment status within the Richmond Valley LGA in 2021 indicates that 52.2% of residents are full time workers, 35.8% are part time, 7.3% work away from home and 4.7% are unemployed (ABS, 2021).

The three largest employment industry sectors in the Richmond Valley LGA in 2021 were meat processing (5.8%), aged care residential services (4.2%) and hospitals (expect psychiatric hospitals) (3.3%) (ABS, 2021).

The four most popular occupations in the Richmond Valley LGA were labourers (19.1%), community and personal service workers (14%), technicians and trades workers (13.3%) and managers (12.2%) (ABS, 2021).

6.10.2 Preliminary Assessment

During construction, the Project would involve the procurement of a broad array of equipment, products and services, some of which may be procured from within the Richmond Valley LGA and broader NSW. Construction supplies and construction-related services, including local civil, labour and electrical businesses in particular are likely to benefit from the Project. Additionally, due to the inter-linkages between sectors, many indirect businesses would also benefit through increased economic activity.

The presence of the construction workforce would also increase demand for food, accommodation and other consumables in the local region, which would deliver a positive impact for existing retail, beverage, food and accommodation service providers in towns including Casino, Coraki and Lismore. The proximity of the Project to the Pacific Highway (51 km by road) provides the Project with a unique advantage to potentially utilise more local resources, particularly during construction.

During operations, the Project would provide a long-term benefit to the local economy through employment and business opportunities that would service the Project.

Additional benefits to the local economy will be delivered through a Voluntary Planning Agreement (VPA) that will be established for the Project in consultation with Richmond Valley Council.

6.10.3 EIS Assessment Approach

An Economic Assessment (EA) will be undertaken for the EIS, which will review the impacts or benefits of the Project for the region and State as a whole.

The assessment will consider any increase in demand and impact on local and regional economy during construction and operation of the Project as well as reduction in agricultural activity as a result of the Project's development. Other economic issues would also be considered including the potential impact on land values and regional wages, house prices, tourism, and cumulative impacts.

The EA will also include mitigation methods to maximise the projected economic benefits whilst minimising impacts from the Project.

6.11 Estimated Cost Development

The EIS will be supported by an Estimated Development Cost (EDC) report prepared by an AIQS Certified Quantity Surveyor or RICS Chartered Quantity Surveyor in accordance with 'Planning Circular PS-24-002 Changes to how development costs are calculated for planning purposes' (or latest version). The indicative EDC is approximately $800 million, which will be refined when concept design scope is finalised.

The estimated EDC will be accurate at the date of application and include methodological assumptions and details of all components and assumptions from which it is derived, as well as an estimate of the jobs that would be created during the construction and operational phases of the Project as per **Section 3.4.**

In accordance with the 'Standard Form of Estimated Development Cost Report (State significant projects) - October 2024', the EDC report will include:

- An executive summary;
- A description of the basis of preparation;
- A description of the scope of the EDC; and
- A detailed calculation schedule that supports the EDC.

6.12 Social

This section provides an overview of the demographic, economic and vulnerability characteristics of the social environment which encompasses the proposed Project. It identifies local amenity and key community services in the broader area as part of social system of influence.

The social locality identifies stakeholders who may be directly or indirectly affected by the Project, including landholders, residents, indigenous communities, businesses and relevant service providers.

6.12.1 Social Locality

The Project is proposed to be located within the locality of Ellangowan which is a dispersed rural locality located on cleared plains surrounded by bushland, forestry and conservation lands which provide a natural visual and physical definition to the *immediate locality* (refer to **Figure 6-8**). People are likely to value quietness, darkness, rural character and forest/bush views.

The area's landscape and natural values contribute to local character, with developed land primarily used for agriculture. There is little urban land within the local very low residential density and no commercial or service modes other than the Ellangowan Community Hall which functions as the only physical centre of social interaction and defines the *functional locality* in conjunction with Ellangowan Road.

The locality includes a higher proportion of First Nations people than NSW overall and sits within Bundjalung Nation Country. The area is served by the Casino-Boolangle Local Aboriginal Land Council. The community of interest to this locality, being those who use or care for the land, is likely to include traditional owners, the Rural Fire Service, and conservation employees and volunteers.

The surrounding conservation areas including the Bungawalbin State Conservation Area and associated National Park and State Forest are of spiritual significance and contemporary importance to the Aboriginal community. The Bugawalbin Nature Reserve is listed on the Register of the National Estate due to its natural heritage values (NPWS, 2012). These reserves also contribute to local amenity and recreation.

Residents of Ellangowan typically access services in nearby towns. Regional access is via Summerland Way and the Bruxner Highway. The nearest rail hub is Casino, which is served by NSW TrainLink on the North Coast Line.

The residents of Ellangowan are likely to directly notice the changes associated with the development. The ongoing transition to renewable energy in New South Wales is likely to reshape aspects of the Ellangowan landscape and influence the social and economic context of the wider Richmond Valley. Developments such as the Emu Park BESS may provide local employment, education and skills development opportunities within the energy sector, contributing to economic diversification and community resilience.

For this project the statistical area of Ellangowan reflects the community of place. The social characteristics of the Project's social locality as of 2021 are analysed in **Table 6-7**. These are benchmarked against Richmond Valley LGA and NSW.

Table 6-7 Social Locality

Area	Location	ABS category
Locality	Ellangowan	Ellangowan (NSW), SAL11403
Region	Richmond Valley LGA	Richmond Valley LGA, LGA16610
State	New South Wales	New South Wales, STE1



Figure 6-8 Ellangowan (ABS, 2021)

6.12.2 Demographics

Ellangowan comprises a large area with a low population density. It has a very low population of only 318 people. Its population has decreased since 2016, unlike Richmond Valley LGA and NSW, which have both grown.

At 7.2%, First Nations people make up a much larger proportion of the population than in NSW as a whole, but slightly less than in Richmond Valley. Though the Census does not collect this data, it is likely that many of the area's First Nations people are Galibal people of the Bundjalung Nation, the traditional custodians of the Djanangmum (also known as Casino).

Ellangowan has an aged population in comparison to both Richmond Valley and NSW, with a median age 8.4 years higher than NSW. The over-65-years population, however, is in line with NSW and 6.8% lower than Richmond Valley.

Housing is almost entirely detached dwellings, and the most common tenure type is owning with a mortgage. Rental markets remain tight, with only a 0.6% vacancy rate, suggesting limited availability and potential affordability pressures.

Table 6-8 Demographic, Transport, and Housing in the Social Locality 2021

Indicator		Ellangowan	Richmond Valley LGA	NSW
Population	(no.)	318	23,595	8,097,062
Land area	(ha)	14,430	304,738	80,079,766
Population density	(persons/km^2)	2.2	7.7	10.1
Population growth since 2016	(%)	-3	3.5	8.2
First Nations population	(%)	7.2	10	3.4

Indicator		Ellangowan	Richmond Valley LGA	NSW
Older persons (65+)	(%)	17.6	24.4	17.7
Very young children (0-4)	(%)	5.7	5.2	5.8
Median age	(years)	47	45.2	38.6
Most common employment industry		Meat processing (10.4%)	Health care and social assistance (15.7%)	Health care and social assistance (14.4%)
Households without a private vehicle	(%)	0	5.3	9.0
Separate houses	(%)	97.9	84.5	65.6
Most common housing tenure type		Mortgage (49%)	Owned outright (40.5%)	Mortgage (32.5%)
Residential vacancy rate for postcode 2470 as of June 2025	(%)	0.6	N/A	N/A

ABS, 2021 Census All persons QuickStats: Ellangowan (NSW)
ABS, Data by Region: Richmond Valley LGA, New South Wales
SQM Research (2025): Residential vacancy rates by postcode – 2470

6.12.3 Culturally and Linguistically Diverse (CALD) Community Members

The culturally and linguistically diverse (CALD) community of an area may have different needs than the rest of the population and may require a different approach to communications and engagement with them (for example, communications delivered in languages other than English). The proportion of CALD residents in Ellangowan is significantly lower than NSW (share born overseas; households using a language other than English). Engagement will remain inclusive and accessible; however, extensive language-specific materials are unlikely to be required at scoping, pending confirmation through engagement.

Table 6-9 Culturally and Linguistically Diverse (CALD) Community Members in the Social Locality 2021

Indicator		Ellangowan	Richmond Valley LGA	NSW
Born overseas	(%)	7.5	6	34.6
Households where a non-English language is used	(%)	2.5	2.4	29.5

ABS, TableBuilder: Ellangowan – 2021 Country of Birth of Person
ABS, 2021 Census All persons QuickStats: Ellangowan (NSW)
ABS, Data by Region: Richmond Valley LGA, New South Wales.

6.12.4 Socio-economic Disadvantage

The SEIFA Index of Relative Socio-Economic Disadvantage (IRSD) is an indicator to measure relative disadvantage and is derived from Census variables like low income, low educational attainment, unemployment, and dwellings without motor vehicles.

In 2021, Ellangowan was within the 2nd decile, indicating it is within the top 20% of the most disadvantaged suburbs in Australia. Richmond Valley LGA was also within the 2nd decile.

Some of the most socio-economically disadvantaged groups are those in social and community housing, those who live alone, those in a household earning less than $499 per week, and unemployed people.

Table 6-10 Socio-economically Disadvantaged Groups in the Social Locality 2021

Indicator		Ellangowan	Richmond Valley LGA	NSW
Households in social and community housing	(%)	*Data not available*	*Data not available*	3.8
Lone-person households	(%)	19.8	29.2	25.0

Indicator		Ellangowan	Richmond Valley LGA	NSW
Low-income households (equivalised total household income <$499 per week)	(%)	17.4%	25.3	15.8
Unemployment rate	(%)	7.8	4.7	4.9

ABS, TableBuilder: Ellangowan – 2021 Equivalised Total Household Income
ABS, 2021 Census All persons QuickStats: Ellangowan (NSW)
ABS, Data by Region: Richmond Valley LGA, New South Wales.
ABS, SEIFA: Index of Relative Socio-Economic Disadvantage (IRSD).

6.12.5 Local Features and Community Values

An overview of the local values and features for the Project's social locality are provided in **Table 6-11**.

Table 6-11 Local Values and Features of Ellangowan

Value/Feature	Description
Local amenity and character	Ellangowan is within the Richmond Valley LGA and the Northern Rivers region of NSW. The suburb is a majority rural area made up of national park, some agricultural land, and a small number of dwellings. It is within the Bundjalung Nation. It is within the floodplains of the Richmond River and has several of its tributaries within its suburb borders.
Access and connectivity	Ellangowan is a small rural area, but its positioning means those travelling between Grafton and Queensland, and northwestern NSW and Byron Bay, are likely to pass through it using the major highway Summerland Way. The Project Area sits on Emu Park Rd, a short road that does not run through any major residential or urban areas. Construction vehicles will likely access the Project Area via Summerland Way. The North Coast NSW trainline connects Casino, the closest urban town, to major areas including Brisbane, Grafton, Taree, and Sydney Central. An additional coach line extends that connectivity to Byron Bay, the Gold Coast, and Port Macquarie.
Community cohesion	Ellangowan is a long-established rural locality with land primarily used for agriculture. Farming remains a key land use and source of local identity, although parts of the wider Richmond Valley are gradually diversifying through renewable-energy and infrastructure projects. Residents typically participate in community and sporting activities based in nearby towns such as Casino and Rappville. The locality is surrounded by areas of high environmental value, including Bungawalbin National Park and Ellangowan Nature Reserve, which contribute to local amenity and provide opportunities for outdoor recreation and connection to nature.

6.12.6 Community Infrastructure

Community facilities and essential services within the Ellangowan locality are limited. The Ellangowan Community Hall, located on Ellangowan Road, is the only formal community venue in the area and is listed as a local heritage item under the Richmond Valley Local Environmental Plan. The hall continues to function as a small-scale meeting place and represents the primary facility available for local gatherings or engagement activities.

There are no schools, childcare centres, health, or emergency services within Ellangowan or its immediate surrounds. Residents and rural properties in the area rely on Casino, approximately 25 kilometres to the north, for access to education, childcare, health, aged care and emergency services, with a smaller primary school located at Leeville approximately 18 kilometres north. The facilities summarised in **Table 6-12** represent the key community services that may experience minor or temporary demand changes during the Project's construction phase.

Other community, cultural, and recreation facilities within the Richmond Valley LGA are located further from the Project Area and are not expected to be directly affected by project activities. The list is therefore limited to those facilities most relevant to potential workforce-related or service-access impacts.

Table 6-12 Project Area Surrounds – Community Infrastructure

Service type	Facility/location	Approx. distance from Ellangowan (km)	Relevance
Education	Leeville Public School – 9375 Summerland Way, Leeville NSW 2470	~18 km N	Nearest local primary school; may experience minor changes in road use or enrolment if local families join the construction workforce.
	Casino Public School, Casino West Public School, Casino High School – Casino NSW 2470	~25 km N	Regional schools that could experience minor enrolment or traffic effects if non-local families reside in the area during construction.
Childcare / Early learning	Kookaburra Early Learning – 108 Johnston St, Casino NSW 2470	~25 km N	May experience short-term increases in demand from construction workforce families.
	Rainbow Region Kids – 31 Walker St, Casino NSW 2470	~25 km N	As above.
Health and emergency services	Casino and District Memorial Hospital – Hotham St, Casino NSW 2470	~25 km N	Primary acute health service for the region; potential for minor first-aid or emergency presentations from the construction workforce.
	Casino Community Health Centre – 70B Canterbury St, Casino NSW 2470	~25 km N	Local primary and community health provider; may experience short-term increases in presentations.
	Riverside Family Practice, Casino Medical Centre, Maria Clinic – Casino NSW 2470	~25 km N	General practices providing everyday health services for local residents and workers.
Aged care / residential services	Southern Cross Care – 62 Centre St, Casino NSW 2470	~25 km N	Residential aged-care provider; residents may be sensitive to construction-related noise, dust, and traffic.
	UPA Aged Care – 67 Barker St, Casino NSW 2470	~25 km N	Retirement village and aged-care facility requiring maintained staff and service access.
	Whiddon Casino – 11 Gitana St, Casino NSW 2470	~25 km N	Nursing home and retirement village; houses older residents potentially sensitive to disturbance.
	Uniting Helene Walter Casino – 176 Canterbury St, Casino NSW 2470	~25 km N	Residential aged-care and retirement accommodation; requires unimpeded access for workers and emergency services.
	HammondCare Waratah Social Club – 35 Walker St, Casino NSW 2470	~25 km N	Provides aged-care and community support for people with complex needs.
	Casino Lifestyle Village – 69 Light St, Casino NSW 2470	~25 km N	Secure living community for over-50s; may experience traffic or amenity impacts.
Community facility (local)	Ellangowan Community Hall – 1630 Ellangowan Rd, Ellangowan NSW 2470	<1 km E	Local heritage-listed meeting venue; valued as a focal point for community identity and gatherings. May be used for engagement or information sessions during the project.

6.12.7 Preliminary Assessment

A preliminary assessment of the social impacts (positive and negative) has been undertaken. This assessment will ensure the EIS preparation focuses on:

- likely social impacts for different groups in the social locality and the level to which these impacts need to be assessed;

- consider potential refinements or approaches in response to likely social impacts; and
- shape the engagement activities that will inform the Social Impact Assessment.

A summary of the impacts has been identified and is detailed in **Table 6-13.**

Table 6-13 Summary of Preliminary Impact Assessment

Category		Description
Negative impacts		
1	Community	The project may affect social cohesion if community support is divided or benefits are seen as unevenly shared.
2	Community	An influx of non-local workers may temporarily change the population and demographics of nearby towns.
3	Culture	Potential disturbance to Aboriginal cultural heritage due to ground excavation and construction activities or change to landscape values.
4	Decision-making systems	Limited community involvement may reduce trust and perceptions of influence in decision-making.
5	Health and wellbeing	Perceived bushfire risk from construction and the BESS may heighten community concern.
6	Health and wellbeing	Dust from construction and traffic may affect air quality, impacting residents' and vulnerable groups' health, comfort and daily life.
7	Health and wellbeing	Potential increased traffic could increase the road safety risk for local drivers and pedestrians.
8	Health and wellbeing	Noise and vibrations from construction may affect health, especially for vulnerable groups such as young children, older people, or those with respiratory conditions.
9	Livelihoods	Vehicle access during construction may increase the risk of weed spread and biosecurity breaches, potentially impacting local farming operations and community livelihoods.
10	Surroundings	Potential visual impact on the surrounding area from the presence of the BESS and solar farm.
11	Surroundings	Potential noise impact on the surrounding area from the construction of the BESS and solar farm.
12	Surroundings	The project, alongside other nearby developments, may alter the area's visual character and landscape, potentially affecting the community's sense of place.
13	Way of life	Construction may cause temporary traffic disruptions through lane closures and increased vehicle movements, affecting local travel, access to services, and daily routines.
14	Way of life	Increased demand for healthcare, emergency services and childcare may place pressure on local facilities, affecting access and quality of services for the community.
15	Way of life	Potential impacts on housing availability, rental affordability, and accommodation capacity, affecting local residents' economic stability and access to housing.
Positive impacts		
1	Livelihoods	Upskilling the local workforce through vocational training schemes could enhance long-term employment opportunities and strengthen local capacity.
2	Livelihoods	Influx of non-local construction workers may increase demand for goods and services from local businesses.
3	Livelihoods	Direct and indirect local employment opportunities during construction through, for example, hiring local construction and procuring materials from local businesses.
4	Livelihoods	Local employment opportunities for the BESS and solar farm's ongoing operation and maintenance.

6.12.8 EIS Assessment Approach

A Social Impact Assessment (SIA) will be prepared in accordance with the 'Social Impact Assessment Guideline for State Significant Projects' (NSW Department of Planning, Housing and Infrastructure, July 2025) and accompanying 'Technical Supplement'. The SIA will form part of the EIS and will identify, predict and evaluate potential social impacts and benefits, and propose proportionate responses to avoid, minimise or enhance these outcomes.

The assessment will follow the five-phase approach outlined in the Guideline:

1. **Scoping:** Confirm the project's social locality and review the initial potential for both positive and negative social impacts identified through early project scoping and stakeholder inputs.
2. **Baseline**: Build on the Scoping Report by compiling up-to-date socio-economic, demographic and housing data (ABS 2021 Census, SEIFA indices, local planning data) to describe existing conditions and identify any vulnerable or priority groups.
3. **Engagement:** Undertake targeted, culturally responsive engagement with affected and interested people, including residents, landholders, local businesses, Traditional Custodians and community service providers. Engagement feedback will inform how social impacts are weighted and prioritised.
4. **Impact Assessment**: Analyse positive and negative impacts during construction, operation and decommissioning using the DPHI social impact significance matrix. Assess distribution of impacts and consider cumulative or combined effects with other relevant projects.
5. **Management and Monitoring**: Recommend practical mitigation and enhancement measures within the project's control. Residual impacts of medium or greater significance will be carried forward to a Social Impact Management Plan (SIMP) for post-approval monitoring and adaptive management.

This approach ensures the assessment is proportionate, transparent and aligned with the DPHI Guideline's principles, focusing on social outcomes that matter most to people in the local and regional community. **Table 6-14** summarises the key aspects of the SIA methodology

Table 6-14 Social Impact Assessment methodology

Section	Purpose	Key activities	Outputs
Scoping	Identify likely social impacts and define the social locality	• Review and incorporate initial scoping findings, including preliminary impacts identified in the Scoping Report. • Confirm categories of potential social impacts for consideration in the EIS	• Review and incorporate initial scoping findings
Baseline	Establish a socio-economic and demographic benchmark	• Desktop review of relevant data sources. • Identify vulnerable or priority groups. • Map community and social infrastructure.	• Summary social baseline profile. • Identification of sensitive receptors and vulnerable cohorts.
Engagement	Ground-truth baseline findings and confirm what matters to people	• Targeted consultation with residents, landholders, Traditional Custodians, local businesses and service providers. • Review project engagement outcomes	• Summary of community values and concerns. • Confirmation of impact priorities and refinements to methods.
Impact Assessment	Predict, analyse and evaluate social impacts	• Apply significance matrix • Integrate relevant technical study findings • Consider combined and cumulative impacts.	• Impact summary tables (showing affected groups and assessment level). • Narrative on distribution of impacts and residual risk.
Management & Monitoring	Develop proportionate responses and monitoring framework.	• Identify feasible mitigation and enhancement measures within proponent's control.	• Summary of proposed mitigation/enhancement actions.

6.13 Preliminary Hazards

This section provides a preliminary assessment of hazards and risks that could arise during the construction and operation of the Project. Specifically, it considers hazards and risks associated with hazardous materials and Electromagnetic Field (EMF).

6.13.1 Background

The Project will result in the introduction of potentially hazardous materials during construction that are likely to be transported to, stored, and used at the Project Area, and transported from the Project Area, including diesel, gasoline/petrol, transformer oils and lithium-ion batteries. Hazardous materials during operation will be largely limited to transformer oils and lithium-ion batteries.

6.13.2 Preliminary Assessment

A Preliminary Hazard Assessment (PHA) is required where potentially hazardous or offensive development under Resilience and Hazards SEPP. Clause 3.2 of the Resilience and Hazards SEPP defines a potentially hazardous industry is as:

> *"development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality—*
>
> *(a) to human health, life or property, or*
>
> *(b) to the biophysical environment, …"*

Appendix 3 of the 'Applying SEPP 33 Guidelines' (DoP, 2011) lists the industries that may fall within the Resilience and Hazards SEPP (former SEPP 33), which do not include solar farms or energy storage facilities. The BESS is likely to contain lithium-ion batteries, which are listed as 'Class 9 – Miscellaneous dangerous goods'. While Class 9 materials are excluded from the SEPP 33 screening test, the hazards related to these materials should be considered in accordance with the Resilience and Hazards SEPP guidelines.

Lithium ion battery technology has improved over time which has reduced historical issues and has resulted in a safer battery overall. Despite improvement in battery technology, there are still potential hazards involved such as thermal runaway. The Project will be assessed in accordance with the relevant guidelines.

6.13.3 EIS Assessment Approach

A PHA report will be prepared for the Project, which evaluates the likely risks to public safety, focusing on the transport, handling and use of hazardous materials. The assessment will also consider whether the Project should be considered a hazardous or potentially hazardous industry under the Resilience and Hazards SEPP.

The PHA will be prepared in accordance with the following:

- Resilience and Hazards SEPP (2021);
- 'International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields' (ICNRP, 1998);
- 'Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis' and Multi-level Risk Assessment' (DoP, 2011)'; and
- 'Hazardous Industry Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning (DoP, 2011)'.

The PHA will assess dangerous goods to be stored and used at the site and identify and analyse key hazards including electrical equipment, transformers and EMF. The PHA will also examine the potential effects of the Project on human health and provide an analysis if adverse health impacts are identified.

The PHA will generally involve:

- A Multi-Level Risk Assessment as the basis to determine the level of risk assessment required being either:
  - Qualitative – no major off-site consequences and societal risk is negligible;
  - Partially Qualitative – off-site consequences but with low frequency of occurrence; or
  - Quantitative – where Qualitative and Partially Qualitative analyses are exceeded.

- A Risk Assessment Study Approach considering:
  - Hazard analysis which determined the potential for an incident to have an off-site impact;
  - Consequence analysis for incidents qualitatively identified in the hazard analysis to have a potential offsite impact;
  - Frequency analysis which identified the frequency of incidents which did not have a simple management solution;
  - Risk assessment and reduction which determined the risk of incidents identified in consequence and frequency analysis by comparing them to risk criteria in HIPAP No. 4 (Ref. [2]);
  - Risk reduction measures to lower any unacceptable risk below relevant criteria; and
  - Reporting on the outcomes of the PHA.

6.14 Hazard – Bushfire

A summary of the background, preliminary bushfire assessment and proposed EIS assessment approach is provided below.

6.14.1 Background

Bushfire presents a threat to human life and assets and can adversely impact ecological values. Bushfire risk can be considered in terms of environmental factors that increase the risk of fire (fuel quantity and type, topography and weather patterns), as well as specific activities (such as hot works and construction activities) or infrastructure components that exacerbate combustion or ignition risks (such as transmission lines and other electrical components).

6.14.2 Preliminary Assessment

The Bushfire Prone Land Map contains three categories to classify the risk of developing on the land (NSW Rural Fire Service, 2015):

- Vegetation Category 1 is considered the highest risk for bushfire. It is represented as red on the Bushfire Prone Land Map and will be given a 100 m buffer. This vegetation category has the highest combustibility and likelihood of forming fully developed fires including heavy ember production;
- Vegetation Category 2 is considered to be a lower bushfire risk than Category 1 and Category 3 but higher than the excluded areas. It is represented as light orange on the Bushfire Prone Land Map. This vegetation category has lower combustibility and/or limited potential fire size due to the vegetation area shape and size, land geography and management practices; and
- Vegetation Category 3 is considered to be medium bushfire risk vegetation. It is higher in bushfire risk than Category 2 (and the excluded areas) but lower than Category 1. It is represented as dark orange on a Bush Fire Prone Land Map.

A review of the NSW RFS Bushfire Prone Land mapping shows that the Project Area is primarily Vegetation Category 1 Bushfire Prone Land, with a small portion of Vegetation Category 2 land in the south-east, south-west and on the edge of the Project Area in the north-east.

Small parcels of Vegetation Buffer are located in the southern and central portion of the Project Area (refer Figure 6-9). Potential impacts relating to bushfire will be assessed in the EIS as per **Section 6.14.3**.

6.14.3 EIS Assessment Approach

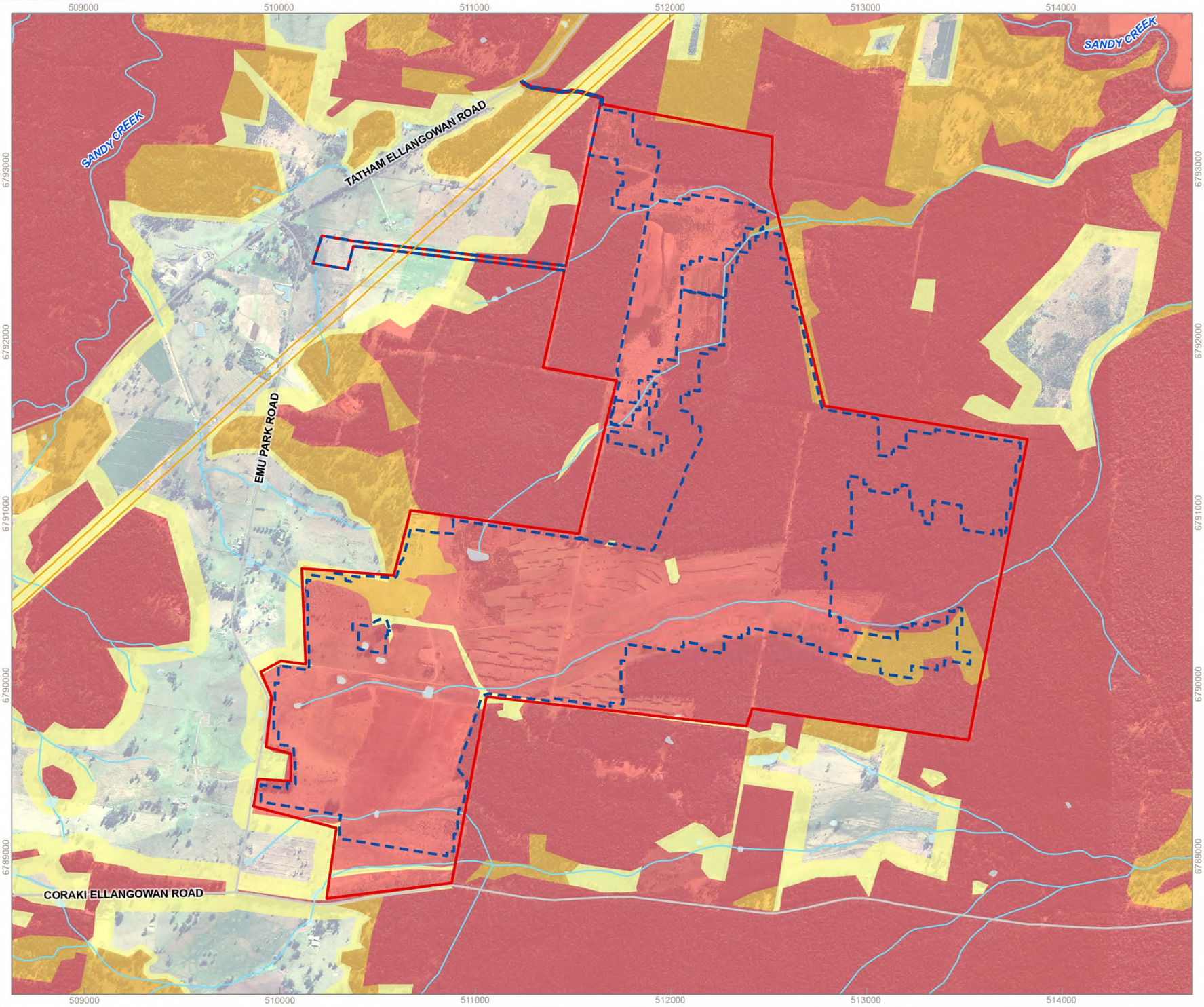
The EIS would include a relevant Bushfire Risk Assessment and would aim to identify potential hazards and risks associated with bushfires and use of bushfire prone land, in line with ‘Planning for Bushfire Development’ (NSW RFS, 2019) and/or any other relevant guidelines.

The Bushfire Risk Assessment and mitigation strategies would be guided by the following factors that contribute to bushfire risk:

- Fuels, weather, topography, predicted fire behaviour and local bushfire history;
- Suppression resources, access (roads, tracks) and water supply; and
- Values and assets.

Mitigation would be a combination of complementary strategies, all of which are required to provide the best possible protection outcome for the Project and the community.

The assessment would aim to demonstrate that the Project can be designed, constructed and operated to minimise ignition risks and provide for asset protection consistent with the guidelines outlined in **Appendix B**.



Legend

Project components

- Project Area
- Development corridor

Existing Environment

- Roads
- Transmission line
- Watercourse
- Waterbody

Bush Fire Prone Lands

- Vegetation Buffer
- Category 1
- Category 2

0 0.5 1 km

SCALE 1:30,000
A4 SIZE / GDA 1994 (EPSG 4283)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Bushfire
AUTHOR: NATALIE WOOD
DATE CREATED: 2/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia.

FIGURE 6-9: BUSHFIRE PRONE LAND

6.15 Air Quality and Greenhouse Gas

A summary of the background, preliminary air quality assessment and proposed EIS assessment approach is provided below.

6.15.1 Background

Land uses in the areas surrounding the Project Area are predominantly agricultural. The local air quality is likely to reflect the surrounding land use. Air quality in the region is generally expected to be of good quality and typical of what is expected in a rural setting, due to factors including low population density and low traffic volumes. A search of the NSW Air Quality map in August 2025 for the Grafton weather monitoring station, located 16 km from the Project Area, stated that the air quality is classified as 'good'.

Existing sources of air pollution are likely sourced from dust, vehicle, and machinery from agricultural production, and some vehicle exhaust emissions from traffic along Tatham Ellangowan Road, Emu Park Road and Coraki Ellangowan Road.

Background air quality and other meteorological matters are described at **Section 2.4.3**.

6.15.2 Preliminary Assessment

The Project is not expected to have significant impacts on air quality in the region. Cumulative impacts from other renewables' developments are also not anticipated due to the limited number of projects at significant distances as discussed in **Section 2.3.4**.

Emissions to the atmosphere from the Project are anticipated to be predominantly associated with construction phase activities which will be temporary and limited to:

- Localised dust emissions generated by land disturbance; and
- Exhaust emissions of civil construction and vehicle, plant and machinery.

During the temporary construction phase, dust particles and other air quality emissions could potentially be released from activities including:

- Construction of new / upgraded access tracks and roads;
- Vegetation clearing and creation of open exposed areas;
- Excavation works and stockpile management;
- Transport of material and equipment;
- Processing and handling of material;
- Construction activities and associated earthmoving and construction equipment;
- Transfer points;
- Loading and unloading of material; and
- Haulage activities along unsealed roads.

During operations, the Project will generate electricity without directly emitting air pollutants that are known to affect the climate and human health.

The Project will contribute to the improvement of air quality through the displacement of emissions that would otherwise be generated through the burning of fossil fuels used to generate electricity from traditional coal fired power stations.

6.15.3 EIS Assessment Approach

Air quality is not considered to be a key environmental aspect for this Project as there would be no significant emissions during the operation of the solar farm and BESS. The EIS will be limited to qualitatively consider the potential impacts to air quality and stipulated appropriate management and mitigation measures during the construction, operations and decommissioning phases of the Project.

Beneficial GHG savings as a result of the Project will also be described.

Air quality and dust management will generally be assessed in accordance with relevant guidelines and policies as outlined in **Appendix B**.

6.16 Waste

A summary of the background, preliminary waste assessment and proposed EIS assessment approach is provided below.

6.16.1 Background

The management of wastes is primarily regulated under the *Protection of the Environment Operations Act 1997* (POEO Act), the *Protection of the Environment Operations (Waste) Regulation 2014* (Waste Regulation) and the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act).

Unlawful transportation and deposition of waste is an offence under Section 143 of the POEO Act, and littering is an offence under Section 145 of the POEO Act.

The descriptions and classifications of different types of wastes in NSW are provided by POEO Act, the Waste Regulation, and supporting guidelines including the 'Waste Classification Guidelines' (EPA, 2014).

6.16.2 Preliminary Assessment

Waste types generated by the Project are expected to be consistent with those "pre-classified" under Schedule 1 of the POEO Act. Pre-classified waste types do not require further testing or classification and must be treated according to their classification. Pre-classified wastes include:

- General solid waste (non-putrescible) e.g. glass, plastic, rubber, building and demolition waste, concrete, metal, wood;
- Paper, cardboard and other domestic waste;
- General solid waste (putrescible) (e.g. food waste, organics and animal wastes);
- Hazardous wastes (e.g. contaminated soils);
- Liquid wastes (e.g. wastewater effluent and fuels and lubricants);
- Restricted solid wastes; and
- Special wastes (e.g. asbestos, waste tyres, clinical wastes).

Waste generation during operation of a large-scale solar farm is typically minimal and limited to repair and maintenance activities. However, larger volumes of waste would be expected during construction and decommissioning.

Construction waste would largely be non-putrescible general solid waste, with resource recovery potential through recycling or re-use.

During decommissioning, large amounts of glass, copper cabling, aluminium framing, silicon wafers, silver, and other materials would be generated as the PV panels and other infrastructure reach the end of their useful life.

6.16.3 EIS Assessment Approach

The EIS will identify, quantify and classify the likely waste streams to be generated during construction, operation and decommission phases of the Project in accordance with Section 5.4 of the Solar Guideline.

The EIS will consider strategies to ensure resources are used effectively, waste generation is reduced and follow the general principals of manage, reuse, recycle and safe disposal.

Relevant management and mitigation will be identified as required. Relevant guidelines to inform the assessment are outlined in **Section 6.16.1**.

6.17 Cumulative Impact Assessment

6.17.1 Background

There are few projects located in close proximity to the Project Area as indicated in **Table 2-2.** Two nearby major renewable energy projects categorised as “approved” are the Summerville Solar Farm located approximately 12 km southwest of the Project Area and Richmond Valley Solar Farm, located approximately 10 km southwest of the Project Area. Both solar farms were approved in 2025.

6.17.2 Preliminary Assessment

Although at the time of preparing this Scoping Report only two infrastructure projects have been identified in close proximity to the Project Area, there is still the potential for other projects to have a cumulative impact across key environmental matters, including landscape and visual, biodiversity, noise, transport and access, social and economic.

The identified nearby renewable energy projects have the potential to generate cumulative impacts during both construction and operation. Cumulative impacts across the key environmental matters would be considered separately for construction and operational phases due to the different levels of impacts. For example, potential impacts associated with transport and access would largely apply to the construction phase of the project, while potential impacts associated with biodiversity, noise and visual are impacts are anticipated to be ongoing during the operational phase. There may also be cumulative benefits to local community from these projects, through the creation of new employment opportunities and through their contribution to the local and regional economies.

6.17.3 EIS Assessment Approach

Key environmental matters will be subject to a detailed cumulative impact assessment during the preparation of the EIS for the project. Cumulative impacts associated with the Project will be assessed in accordance with the ‘Cumulative Impact Assessment Guidelines for State Significant Projects’ (DPIE 2022). The guidelines provide a framework for assessing and managing project-level cumulative impacts using six key steps which are shown in **Figure 6-10**.

The assessment of cumulative impacts focuses on the Project’s interactions with other nearby infrastructure projects and where construction and/or operational timeframes are likely to be concurrent, or where operational impacts of two or more projects affect the same receptor. In this case, the combined impact of these projects may become greater than each project’s individual impact.

To evaluate the potential cumulative impacts in the EIS, both incremental assessment and cumulative assessment would be undertaken.

Incremental types are standard practice for all project-level environmental impact assessments, whereas cumulative types are effective where there is potential for material cumulative impacts with other projects.

A summary of the cumulative impact considerations in line with the key questions posed in the ‘Cumulative Impact Assessment Guidelines for State Significant Projects’ (DPIE 2022) is provided in **Table 6-15**.

A cumulative impacts worksheet is provided in **Appendix F** to provide further clarification of the cumulative impacts to be assessed against each relevant project during the EIS, in line with the ‘Cumulative Impact Assessment Guidelines for State Significant Projects’ (DPIE 2022).

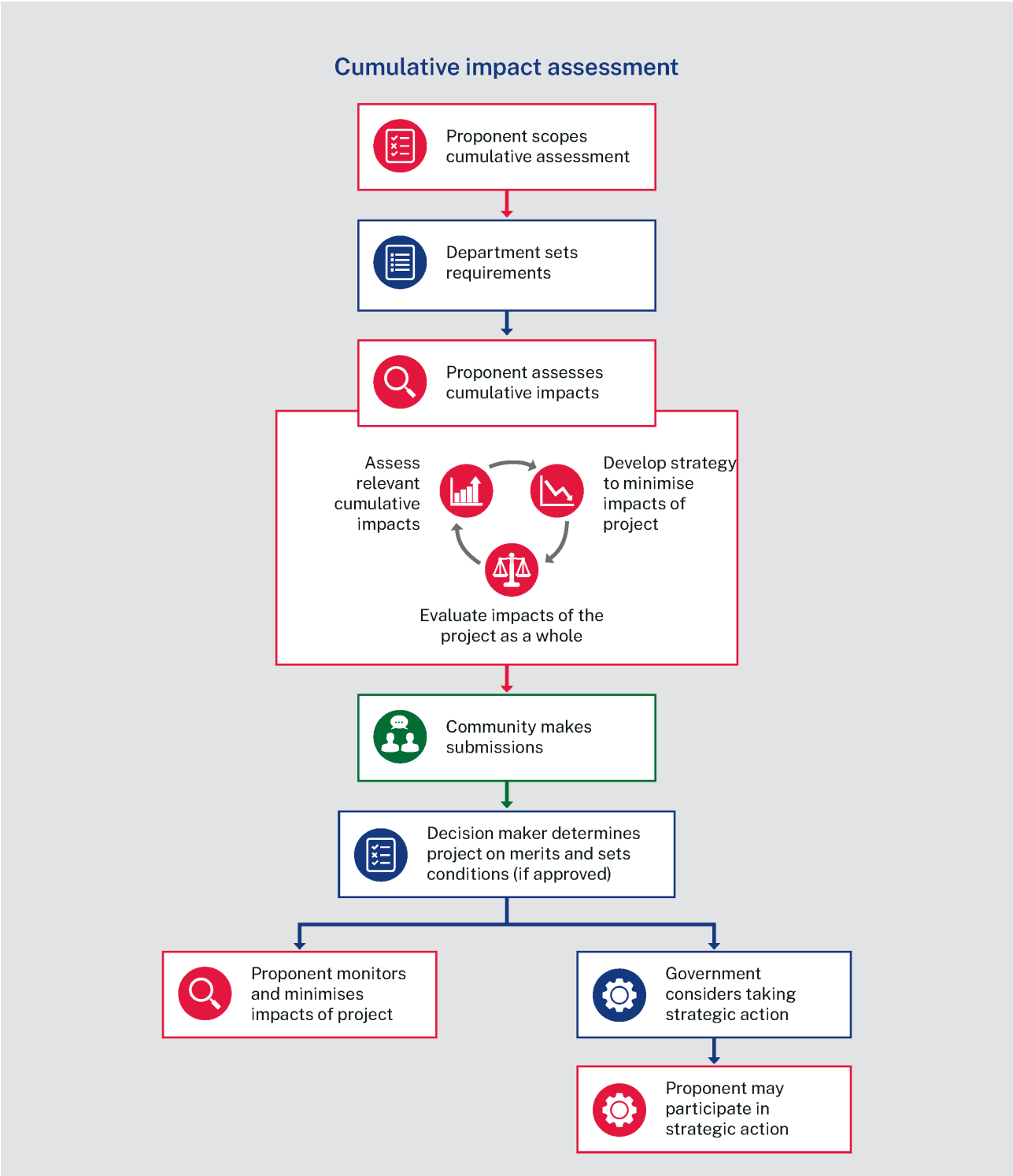


Figure 6-10 Key Steps in Cumulative Impact Assessment (DPIE 2022)

Table 6-15 Cumulative Impact Assessment Key Questions

Scoping Questions	Commentary
What to assess	The following environmental matters require cumulative impact assessment consideration: • Biodiversity • Landscape and visual • Noise • Transport and Access • Social and economic.
What study area	For the scoping phase, a 50 km buffer has been selected and is considered conservative to account for noise and visual cumulative impacts, as well as wider impacts on cumulative biodiversity, transport and access, social and economic impacts in the region. For the detail cumulative impact assessment completed for the EIS, the 50 km buffer may vary depending on the characteristics of the relevant projects confirmed at that time.
Over what time period	The full life cycle of the Project, including construction, operation and decommissioning, would be considered.
What projects to include	There are two approved renewable energy projects located close to the Project Area as shown in **Figure 1-1**. Changes to existing projects, approved projects, projects under assessment and/or any related development to the project would be considered prior to the confirmation of the final and relevant project cumulative assessment list.
What is the assessment approach	The cumulative impact assessment would be undertaken in accordance with the 'Cumulative Impact Assessment Guidelines for State Significant Projects' (DPIE 2022) and any relevant guidelines to each key environmental matter.
What are the key uncertainties	The key uncertainties relate to the availability of data from surrounding projects, the certainty, timing and sequencing of other projects and the implications for over or underestimating potential impacts where project information is not publicly available. The EIS would use a series of informed assumptions to develop an approach to manage the key uncertainties.

7 TERMINOLOGY

Term	Definition
Key terminologies	
Project	A solar farm as described in **Section 3** of this report to which this Application applies
Project Area	Red boundary shown on key figures to which the Application applies (unless otherwise stipulated)
The Applicant	Emu Park Energy Pty Ltd
Application	Application for Development Consent under Part 4.7 of the EP&A Act; and Determination under Part 9 of the EPBC Act
Receiver	Assessment location
Development Corridor	Preliminary area of Project-related disturbance determined for use in Scoping Report phase, which will be refined for the EIS
Other terminologies	
ABN	Australian Business Number
ABS	Australian Bureau of Statistics
ACCU	Australian Carbon Credit Unit
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACHMP	Aboriginal Cultural Heritage Management Plan
ACMA	Australian Communication and Media Authority
AEMO	Australian Energy Market Operator
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AL Act	*Aboriginal Land Rights Act 1983*
APZ	Asset Protection Zone
AQC	Air Quality Category
ARENA	Australian Renewable Energy Agency
ASC	Australian Soil Classification
ASL	Above Sea Level
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BESS	Battery and Energy Storage System
BOM	Bureau of Meteorology
BSAL	Biophysical Strategic Agricultural Land
CBF	Community Benefit Funds
CL Act	*Crown Land Management Act 2016*
Climate Change Act	*Climate Change Act 2022*
CMS Act	*Coal Mine Subsidence Compensation Act 2017*
Conveyancing Act	*Conveyancing Act 1919*
COP	Conference of the Parties
CSEP	Community and Stakeholder Engagement Plan
CSP	Community Strategic Plan
Cwlth	Commonwealth
DA	Development Application
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCP	Development Control Plan
DP	Deposited plan

Term	Definition
DPHI	NSW Department of Planning, Housing and Infrastructure
EDC	Estimated Development Cost
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
FM Act	*Fisheries Management Act 1994*
FTE	Full Time Equivalent
GDE	Groundwater dependent ecosystem
GWh	Giga Watt Hour
Ha	Hectares
Hazards SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021
Heritage Act	*Heritage Act 1977*
Horizon	A layer parallel to the soil surface whose physical, chemical and biological characteristics differ from the layers above and beneath
kV	Kilovolt
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
LGC	Large-scale generation certificate
LLS Act	*Local Land Services Act 2013*
LRET	Large-scale Renewable Energy Target
LSC	Land and Soil Capability
LSPS	Local Strategic Planning Statement
LSS	Large-Scale Solar
MNES	Matters of National Environmental Significance
MP	Member of Parliament
Mtpa	Million tonnes per annum
MW	Megawatt
MWn	Net Megawatt
MVA	Mega Volt Amp
NEM	National Energy Market
NVIA	Noise and Vibration Impact Assessment
NPW Act	*National Parks and Wildlife Act 1974*
NSW RFS	NSW Rural Fire Service
NT Act	*Native Title Act 1993*
O&M	Operations and Maintenance
OSOM	Oversize and Overmass
PBAR	Preliminary Biodiversity Development Assessment Report
Planning Systems SEPP	State Environmental Planning Policy (Planning Systems) 2021
PLVIA	Preliminary Landscape and Visual Impact Assessment
PM	Particulate Matter
POEO Act	*Protection of the Environment Operations Act 1997*

Term	Definition
RAP	Registered Aboriginal Party
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RF Act	*Rural Fires Act 1997*
Roads Act	*Roads Act 1993*
RPS	RPS AAP Consulting Pty Ltd
SDGs	Sustainable Development Goals
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
SIA	Social Impact Assessment
SSD	State Significant Development
Survey Boundary	Land within the Project Area that was studied during preliminary biodiversity assessment and is subject to the Biodiversity Assessment Method
T&I SEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021
TEC	Threatened Ecological Communities
TTIA	Traffic and Transport Impact Assessment
UN	United Nations
VPA	Voluntary Planning Agreement
WHO	World Health Organization
WM Act	*Water Management Act 2000*
ZVI	Zone of Visual Influence

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Appendix A
Scoping Summary Table

Level of Assessment	Aspect	Scale of Impact	Nature of Impact	Cumulative Impact	Engagement*	Relevant Government Plans, Policies and Guidelines	Section
Detailed Technical	Visual and Lighting	Moderate	Direct Cumulative Perceived	Yes	Specific	• 'Large Scale Solar Energy Guideline' (DPIE, 2022) • 'Technical Supplement - Landscape and Visual Impact Assessment (DPE, 2022)	**6.2**
Detailed Technical	Noise and Vibration	Low	Direct Cumulative Perceived	Yes	Specific	• 'NSW Noise Policy for Industry' (EPA, 2017) • 'Interim Construction Noise Guideline' (NSW DECC, 2009) • 'NSW Road Noise Policy' (DECCW, 2011) • 'Assessing Vibration: A Technical Guideline' (DECC, 2006)	**6.3**
Detailed Technical	Biodiversity	Moderate	Direct Indirect Cumulative	Yes	Specific	• 'Biodiversity Assessment Method (BAM)' (DPIE, 2020b) • 'Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance' (Commonwealth of Australia, 2013a) • 'Commonwealth Department of the Environment – Survey Guidelines for Nationally Threatened Species' (DCCEEW, various) • 'Policy and Guidelines for Fish Habitat Conservation and Management' (DPI, 2013) • 'Guidelines for Fish Friendly Water Crossings' (DPI, unknown)	**6.4**
Detailed Technical	Aboriginal Heritage	Low	Direct Indirect Cumulative Perceived	Yes	Specific	• 'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW' (OEH, 2011) • 'Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW' (DECCW, 2010a) • 'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010' (DECCW, 2010b)	**6.5**
Standard Technical	Historic Heritage	Low	Direct Indirect	No	General	• 'NSW Skeletal Remains: Guidelines for Management of Human Remains' (Heritage Office, 1998) • 'Criteria for the Assessment of Excavation Directors' (NSW Heritage Council, 2019) • 'Assessing heritage significance – a NSW Heritage Manual update' (NSW Heritage Manual – Assessing Heritage Significance' (DPE, 2023) • 'Historical Archaeology Code of Practice' (Heritage Council, 2006)	**6.6**
Detailed Technical	Traffic and Transport	Moderate	Direct Indirect Cumulative	Yes	Specific	• 'Guide to Traffic Generating Developments' (RTA, 2002) • 'Guide to Traffic Management' (Austroads, 2020) • 'Guide to Road Design' (Austroads, 2021)	**6.7**

Level of Assessment	Aspect	Scale of Impact	Nature of Impact	Cumulative Impact	Engagement*	Relevant Government Plans, Policies and Guidelines	Section
Standard Technical	Water Resources (flooding and hydrology)	Low	Direct Indirect	No	General	• 'Managing Urban Stormwater; Soils & Construction' (Landcom, 2004) • 'Controlled Activities on Waterfront Land - Guidelines for riparian corridors on waterfront land' (DPE, 2022) • 'Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings' (DPI 2003) • 'Policy & Guidelines for Fish Habitat Conservation & Management' (DPI, 2013) • 'Relevant Water Sharing Plans' (DPI , various) • 'Guidelines for Watercourse Crossings on Waterfront Land' (DPE, 2022) • 'Floodplain Risk Management Guidelines' (State of NSW and OEH, 2019) • 'Floodplain Development Manual: The management of flood liable land' (DPE, 2023)	**6.8**
Detailed Technical	Agriculture and Land Resources	Moderate	Direct Indirect	No	General	• 'Soil and Landscape Issues in Environmental Impact Assessment' (OEH, 2000) • 'Land Use Conflict Risk Assessment Guide' (DPI, 2011) • 'Large Scale Solar Energy Guideline' (DPIE, 2022) • 'Landslide Risk Management Guidelines' (AGS, undated) • 'Site Investigations for Urban Salinity' (OEH, 2002) • 'Guidelines for surveying Soil and Land Resources' (NJ McKenzie, 2008) • 'The Australian Soil Classification' (Isbell N. C., 2016) • 'Australian Soil and Land Survey Field Handbook' (NCST, 2009) • 'The land and soil capability assessment scheme' (Office of Environment and Heritage, 2012) • 'Interpreting Soil Test Results – What do all the numbers mean?' (Hazelton, 2007) • 'Managing Urban Stormwater: Soils and Construction' (Landcom, 2004)	**6.9**
Standard Technical	Economic	Moderate	Direct Indirect Cumulative	Yes	General	• None	**6.10**
Standard Technical	Social	Moderate	Direct	Yes	Specific	• 'Social Impact Assessment Guideline for State Significant Projects' (DPIE, 2023a)	**6.12**

Level of Assessment	Aspect	Scale of Impact	Nature of Impact	Cumulative Impact	Engagement*	Relevant Government Plans, Policies and Guidelines	Section
			Indirect Cumulative Perceived			• 'Technical Supplement' (DPIE, 2023b) • 'Undertaking Engagement Guidelines for State Significant Projects' (DPHI, 2024)	
Standard Technical	Hazards and Risks – Preliminary Hazard Assessment	Moderate	Direct Indirect Perceived	No	Specific	• SEPP. 33 – Hazardous and Offensive Development and Applying SEPP 33 (DoP, 2011) • 'Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis' (DoP, 2011) and Multi-Level Risk Assessment (DoP, 2011). • Hazardous Industry Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning (DoP, 2011)	**6.12.7**
Standard	Hazards and Risks – Electromagnetic Field	Low	Direct Perceived	No	General	• 'Guidelines - for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields' (ICNIRP, 1998)	**6.12.7**
Standard Technical	Hazards and Risks – Bushfire	Low	Direct Indirect	No	Specific	• 'Planning for Bushfire Protection' (RFS, 2019)	**6.14**
Standard	Air Quality and Greenhouse Gases	Low	Direct Indirect	No	General	• 'National Greenhouse Accounts Factors' (Australian Government, 2023) • 'NSW Climate Change Policy Framework' (OEH, 2016) • 'Approved Methods and Guidelines for the Modelling and Assessment of Air Pollutants in New South Wales' (NSW EPA, 2022)	**6.15**
Standard	Waste Management	Moderate	Direct Indirect	No	General	• 'Waste Classification Guidelines – Part 1: classifying waste' (NSW EPA, 2014) and Addendum (NSW EPA, 2016) • 'Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities' (NSW EPA, 2012)	**6.16**

Appendix B
Scoping Report Guidelines and Where Addressed

Requirement	Section
Structure and length	
Main report: Introduction, Strategic context, Project, Statutory context, Engagement, Proposed assessment of impacts, References Appendices: A: Scoping summary table, and B: Supporting information, including any detailed engagement or technical reports	**Whole report**
General map and GIS data specifications	
Maintain appropriate geo-referenced file formats of maps	**Whole report**
The applicant must supply the relevant GIS data to the Department as polygon datasets in one of the following file formats: shapefile, file geodatabase or MapInfo TAB	**Whole report**
Use the following coordinate system details: Datum: GDA 1994, Projection: GCS GDA 1994	**Whole report**
Maps must build on a standard base-map for the project and include: north arrow, a scale (or where a cross section is not to scale, an indication of the elevation of key features and vertical exaggeration), a legend, the source data.	**Whole report**
Accessibility and navigation	
Use plain English to explain complex information and avoid using jargon.	**Whole report**
Conform with the Web Content Accessibility Guidelines (WCAG) 2.0 Level AA and material relevant to creating accessible documents: • be provided as accessible PDF files (commonly referred to as “tagged” PDF files) • have a navigable table of contents • present information in a linear and easy to follow format • use headings (in Microsoft Word this means using heading styles, e.g. Heading 1, Heading 2, Normal) • use captions for tables, pictures and figures • include a header row in any tables • provide alternate text descriptions for all images preferably under 100 characters, except for images that are decorative • use text to convey information rather than, or in addition to, images where possible • use a contrast ratio of 3:1 for large text (18+ points or 14+ points bold) and at least 4.5:1 for text and images of text • not rely on colour to convey information and instead use text labels, patterns and symbols to supplement colour • use hyperlinks to assist with navigation through the document	**Whole report** **Whole report**
1. Introduction	
Include the applicant’s details, including ABN and address.	**1.2**
Include a statement of the project objectives, site information including address and lot details, how the site was selected, and a map of the site in its regional setting.	**2**
Include the background to the project, including: any relevant history, key strategies that will be adopted to avoid, minimise or offset the impacts of the project to the extent known at the scoping stage.	**2.5** **3.6**
Include a description of any related development, including any: • existing or approved development (including any existing use rights or continuing use rights)	**1.5**

Requirement	Section
• development that is required for the project but would be subject to a separate assessment (e.g. upgrades to ancillary infrastructure, approvals for subsequent stages of the project).	
2. Strategic context	
Identify at a high level the key strategic issues that are likely to be relevant to the project and will be investigated in more detail in the EIS	**2**
Level of detail should be proportionate to the importance of the strategic context to the project and tailored towards informing the setting of the SEARs	**2**
Key strategic issues may include: the justification of the project, relevant plans that establish a regional or local land use planning context for the project, key features of the site or surrounds that could affect or be affected, whether the project is likely to generate cumulative impacts with other relevant future projects in the area, and identifying whether the applicant has entered into any agreements with other parties to mitigate or offset the impacts of the project	**2**
3. Project	
Overview of the project including: • the project area, including the area likely to be physically disturbed by the project • the conceptual physical layout and design of the project • the main uses and activities that would be carried out on site as well as the materials and products that would be transported to and from the site • the likely timing of the delivery of the project, including staging, phases (e.g. construction, operations, decommissioning) or sequencing of staging	**3**
Identify aspects of the projects where some flexibility may need to be incorporated into the design to allow the final design to be refined or changed over time without further approval	**3.3**
Identify any restrictions or covenants that apply to the land.	**N/A**
Include a high-level analysis of feasible alternatives considered and rejected, including the consequences of not carrying out the development.	**3.6**
4. Statutory context	
This section should provide an overview of the key statutory requirements for the project, having regard to: • the EP&A Act and EP&A Regulation • other relevant legislation • relevant environmental planning instruments • relevant approvals (e.g. concept plan approvals, staged DA consents)	**4**
The statutory requirements should be summarised in a table under the following headings: Power to grant consent, Permissibility, Other approvals, Pre-conditions to exercising the power to grant consent, and Mandatory matters for consideration	**4**
5. Community Engagement	
Identify what engagement has already been carried out that is relevant to setting the SEARs, this may include: • community engagement that has been carried out by other parties that is relevant to the project • any actions taken by the applicant to identify and engage with key groups or individuals within the community that may have an interest in the project • any actions taken by the applicant to inform, consult or engage with the community during the development of the project or preparation of the scoping report Engagement should also be undertaken having regard to the community participation objectives in the Department's Undertaking Engagement Guidelines for State Significant Projects	**5**

Requirement	Section
Summarise the key findings of any community engagement carried out and give an early indication of community views on the project using suitable maps, graphics and tables	5
Identify the likely level of community interest in the project and the geographic extent of this interest (e.g. local: < 5 km from the site; regional: 5-100 km from the site or state: > 100 km from the site)	5
Group the community views on the project into one of the following categories: • Strategic context (e.g. key natural/built features that could be impacted, and the potential cumulative impacts) • Alternatives that may be considered • Statutory issues • Community engagement during the preparation of the EIS • Key matters to be assessed during the EIS • Issues beyond the scope of the project or not relevant	5
Summarise the community engagement that will be carried out during the preparation of the EIS, having regard to the findings of any community engagement carried out during scoping and the community participation objectives in the Department's Undertaking Engagement Guidelines for State Significant Projects including: • identify the key stakeholders (councils, government agencies, special interest groups, people living close to the site) for further engagement, to the extent that this will be known at the scoping stage • describe what actions will be taken to identify and engage with other interested stakeholders during the preparation of the EIS • describe the key actions that will be carried out to: i. keep the community informed about the project ii. obtain feedback from the community on the project iii. engage with certain stakeholders on the detailed assessment of key matters • demonstrate that these actions are consistent with the community participation objectives in the Undertaking Engagement Guidelines for State Significant Projects • describe how the effectiveness of this engagement will be monitored, reviewed and adapted over time to encourage community participation in the project	5
6. Proposed assessment of impacts	
Matters that should be considered by the project: access (e.g. traffic and transport), air quality, amenity (e.g. noise, visual), biodiversity, built environment, economic, hazards and risk (e.g. bushfire, flooding, waste), heritage (Aboriginal and non-Aboriginal), land, social, water. These specific matters can be divided further into different components of the specific matter, where relevant.	6
Key factors that should be considered for each matter: • the scale and nature of the likely impacts of the project and the sensitivity of the receiving environment • whether the project is likely to generate cumulative impacts with other relevant future projects in the area • the ability to avoid, minimise and/or offset the impacts of the project, to the extent known at the scoping stage • the complexity of the technical assessment of the project It is important to note that the applicant is not required to carry out a detailed assessment of each factor and document this assessment in the scoping report. This should be done in the detailed assessment of the project in the EIS.	6
Appendix A	

Requirement	Section
Include a scoping summary table which groups the matters requiring further assessment in the EIS by the level of assessment required, and identify: • whether any cumulative impact assessment is required, and the likely level of this assessment (e.g. standard or detailed) • whether any specific community engagement will be carried out on the matter during the preparation of the EIS • the relevant government plans, policies and guidelines that will be considered during the assessment of the impacts of the project on the matter • the relevant section of the scoping report where the assessment of the impacts on the matter are discussed in more detail.	**Appendix A**
Document the matters requiring no further assessment in the EIS in a table in the scoping report. This table should identify each matter and explain why no further assessment is necessary.	**Appendix A**

Appendix C
Preliminary Visual Impact Analysis

MAKING COMPLEX EASY

A TETRA TECH COMPANY

EMU PARK ENERGY HUB

Preliminary Visual Impact Analysis

411355
01 October 2025
1-0

rpsgroup.com

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
0-1	Draft	T. Connor			10/09/2025
1-0	Final	T. Connor	T.Connor	T. Connor	1/10/2025

Approval for issue

Timothy Connor  01 October 2025

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TERMINOLOGY

Term	Definition
KEY TERMINOLOGIES	
Application	Application for Development Consent under Part 4.7 of the EP&A Act; and Determination under Part 9 of the EPBC Act
Associated dwelling	Habitable dwelling which does have any agreement with the Project
Development corridor	Preliminary area of Project-related disturbance determined for use in Scoping Report phase, which will be refined for the EIS
Magnitude	The apparent size of an energy project in the landscape or when viewed from a given viewpoint. Magnitude is influenced by factors including: • the apparent size of a project decreases significantly as the distance from the viewer increases • the apparent size of a project increases with the physical scale and dimensions and the number of changes to the landscape that would be visible, although these factors are less discernible as distance from the viewer increases. (NSW Department of Planning, Housing and Infrastructure, 2024)
Non-associated dwelling	Habitable dwelling which does not have an agreement with the Project
Project	A solar farm as described in **Section 2** of this report to which this Application applies
Project Area	Red boundary shown on key figures to which the Application applies (unless otherwise stipulated)
Receiver	Assessment location
Scenic amenity	"A measure of the relative contribution of each place to the collective appreciation of the landscape." (Australian Institute of Landscape Architects, 2018)
Sensitivity	The capacity of a landscape or viewpoint to absorb the impacts from a proposed land use change and/or built form. The following examples are provided in the Technical Supplement for Landscape and Visual Impact Assessment (NSW Department of Planning, Housing and Infrastructure, 2024): • a pristine natural environment is likely to be more sensitive to change than an industrial area a view from a residence is also likely to be more sensitive to change than from a local road where views are more intermittent and less frequent.
The Applicant	Emu Park Energy Pty Ltd
Values	"Any aspect of landscape or views that people consider to be important. Landscape and visual values may be reflected in local, state or federal planning regulations, other published documents or be established through community consultation and engagement, or as professionally assessed." (Australian Institute of Landscape Architects, 2018)
View	'The sight of a landscape or scene.' (NSW Department of Planning, Housing and Infrastructure, 2024)
Viewpoint	"The specific location of a view, typically used for assessment purposes."
Visual catchment	The Australian Institute of Landscape Architects describes visual catchment as "Areas visible from a combination of locations within a defined setting (may be modelled or field-validated)." (Australian Institute of Landscape Architects, 2018)
Visual impact	The impact on views from private and public places. It is determined by considering the visual magnitude sensitivity (NSW Department of Planning, Housing and Infrastructure, 2024).

Term	Definition
OTHER TERMINOLOGIES	
AHD	Australian Height Datum
BESS	Battery and Energy Storage System
DPHI	NSW Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Ha	Hectares
kV	Kilovolt
LCZ	Landscape Character Zone
LEP	Local Environment Plan
MW	Megawatt
NAD	Non-associated dwelling
O&M	Operations and Maintenance
RPS	RPS AAP Consulting Pty Ltd
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSD	State Significant Development
ZVI	Zone of Visual Influence

1 INTRODUCTION

RPS AAP Consulting Pty Ltd was engaged by Emu Park Energy Pty Ltd (Applicant) to conduct a preliminary landscape character and visual impact assessment to support the Scoping Report for Emu Park Energy Hub (Project).

The Project includes the construction, operation and decommissioning of up to a 350 MW solar farm with a 200 MW / 800 MWh battery energy storage system (BESS) and associated infrastructure in the Richmond Valley Local Government Area (LGA).

The Project will supply electricity to the national electricity grid, via the existing electricity transmission network.

The Scoping Report applies to the preliminary Project Area as shown on **Figure 2-1** within the Richmond Valley LGA. The land within the Project Area is zoned RU1 Primary Production.

The Project Area both historically and currently operates agriculturally for grazing.

The Scoping Report supports a State Significant Development (SSD) Development application under Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and applies to the Project Area.

The following guidelines have been considered in this assessment:

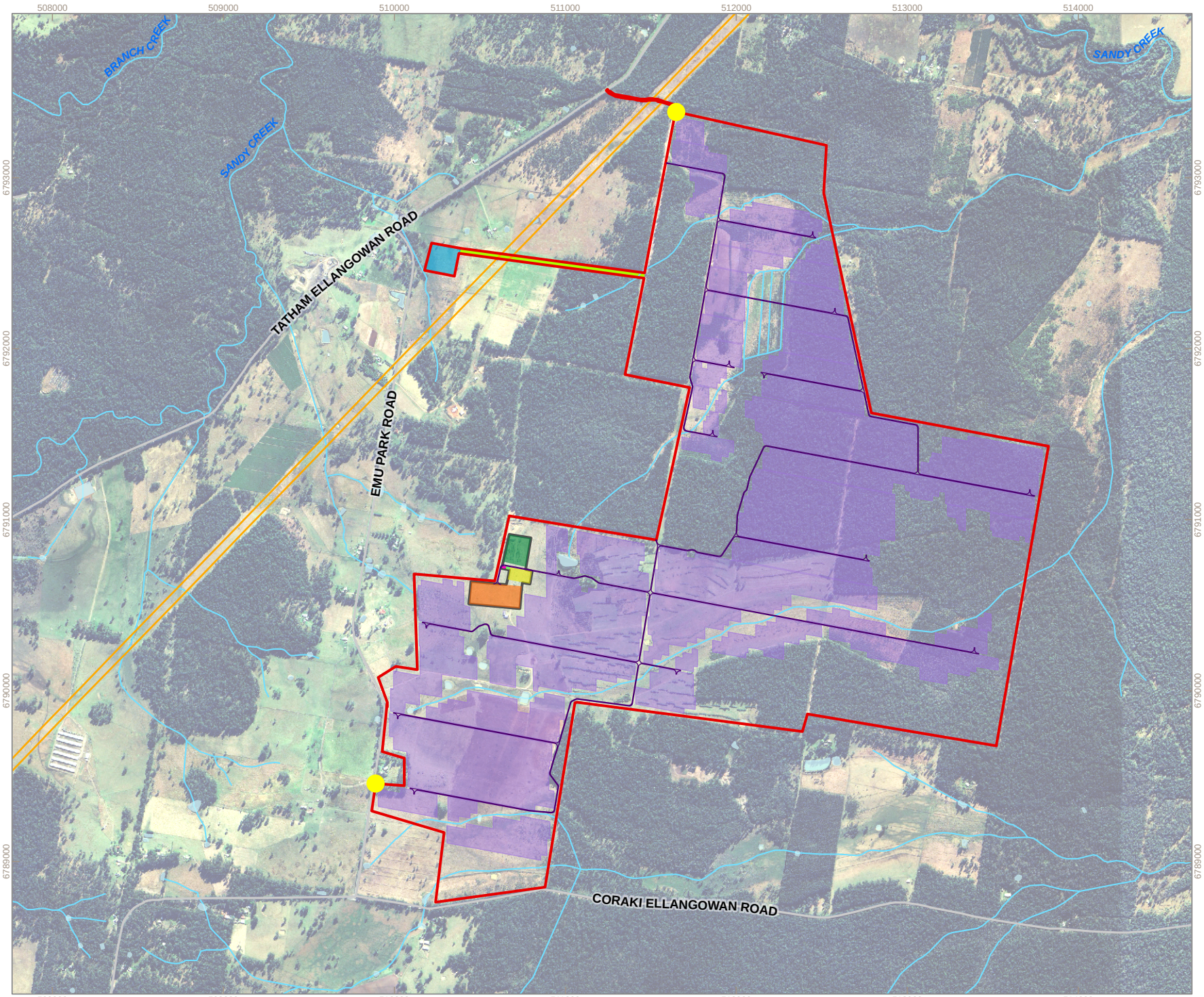
- 'Large-Scale Solar Energy Guideline' (DPE, 2022) (Solar Guideline);
- 'State Significant Development Guidelines' (DPHI, 2024a);
- 'State Significant Development Guidelines - Preparing a Scoping Report: Appendix A to the State Significant Development Guidelines' (DPIE, 2022a) (Scoping Report Guidelines);
- 'Cumulative Impact Assessment Guidelines for State Significant Projects '(DPIE, 2022b); and
- 'Large Scale Solar Energy Guideline – Technical Supplement for Landscape Character and Visual Impact Assessment' (NSW Department of Planning, Housing and Infrastructure, 2024) (Technical Supplement)

2 THE PROJECT

The Project will involve the construction, operation and decommissioning of a solar farm, BESS, electrical infrastructure, other infrastructure and ancillary activities generally including the following components:

Element	Feature	Specification
Energy generation	Solar arrays	• Approximately 560,000 PV panels
Power conversion units	Power station (inverter, transformer and associated equipment)	• 85 units for PV array • 57 inverters for BESS • 6 m x 3 m x 2.4 m (L x H x W) dimensions
Electrical Reticulation Network	Substation site	• 33 kV switching room • Hamonic filter • Capacitor banks • Auxiliary and earthing transformers • 360MVA 330/33/33kV high voltage transformer • High voltage switchgear • SCADA
	On site switching station	• 330 kV switching station • Auxiliary power supply for switching station from transmission network • Incoming 330 kV bay from onsite substation • Two outgoing 330 kV bays to transmission network • Duplicate line protection on 330 kV bays
	On site switching station and external connection to the TransGrid Network	• Transmission line easement to connect to the existing 330kV TransGrid overhead powerlines (line 89 cut-ins) • Optical ground wire (OPGW) upgrades from the onsite switching station to the 330 kV transmission substations • All reticulation may be either underground or overhead cables
	Internal electrical reticulation network	• 33 kV electrical reticulation network • Internal solar low voltage cables • Electrical reticulation will generally follow rows of panels and internal access routes, where practical • The solar array/s and BESS will connect into the onsite substation directly • All reticulation may be either underground or overhead cables
Other infrastructure	Operations and Maintenance (O&M) facility	• Site office, maintenance, storage facilities and other associated infrastructure
Energy Storage	Lithium-ion phosphate (LFP) containerised BESS	• 200 MW / 800 MWh • 228 units 60 inverters • 6 m x 3 m x 2.4 m (L x H X W) dimensions
	Temporary storage and Construction	• Additional temporary areas to facilitate storage and construction
	Construction and operational infrastructure	• Site office, parking, maintenance and storage facilities, communications, fencing, meteorological masts • Construction compounds (including office buildings, work areas, parking, waste disposal, storage facilities and associated amenities and infrastructure) • Water management structures
Ancillary activities	Resources for construction and maintenance	• Water, gravel, concrete, aggregate for construction from external sources

Element	Feature	Specification
		• Rock crushing, blasting, geotechnical investigations, concrete batching • Pre-construction activities (including but not limited to geotechnical investigations, met mast installation, site establishment works)
Access	Internal access tracks	Nominally 6 m wide unsealed gravel access roads
	Port to site access	Brisbane
Interactions with other projects	None	N/A
Workforce	Construction Operations	300 FTE 5 FTE
Preliminary Disturbance	Maximum project disturbance	Up to 580 ha within the Project Area
Subdivision	Preliminary disturbance	Subdivision and purchase of land for substation/s and access



Legend

Project components

- Project Area
- Infrastructure
- PV Array
- BESS
- Building OM & Storage
- Amenities
- Laydown Area
- Main Substation Area
- Powerline Easement
- Collector Substation
- Internal Access Roads
- Optional Site Access

Existing Environment

- Roads
- Electricity Transmission Line
- Watercourse
- Waterbody

0 0.5 1 km

SCALE 1:30,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Conceptual Layout
AUTHOR: NATALIE.WOOD
DATE CREATED: 3/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

RPS
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FIGURE 2-1: PRELIMINARY CONCEPTUAL PROJECT LAYOUT

3 METHODOLOGY

3.1 NSW Renewable Energy Planning Framework

The NSW Government has developed the 'Renewable Energy Planning Framework' to help achieve the transition to renewable energy, support legislated net zero targets and secure an affordable supply of electricity for the people of NSW. The framework provides a suite of policies that will guide the planning and assessment process for renewable energy development and infrastructure.

A range of documents, guidelines and tools fit together to form the framework. Figure 3-1 shows the relationship of framework documents to different types of development.

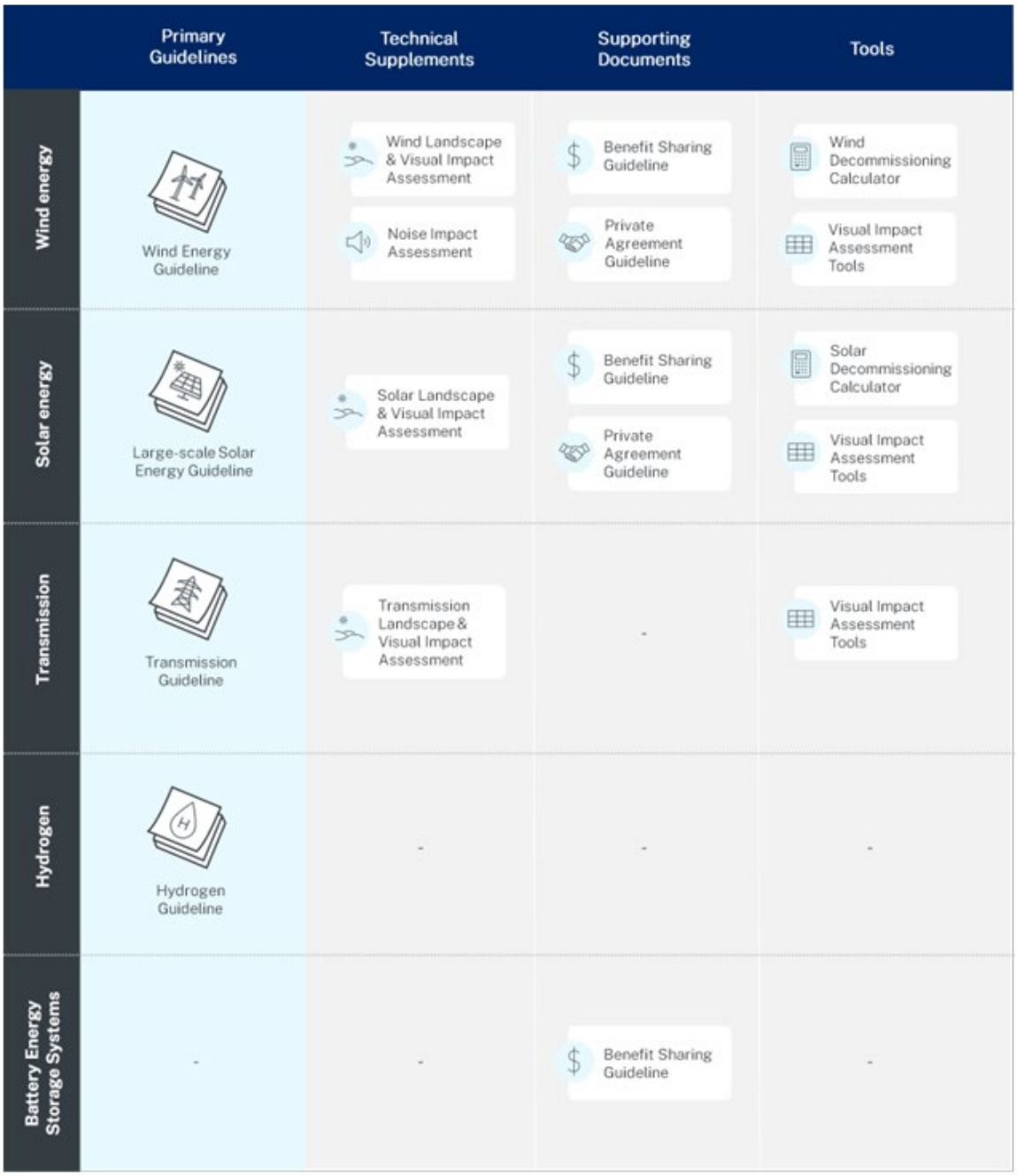


Figure 3-1 Framework documents (DPHI, 2024)

3.2 Methodology overview

The methodology for this preliminary landscape character and visual impact analysis is undertaken with reference to the following framework documents:

- Solar Guidelines.
- Technical Supplement.

The 'Solar Guideline and Technical Supplement' states that assessments for large scale solar farms are to include a preliminary landscape character and visual impact analysis.

This report includes a description of Landscape Character Zones (LCZs) to help understand the sensitivities associated with the landscape. This report also includes a visual impact analysis that identifies public viewpoints and private receivers that require assessment in the EIS. Applicants should also use this process to identify where to focus consultation with landowners and the local community.

Preliminary Assessment Tools are used to identify viewpoints where the Project may have impacts and warrant further consideration as well as those that are likely to experience little or no impacts, which ensures only targeted fieldwork and assessments in the EIS phase.

This report sets out to identify potential public viewpoints and private receivers relevant to the Project.

The Technical Supplement outlines the following tasks in relation to the preliminary landscape character and visual impact analysis:

1. Undertake a baseline landscape character assessment of the surrounding areas within 5km of the Project Area;
2. Identify viewpoints from public roads and rail lines within 2.5 km of the Development Corridor and other public and private viewpoints within 4 km of the Development Corridor;
3. Undertake viewshed mapping to identify areas from which the Project may be visible.

In addition, this preliminary landscape character and visual impact analysis undertakes a "simple assessment" of the potential visual impacts in accordance with the Technical Supplement. The simple assessment calculates which public viewpoints and private receivers require further visual assessment at the EIS phase.

4 BASELINE LANDSCAPE CHARACTER

The Project is approximately 22 km south of Casino, and approximately 700 km north of Sydney (by road) (refer Figure 4-1).

4.1 Existing landscape character zones

The Technical Supplement states that if the landscape includes distinct areas that have different qualities, the study area (nominally 5km from the project area) should be broken down into different landscape character zones (LCZs).

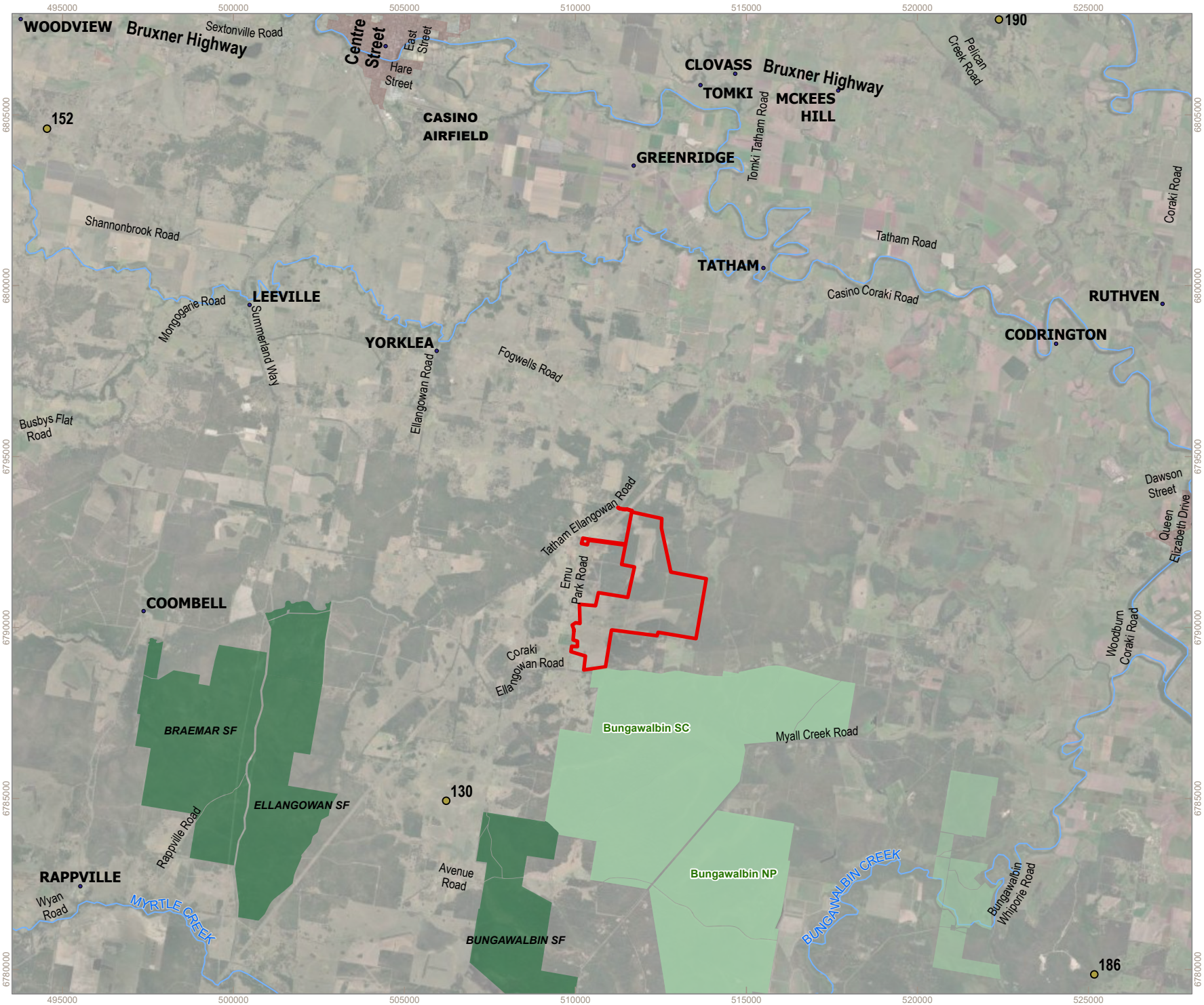
The Technical Supplement identifies the following elements which might distinguish LCZs in the vicinity of the Project:

- physical influences (such as geology, soils, landform, natural drainage and waterbodies)
- ecological characteristics and land cover of an area (such as whether it is forested, wetland, scrub or grass) and the quality and type of vegetation cover
- the influence of human activity, including land use and management and the character of any settlements and buildings
- key landscape features or attributes associated with high visual interest or quality that stand out visually, including natural (such as a distinctive mountain peak or hilltop), cultural, agricultural features
- the aesthetic and perceptual aspects of the landscape, particularly those that are key contributors to the distinctive character of the landscape (such as its scale, complexity, openness, tranquillity or wildness)
- aspects that have important Aboriginal cultural heritage value (except artefacts and tangible values that would be assessed as part of an Aboriginal cultural heritage assessment) and why they are valuable to the community
- the overall character of the landscape in the study area, including any identifiable distinctive landscape character types or areas
- the condition of the landscape, including that of elements or features such as buildings or vegetation
- the planning designations of an area relating to landscape character, including sensitive land use designations, zonings and heritage listings
- the location of any proposed, operational or approved local and regional solar energy developments, including projects that may create direct or indirect cumulative impacts with the Project.

The Richmond Valley Local Environment Plan (LEP) sets out requirements for zoning which influence landscape character. The zoning around the Project Area is mapped in Figure 4-2.

A preliminary desktop assessment has identified five LCZs within the 5km study area (Figure 4-3). This preliminary desktop assessment would form the basis of landscape character assessments to be assessed in detail for the EIS:

- **LCZ 01** – Conservation areas
- **LCZ 02** – Power easement
- **LCZ 03** – Forested non-conservation areas
- **LCZ 04** – Larger scale agricultural use
- **LCZ 05** – Smaller scale agricultural use



Legend

- Project Area
- Airport
- NSW State Forest
- NPWS Reserve
- NPWS Reserve
- Built Up Areas
- Elevations

0 2 4 6 km

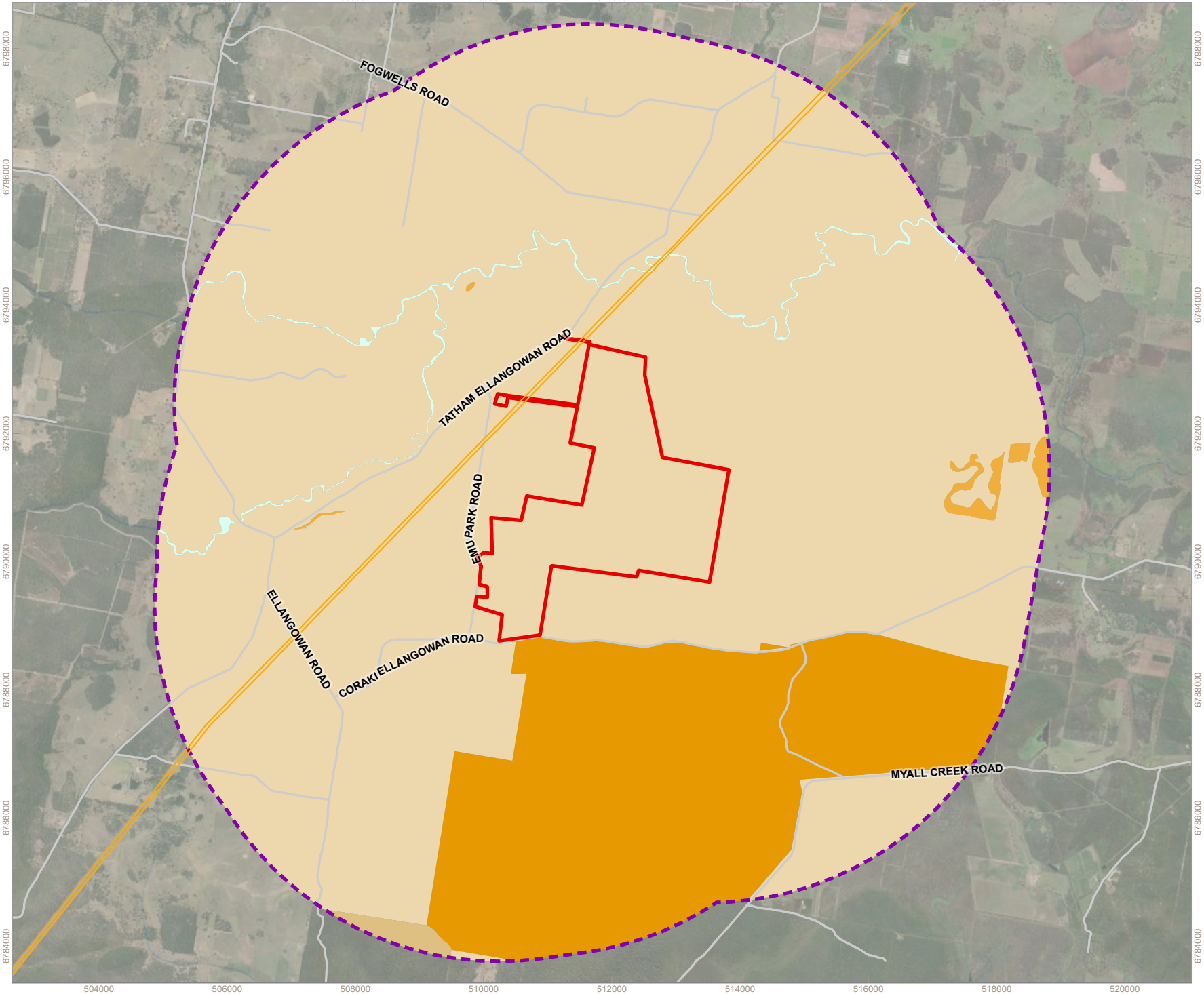
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A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Regional Locality
AUTHOR: NATALIE.WOOD
DATE CREATED: 10/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

rps
A TETRA TECH COMPANY

FIGURE 4-1: LOCATION CONTEXT



Legend

Project components

- Project Area

Existing Environment

- Roads
- Transmission line
- Cadastre
- 5km Buffer

Land Zoning

- C1 - National Parks and Nature Reserves
- C2 - Environmental Conservation
- RU1 - Primary Production
- RU3 - Forestry
- W1 - Natural Waterways

0 1 2 3 km

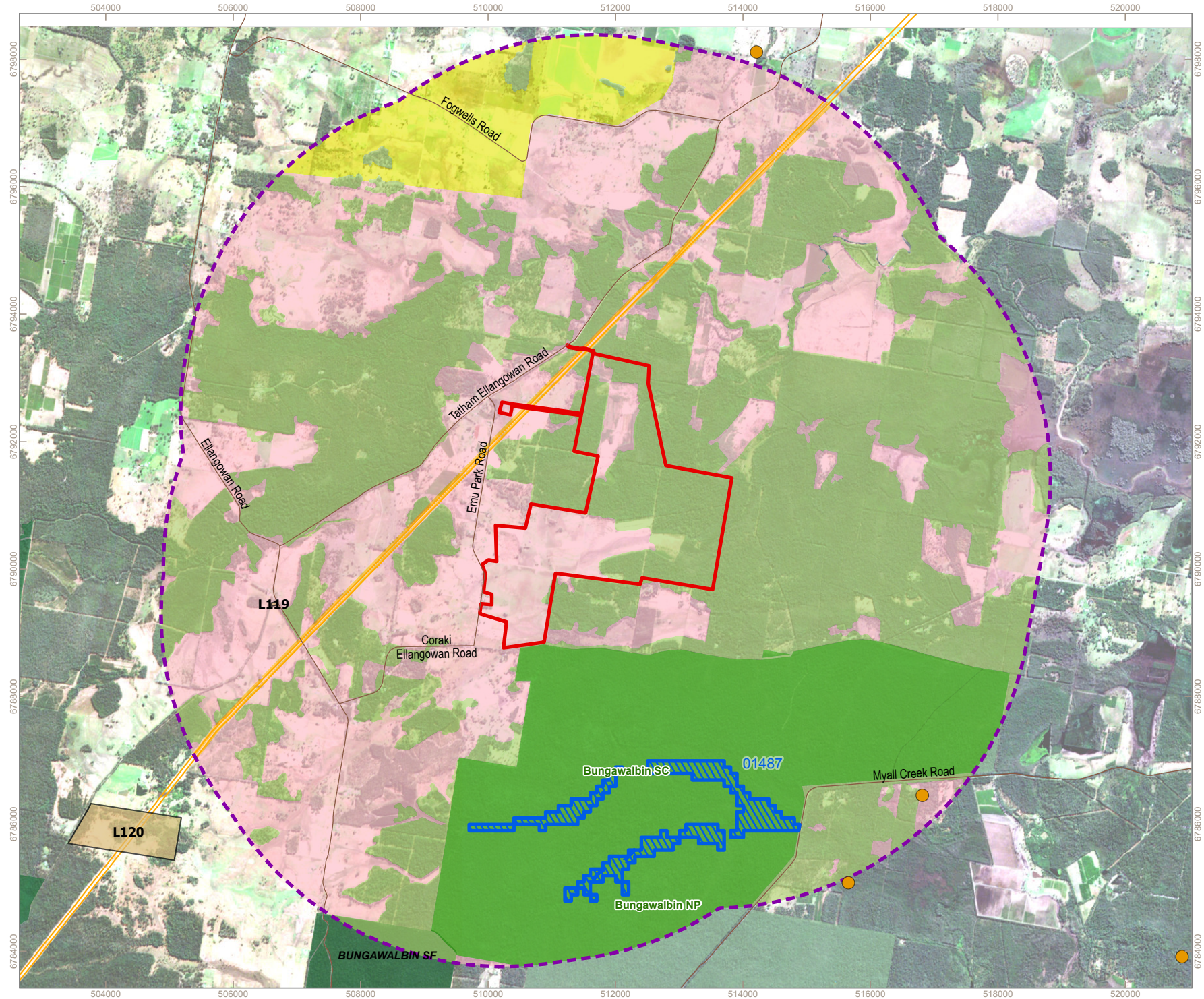
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A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP:LEP Zoning
AUTHOR: NATALIE.WOOD
DATE CREATED: 10/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

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FIGURE 4-2: LEP ZONING



Legend

- Project Area
- 5km Landscape character assessment study area

Landscape Character Zones

- LCZ01 = Conservation area
- LCZ02 = Power easement
- LCZ03 = Forested non-conservation areas
- LCZ04 = Larger scale agricultural use
- LCZ05 = Smaller scale agricultural use

Existing Envionment

- Primary Road
- Arterial Road
- Sub Arterial Road
- NPWS Reserve
- NSW State Forest
- AHIMS
- Local heritage item
- State Heritage Register

0 1 2 3 km

SCALE 1:80,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP:LCZ
AUTHOR: NATALIE.WOOD
DATE CREATED: 10/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

A TETRA TECH COMPANY

FIGURE 4-3: LANDSCAPE CHARACTER ZONES

4.2 Landscape character assessment

4.2.1 LCZ 01 – Conservation areas

LCZ 01 is comprised of forested areas associated with the Bungawalbin National Park and Bungawalbin State Conservation Area in the southwest of the study area.

Vegetation in the Bungawalbin State Conservation Area consist of grassy sclerophyll forest with dense canopies covering the full area within the study area (NSW National Parks and Wildlife Service, 2012)

There are areas of the Bungawalbin State Conservation Area which have been listed on the state heritage register as “high conservation value old growth forest”.

This LCZ is protected by planning and legislative measures.

The topography, as indicated by contour mapping, is moderately rolling.



Plate 4-1 LCZ 01 - representative image of Bungawalbin State Conservation Area (source: Google Street View)

4.2.2 LCZ 02 – Power easement

The power easement traverses the study area in a generally north to northeasterly direction.

The power easement is characterised by the large power infrastructure dominating that corridor. The LCZ. is cleared of vegetation and is grassland.

This power easement is distinguished by the substantial power infrastructure that dominates the corridor. The LCZ is cleared of woody vegetation and consists primarily of grassland.

Human intervention within this LCZ is highly evident.

The topography, as indicated by contour mapping, is moderately rolling.



Plate 4-2 LCZ 02 - representative image of power easement (source: Google Street View)

4.2.3 LCZ 03 – Forested non-conservation areas

LCZ03 is the forested non-conservation areas which are interspersed throughout the study area.

The LCZ is characterised by woody vegetation with substantial canopy cover.

This LCZ contrasts with the adjacent agricultural land uses.

Human intervention within this LCZ is evident.

The Project Area includes this type of LCZ.

The topography of this LCZ varies throughout the study site; however, the topography remains relatively gentle without any steep inclines.



Plate 4-3 LCZ 03 - representative image of forested non-conservation areas (source: Google Street View)

4.2.4 LCZ 04 – Larger scale agricultural use

LCZ04 are the larger scale agricultural land uses across the study area.

The LCZ is characterised by open grassland with farm buildings, fencing and other indicators of agricultural activity.

Human intervention within this LCZ is highly evident.

The Project Area includes this type of LCZ.

The topography of this LCZ varies throughout the study site; however, the topography remains relatively gentle without any steep inclines.



Plate 4-4 LCZ 04 - representative image of the large-scale agricultural use areas (source: Google Street View)

4.2.5 LCZ 05 – Smaller scale agricultural use

LCZ05 represents the smaller scale agricultural land uses at the northern end of the study area.

The LCZ is characterised by open grassland with farm buildings, fencing and other indicators of agricultural activity. The settlement pattern is on a smaller scale when compared to the settlement patterns of LCZ04.

Human intervention within this LCZ is highly evident.

The topography, as indicated by contour mapping, is slightly rolling.



Plate 4-5 LCZ 05 - representative image of smaller scale agricultural use areas (source: Google Street View)

5 PRELIMINARY VISUAL AMENITY ASSESSMENT

5.1 Viewpoint identification

The first step of the scoping stage preliminary visual amenity assessment is to identify private receivers and public viewpoints within vicinity of the Project. The extent of the study area for this assessment is the Project Area as shown in Figure 2-1, with the study area being:

- 4km from the Development Corridor for private receivers
- 2.5km from the Development Corridor for public viewpoints.

Potentially affected private receivers and public viewpoints have been identified in accordance with the guidance provided in Table 2 of the Technical Supplement.

Table 5-1:Viewpoint examples

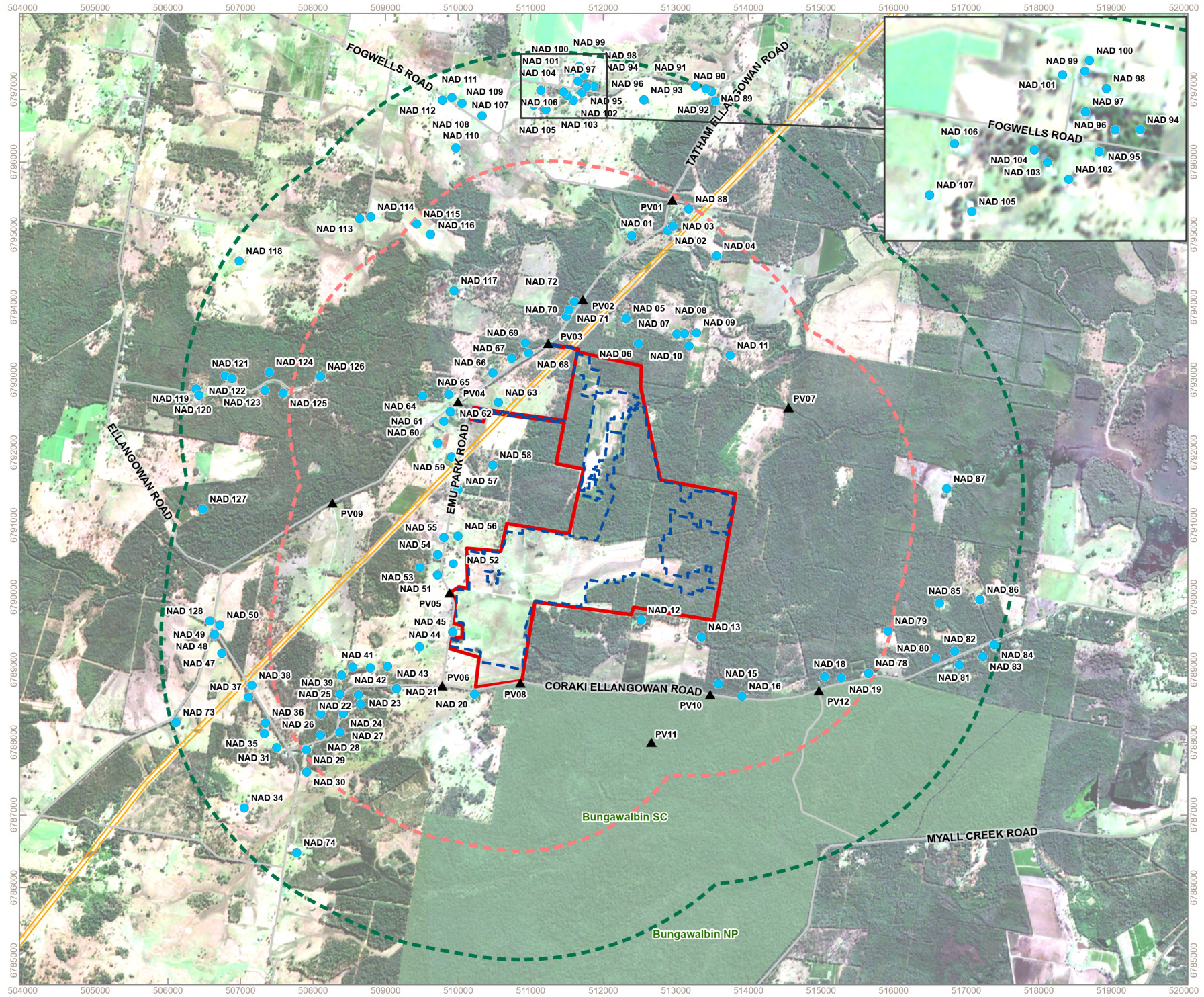
Type	Viewpoint examples
Private receiver	• Private recreation areas and sporting fields (land zoned RE2) • Dwellings in rural areas (zoned RU1, RU2, RU3, RU4 and RU6), large lot residential areas (zoned R5) and environmental or conservation areas (zoned C2, C3 and C4) Tourist and visitor accommodation (bed and-breakfasts, motels and hotels) and places of worship • Dwellings in residential and rural villages (zoned R1, R2, R3, R4 and RU5) • Historic rural homesteads/residences on the national, state or local heritage list
Public viewpoint	• State highways, freeways and classified main roads • Cemeteries, memorial parks • Tourist roads and scenic drives • Significant entry ways to regional towns and cities • Tourist uses in tourist areas (zoned SP3) • Publicly accessible green and open spaces, including picnic areas, parks, public recreation areas and lookouts • Town centres and central business districts

Table 5-2 lists the total number of private receivers and public viewpoints identified within 4 km. The identified private receivers and public viewpoints are shown on Figure 5-1.

Table 5-2: Identified private receivers and public viewpoints

Viewpoint type	Viewpoint examples	Receivers/viewpoints identified
Private receiver	Dwellings in rural areas (zoned RU1, RU2, RU3, RU4 and RU6), large lot residential areas (zoned R5) and environmental or conservation areas (zoned C2, C3 and C4)	119 non-associated dwellings (NADs)
Private receiver	Private recreation areas and sporting fields (land zoned RE2)	Nil identified
Private receiver	Tourist and visitor accommodation (bed and-breakfasts, motels and hotels) and places of worship	Nil identified
Private receiver	Dwellings in residential and rural villages (zoned R1, R2, R3, R4 and RU5)	Nil identified
Private receiver	Historic rural homesteads/residences on the national, state or local heritage list	Nil identified
Public viewpoint	State highways, freeways and classified main roads	Nil identified
Public viewpoint	Local sealed and unsealed roads	12 Public Viewpoints
Public viewpoint	Cemeteries, memorial parks	Nil identified
Public viewpoint	Tourist roads and scenic drives	Nil identified
Public viewpoint	Significant entry ways to regional towns and cities	Nil identified
Public viewpoint	Tourist uses in tourist areas (zoned SP3)	Nil identified

Viewpoint type	Viewpoint examples	Receivers/viewpoints identified
Public viewpoint	Publicly accessible green and open spaces, including picnic areas, parks, public recreation areas and lookouts	Nil identified
Public viewpoint	Town centres and central business districts	Nil identified



Legend

- Project Area
- 4km Visual impact study area
- 2.5km Development corridor offset
- Existing Transmission line
- NPWS Reserve
- NSW State Forest
- Non-associated residence
- Public viewpoint

0 1 2 3 km

SCALE 1:70,000
A4 SIZE / GDA2020 (EPSG:7856)

PROJ: 604-OEENVNTL-411355
CLIENT: Metlen
MAP: Receivers
AUTHOR: NATALIE.WOOD
DATE CREATED: 17/09/2025
VERSION: A

DATA SOURCES:
Client, RPS, NSW Spatial Services, ESRI, Geoscience Australia,

RPS A TETRA TECH COMPANY

FIGURE 5-1: IDENTIFIED RECEIVERS

5.2 Viewshed Mapping

5.2.1 Zone of visual influence

A viewshed map identifies all areas from which the Project may be viewed, known as the zone of visual influence (ZVI). The purpose of the viewshed mapping is to assess the visibility of the Project from surrounding areas.

The viewshed mapping is conducted using a digital elevation model (DEM).

The ZVI analysis accounts for topography only and does not consider intervening elements such as buildings and vegetation. As a result, the ZVI represents a theoretical worst-case scenario for visibility of the Project (refer Figure 5-2).

Table 5-3 lists the configurations used to generate the ZVI.

Table 5-3 Configuration for Generation of ZVI

Item	Configuration
Software	ArcGIS Pro 3.3
Base Topographical Data	Geoscience Australia 3 second DEM
ZVI Base Point Frequency	Each corner/vertex of the provided solar array design.
Eye Height	1.8m from ground level as determined by the DEM
Receiver Height	5m from ground level as determined by the DEM

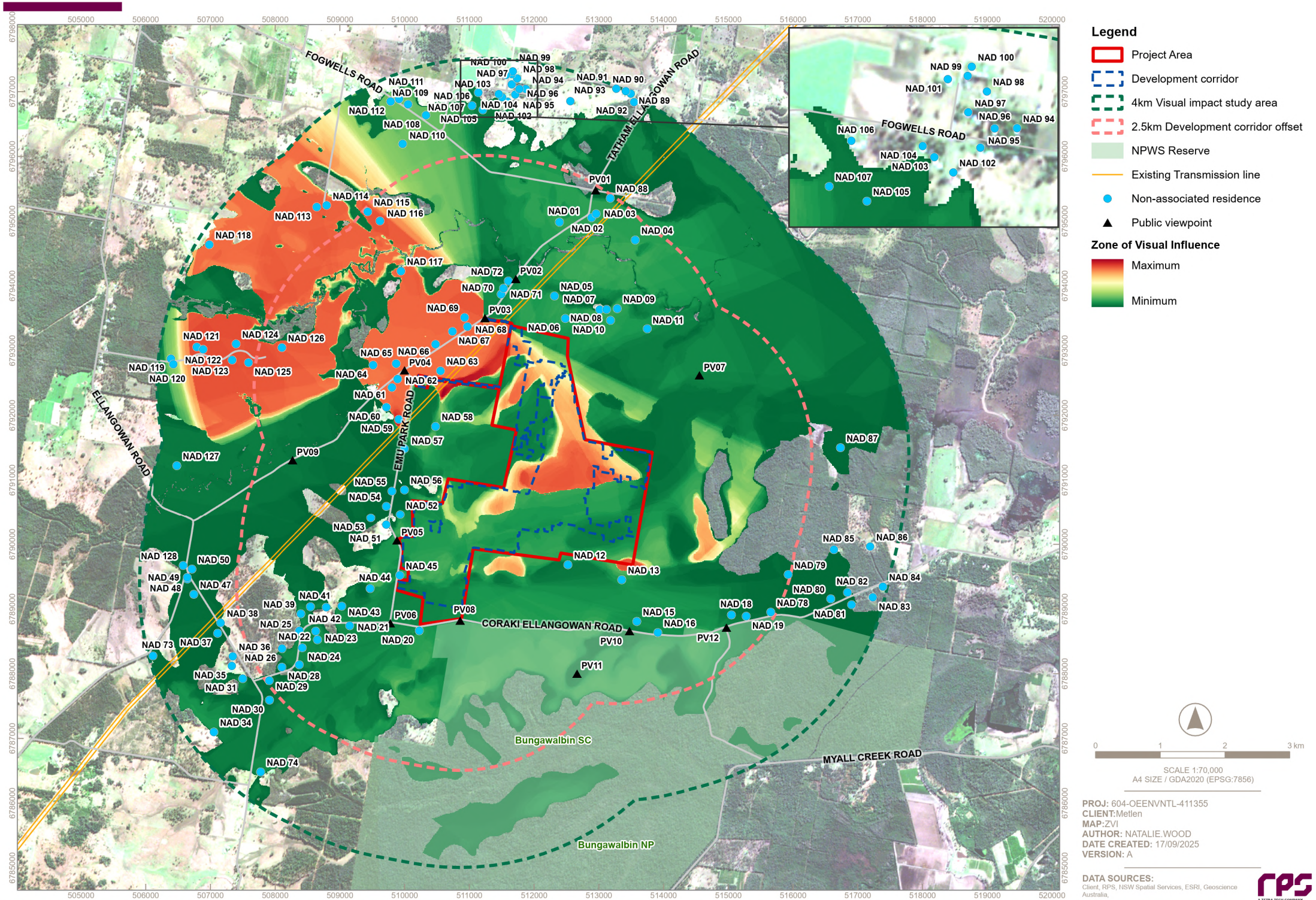


FIGURE 5-2: ZONE OF VISUAL INFLUENCE (ZVI)

5.2.2 Reverse viewshed mapping

A reverse viewshed map is used to demonstrate which parts of the Project are most visible to the identified public viewpoints and private receivers.

The reverse viewshed mapping is conducted using a DEM. The reverse viewshed mapping analysis accounts only for topography and does not consider intervening elements such as buildings and vegetation.

Table 5-4 lists the configurations used to generate the reverse viewshed mapping. The results of the reverse viewshed mapping are mapped within the project area to produce the results shown on Figure 5-3.

Table 5-4 Configuration for generation for reverse viewshed mapping

Item	Configuration
Software	ArcGIS Pro 3.3
Base Topographical Data	Geoscience Australia 3 second DEM
ZVI Base Point Frequency	Each corner/vertex of the provided solar array design.
Eye Height	1.8m from ground level as determined by the DEM
Receptor Height	5m from ground level as determined by the DEM

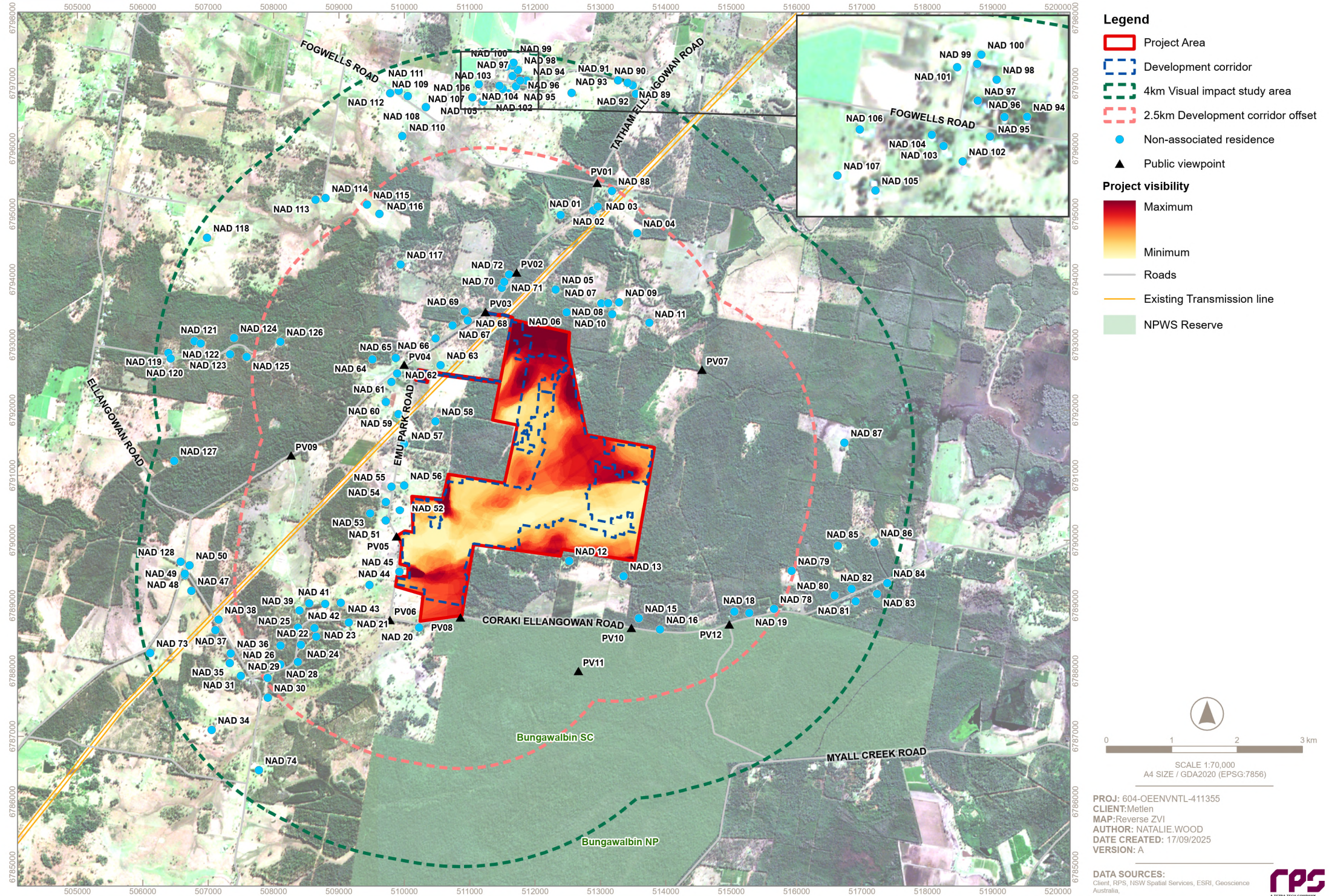


FIGURE 5-3: REVERSE VIEWSHED MAP

6 SIMPLE ASSESMENT

The simple assessment is a basic assessment of visual impacts, using tools within the Technical Supplement, and, using worst case scenarios for the:

- Visibility of the project from receivers;
- Visual sensitivity of public viewpoints and private receivers.

Simple assessment is used to identify public viewpoints and private receivers with minimal visibility of the Project Area; these identified receivers are then removed from further assessment, and the remaining receivers will undergo more detailed visual impact evaluation during the EIS phase of the approval process.

6.1 Methodology

The requirement for further assessment at the EIS phase is calculated by evaluating the horizontal and vertical fields of view to establish a theoretical worst-case scenario of the visual field, without accounting for mitigating factors such as topography, vegetation, and existing structures. This simple assessment is based on a 4 km buffer od the Development Corridor.

- **Horizontal Field of View (H_FoV)**: is determined by measuring the angles between the greatest and smallest bearings from the receiver. For every 10 degrees of horizontal field of view, the Project is considered to occupy one horizontal visual cell.
- **Vertical Field of View (V_FoV)**: is calculated using trigonometric methods based on the height of the viewpoint/receiver and the minimum/maximum heights of the Project. For every 1 degree of vertical field of view, the Project is deemed to occupy one vertical visual cell. The vertical field of view is calculated using the Preliminary Assessment Tool in the Technical Supplement.

The total number of occupied cells for the simple assessment is the number of horizontal visual cells multiplied by the number of vertical visual cells. Table 6-1 identifies the magnitude rating and the threshold of the number of occupied cells that trigger further assessment of the private receiver or public viewpoint in the EIS phase.

Table 6-1 Magnitude rating for further assessment

Magnitude rating	Number of occupied cells
Further assessment required is required at the EIS phase	• 8 or more occupied cells – potential low to very high magnitude rating resulting in potential moderate to high visual impacts
No further assessment required	• 7 or fewer occupied cells - very low magnitude rating resulting in low visual impacts. or • Outside the zone of visual influence (ZVI) resulting in elimination from further assessment

6.2 Simple assessment results

Table 6-2 identifies which identified public viewpoints and private receivers require further assessment during the EIS.

Table 6-2: Simple assessment of identified private receivers and public viewpoints

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_01	Non Associated Dwelling	153.1272	-28.9731	35.23	18.69	1724	Yes	1	7	7	No further assessment required
NAD_02	Non Associated Dwelling	153.1323	-28.9725	35.23	13.25	1900	Yes	1	7	7	No further assessment required
NAD_03	Non Associated Dwelling	153.1330	-28.9719	35.23	15.54	1973	Yes	1	7	7	No further assessment required
NAD_04	Non Associated Dwelling	153.1392	-28.9756	35.23	10.01	1839	Yes	1	7	7	No further assessment required
NAD_05	Non Associated Dwelling	153.1264	-28.9834	35.54	9.32	594	Yes	3	11	33	Assessment required at EIS phase
NAD_06	Non Associated Dwelling	153.1281	-28.9866	35.23	11.28	291	Yes	4	13	52	Assessment required at EIS phase
NAD_07	Non Associated Dwelling	153.1336	-28.9853	37.56	7.3	659	Yes	3	11	33	Assessment required at EIS phase
NAD_08	Non Associated Dwelling	153.1347	-28.9853	37.19	7.67	743	Yes	2	11	22	Assessment required at EIS phase
NAD_09	Non Associated Dwelling	153.1364	-28.9852	35.23	10.16	887	Yes	2	10	20	Assessment required at EIS phase
NAD_10	Non Associated Dwelling	153.1353	-28.9868	35.23	10.26	711	Yes	2	11	22	Assessment required at EIS phase
NAD_11	Non Associated Dwelling	153.1411	-28.9880	35.37	9.5	1231	Yes	1	10	10	Assessment required at EIS phase
NAD_12	Non Associated Dwelling	153.1286	-29.0210	35.23	22.71	155	Yes	4	18	72	Assessment required at EIS phase
NAD_13	Non Associated Dwelling	153.1371	-29.0231	35.23	22.26	251	Yes	4	15	60	Assessment required at EIS phase
NAD_15	Non Associated Dwelling	153.1395	-29.0289	35.23	15.94	873	Yes	2	10	20	Assessment required at EIS phase
NAD_16	Non Associated Dwelling	153.1429	-29.0304	35.23	15.98	1113	Yes	2	9	18	Assessment required at EIS phase

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_18	Non Associated Dwelling	153.1545	-29.0279	35.23	12.56	1709	Yes	1	7	7	No further assessment required
NAD_19	Non Associated Dwelling	153.1569	-29.0281	35.23	13.96	1924	Yes	1	7	7	No further assessment required
NAD_20	Non Associated Dwelling	153.1050	-29.0302	35.23	31.6	98	Yes	4	11	44	Assessment required at EIS phase
NAD_21	Non Associated Dwelling	153.0940	-29.0295	35.23	39.16	906	Yes	2	8	16	Assessment required at EIS phase
NAD_22	Non Associated Dwelling	153.0889	-29.0315	35.23	44.02	1439	Yes	1	7	7	No further assessment required
NAD_23	Non Associated Dwelling	153.0886	-29.0303	36.71	46.35	1397	Yes	1	7	7	No further assessment required
NAD_24	Non Associated Dwelling	153.0865	-29.0326	38.23	47.86	1704	Yes	1	6	6	No further assessment required
NAD_25	Non Associated Dwelling	153.0860	-29.0302	40.00	49.63	1622	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_26	Non Associated Dwelling	153.0833	-29.0327	36.84	46.47	1981	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_27	Non Associated Dwelling	153.0860	-29.0350	35.55	45.19	1892	Yes	1	6	6	No further assessment required
NAD_28	Non Associated Dwelling	153.0832	-29.0353	38.20	47.84	2131	Yes	1	5	5	No further assessment required
NAD_29	Non Associated Dwelling	153.0812	-29.0372	36.44	46.07	2409	Yes	1	5	5	No further assessment required
NAD_30	Non Associated Dwelling	153.0813	-29.0399	35.23	39.93	2594	Yes	1	5	5	No further assessment required
NAD_31	Non Associated Dwelling	153.0770	-29.0369	49.89	59.53	2737	Yes	1	5	5	No further assessment required
NAD_34	Non Associated Dwelling	153.0724	-29.0443	60.38	70.02	3571	Yes	1	4	4	No further assessment required

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_35	Non Associated Dwelling	153.0753	-29.0351	39.10	48.73	2796	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_36	Non Associated Dwelling	153.0754	-29.0338	35.23	42.17	2724	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_37	Non Associated Dwelling	153.0730	-29.0306	35.23	30.39	2837	Yes	1	5	5	No further assessment required
NAD_38	Non Associated Dwelling	153.0735	-29.0291	35.23	26.66	2757	Yes	1	6	6	No further assessment required
NAD_39	Non Associated Dwelling	153.0862	-29.0278	50.23	59.86	1518	Yes	2	7	14	Assessment required at EIS phase
NAD_41	Non Associated Dwelling	153.0878	-29.0269	42.07	51.71	1348	Yes	2	8	16	Assessment required at EIS phase
NAD_42	Non Associated Dwelling	153.0903	-29.0269	40.65	50.29	1112	Yes	2	8	16	Assessment required at EIS phase
NAD_43	Non Associated Dwelling	153.0927	-29.0268	37.96	47.59	877	Yes	2	9	18	Assessment required at EIS phase
NAD_44	Non Associated Dwelling	153.0972	-29.0243	39.56	49.19	401	Yes	4	12	48	Assessment required at EIS phase
NAD_45	Non Associated Dwelling	153.1019	-29.0225	35.23	41.48	67	Yes	4	18	72	Assessment required at EIS phase
NAD_47	Non Associated Dwelling	153.0693	-29.0251	35.23	24.75	3125	Yes	1	6	6	No further assessment required
NAD_48	Non Associated Dwelling	153.0682	-29.0230	35.23	28.73	3229	Yes	1	6	6	No further assessment required
NAD_49	Non Associated Dwelling	153.0682	-29.0228	35.23	28.69	3231	Yes	1	6	6	No further assessment required
NAD_50	Non Associated Dwelling	153.0690	-29.0216	35.23	27.67	3169	Yes	1	6	6	No further assessment required
NAD_51	Non Associated Dwelling	153.0998	-29.0154	35.23	37.69	297	Yes	4	16	64	Assessment required at EIS phase

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_52	Non Associated Dwelling	153.1020	-29.0140	35.23	40.2	192	Yes	4	18	72	Assessment required at EIS phase
NAD_53	Non Associated Dwelling	153.0973	-29.0144	35.23	25.73	545	Yes	3	15	45	Assessment required at EIS phase
NAD_54	Non Associated Dwelling	153.0998	-29.0128	35.23	24.23	401	Yes	4	16	64	Assessment required at EIS phase
NAD_55	Non Associated Dwelling	153.1007	-29.0107	35.23	19.87	344	Yes	4	17	68	Assessment required at EIS phase
NAD_56	Non Associated Dwelling	153.1027	-29.0105	35.23	29.22	203	Yes	4	18	72	Assessment required at EIS phase
NAD_57	Non Associated Dwelling	153.1026	-29.0047	35.23	26.31	810	Yes	2	18	36	Assessment required at EIS phase
NAD_58	Non Associated Dwelling	153.1076	-29.0016	35.23	31.36	606	Yes	3	18	54	Assessment required at EIS phase
NAD_59	Non Associated Dwelling	153.1017	-29.0006	35.23	41.88	582	Yes	3	16	48	Assessment required at EIS phase
NAD_60	Non Associated Dwelling	153.0998	-28.9990	35.23	33.68	564	Yes	3	14	42	Assessment required at EIS phase
NAD_61	Non Associated Dwelling	153.1006	-28.9962	35.23	24.67	372	Yes	4	13	52	Assessment required at EIS phase
NAD_62	Non Associated Dwelling	153.1015	-28.9950	35.23	20.28	301	Yes	4	13	52	Assessment required at EIS phase
NAD_63	Non Associated Dwelling	153.1084	-28.9939	35.23	19.17	122	Yes	4	18	72	Assessment required at EIS phase
NAD_64	Non Associated Dwelling	153.0977	-28.9931	35.23	13.89	723	Yes	2	11	22	Assessment required at EIS phase
NAD_65	Non Associated Dwelling	153.1013	-28.9929	35.23	15.38	394	Yes	4	12	48	Assessment required at EIS phase
NAD_66	Non Associated Dwelling	153.1076	-28.9902	35.23	14.98	519	Yes	3	15	45	Assessment required at EIS phase
NAD_67	Non Associated Dwelling	153.1102	-28.9884	35.23	14.33	544	Yes	3	16	48	Assessment required at EIS phase

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_68	Non Associated Dwelling	153.1126	-28.9877	35.23	12.93	302	Yes	4	17	68	Assessment required at EIS phase
NAD_69	Non Associated Dwelling	153.1122	-28.9864	35.23	13.46	313	Yes	4	13	52	Assessment required at EIS phase
NAD_70	Non Associated Dwelling	153.1180	-28.9832	35.23	12.4	408	Yes	4	11	44	Assessment required at EIS phase
NAD_71	Non Associated Dwelling	153.1183	-28.9824	35.23	12.26	500	Yes	4	10	40	Assessment required at EIS phase
NAD_72	Non Associated Dwelling	153.1191	-28.9813	35.65	9.21	620	Yes	3	9	27	Assessment required at EIS phase
NAD_73	Non Associated Dwelling	153.0628	-29.0337	35.23	40.84	3892	Yes	Below V_FoV threshold	5	0	No further assessment required
NAD_74	Non Associated Dwelling	153.0799	-29.0499	69.31	78.95	3357	Yes	1	4	4	No further assessment required
NAD_78	Non Associated Dwelling	153.1608	-29.0276	35.23	12.2	2254	Yes	1	6	6	No further assessment required
NAD_79	Non Associated Dwelling	153.1635	-29.0223	35.23	13.09	2392	Yes	1	6	6	No further assessment required
NAD_80	Non Associated Dwelling	153.1703	-29.0257	35.23	14.44	3104	Yes	1	5	5	No further assessment required
NAD_81	Non Associated Dwelling	153.1736	-29.0265	35.23	10.57	3438	Yes	1	5	5	No further assessment required
NAD_82	Non Associated Dwelling	153.1730	-29.0248	35.23	17.47	3343	Yes	1	5	5	No further assessment required
NAD_83	Non Associated Dwelling	153.1770	-29.0255	38.55	6.31	3740	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_84	Non Associated Dwelling	153.1786	-29.0240	35.23	10.3	3866	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_85	Non Associated Dwelling	153.1708	-29.0188	35.23	24.75	3023	Yes	1	5	5	No further assessment required

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_86	Non Associated Dwelling	153.1765	-29.0184	36.16	8.7	3566	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_87	Non Associated Dwelling	153.1718	-29.0045	35.23	10	2907	Yes	1	6	6	No further assessment required
NAD_88	Non Associated Dwelling	153.1352	-28.9698	35.23	13.06	2260	Yes	1	6	6	No further assessment required
NAD_89	Non Associated Dwelling	153.1385	-28.9552	35.23	17.2	3902	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_90	Non Associated Dwelling	153.1377	-28.9549	35.23	20.01	3921	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_91	Non Associated Dwelling	153.1362	-28.9545	35.23	22.98	3926	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_92	Non Associated Dwelling	153.1390	-28.9564	35.23	18.59	3789	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_93	Non Associated Dwelling	153.1289	-28.9563	35.23	27.13	3545	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_94	Non Associated Dwelling	153.1218	-28.9546	35.23	19.13	3581	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_95	Non Associated Dwelling	153.1202	-28.9553	35.23	23.75	3471	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_96	Non Associated Dwelling	153.1208	-28.9546	35.23	21.43	3564	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_97	Non Associated Dwelling	153.1196	-28.9539	35.23	23.44	3620	No	Outside ZVI - Project not visible		0	No further assessment required

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_98	Non Associated Dwelling	153.1205	-28.9531	35.23	21.88	3721	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_99	Non Associated Dwelling	153.1196	-28.9525	35.23	22.31	3779	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_100	Non Associated Dwelling	153.1198	-28.9521	35.23	20.81	3821	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_101	Non Associated Dwelling	153.1187	-28.9526	35.23	22.25	3756	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_102	Non Associated Dwelling	153.1189	-28.9563	35.23	28.95	3349	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_103	Non Associated Dwelling	153.1181	-28.9557	35.23	25.89	3408	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_104	Non Associated Dwelling	153.1175	-28.9553	35.23	24.01	3454	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_105	Non Associated Dwelling	153.1150	-28.9575	35.23	28.91	3204	Yes	1	4	4	No further assessment required
NAD_106	Non Associated Dwelling	153.1143	-28.9551	35.23	26	3472	No	Outside ZVI - Project not visible		0	No further assessment required
NAD_107	Non Associated Dwelling	153.1133	-28.9569	35.23	28.23	3276	Yes	1	4	4	No further assessment required
NAD_108	Non Associated Dwelling	153.1060	-28.9582	35.23	23.97	3252	Yes	1	4	4	No further assessment required
NAD_109	Non Associated Dwelling	153.1032	-28.9567	35.23	28.6	3499	Yes	1	4	4	No further assessment required
NAD_110	Non Associated Dwelling	153.1023	-28.9622	35.23	23.11	2967	Yes	1	5	5	No further assessment required

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_111	Non Associated Dwelling	153.1017	-28.9560	35.23	30.4	3624	Yes	1	4	4	No further assessment required
NAD_112	Non Associated Dwelling	153.1004	-28.9563	35.23	31.2	3641	Yes	1	4	4	No further assessment required
NAD_113	Non Associated Dwelling	153.0887	-28.9710	35.23	23.71	3042	Yes	1	6	6	No further assessment required
NAD_114	Non Associated Dwelling	153.0903	-28.9708	35.23	22.21	2989	Yes	1	6	6	No further assessment required
NAD_115	Non Associated Dwelling	153.0968	-28.9717	35.23	21.17	2439	Yes	1	6	6	No further assessment required
NAD_116	Non Associated Dwelling	153.0987	-28.9730	35.23	18.23	2203	Yes	1	6	6	No further assessment required
NAD_117	Non Associated Dwelling	153.1021	-28.9800	35.23	12.34	1481	Yes	1	7	7	No further assessment required
NAD_118	Non Associated Dwelling	153.0717	-28.9763	57.59	67.23	3815	Yes	1	5	5	No further assessment required
NAD_119	Non Associated Dwelling	153.0656	-28.9922	35.23	21.48	3807	Yes	Below V_FoV threshold	6	0	No further assessment required
NAD_120	Non Associated Dwelling	153.0660	-28.9930	35.23	21.38	3762	Yes	Below V_FoV threshold	6	0	No further assessment required
NAD_121	Non Associated Dwelling	153.0697	-28.9906	35.23	20.15	3437	Yes	1	6	6	No further assessment required
NAD_122	Non Associated Dwelling	153.0707	-28.9909	35.23	20.11	3335	Yes	1	6	6	No further assessment required
NAD_123	Non Associated Dwelling	153.0753	-28.9924	35.23	19.74	2866	Yes	1	7	7	No further assessment required
NAD_124	Non Associated Dwelling	153.0759	-28.9901	35.23	19.82	2853	Yes	1	7	7	No further assessment required
NAD_125	Non Associated Dwelling	153.0779	-28.9927	35.23	19.17	2610	Yes	1	7	7	No further assessment required

Receiver	Type	Long	Lat	Height Diff (m)	Height AHD (m)	Distance to Project Area (m)	Within ZVI	V_FoV (degrees)	H_FoV (degrees)	Potential Visible Cells	Assessment Required
NAD_126	Non Associated Dwelling	153.0832	-28.9906	35.23	17.93	2153	Yes	1	8	8	Assessment required at EIS phase
NAD_127	Non Associated Dwelling	153.0665	-29.0071	35.23	18.64	3612	Yes	1	6	6	No further assessment required
NAD_128	Non Associated Dwelling	153.0676	-29.0211	35.23	28.27	3310	Yes	1	6	6	No further assessment required
PV01	Public Viewpoint - Road	153.1329	-28.9686	35.23	16.21	2334	No	Outside ZVI - Project not visible		0	No further assessment required
PV02	Public Viewpoint - Road	153.1203	-28.9810	36.26	8.61	682	Yes	3	9	27	Assessment required at EIS phase
PV03	Public Viewpoint - Road	153.1154	-28.9864	35.23	12.74	1	Yes	4	17	68	Assessment required at EIS phase
PV04	Public Viewpoint - Road	153.1026	-28.9937	35.23	16.39	238	Yes	4	13	52	Assessment required at EIS phase
PV05	Public Viewpoint - Road	153.1015	-29.0175	35.23	39.63	25	Yes	4	18	72	Assessment required at EIS phase
PV06	Public Viewpoint - Road	153.1004	-29.0291	35.23	29.14	463	Yes	4	9	36	Assessment required at EIS phase
PV07	Public Viewpoint - Road	153.1494	-28.9944	36.86	8.01	1402	Yes	1	9	9	Assessment required at EIS phase
PV08	Public Viewpoint - Road	153.1115	-29.0287	35.23	24.46	18	Yes	4	17	68	Assessment required at EIS phase
PV09	Public Viewpoint - Road	153.0849	-29.0063	35.23	14	1954	Yes	1	9	9	Assessment required at EIS phase
PV10	Public Viewpoint - Road	153.1384	-29.0301	35.23	16.68	1010	Yes	2	10	20	Assessment required at EIS phase
PV11	Public Viewpoint - Road	153.1301	-29.0361	35.23	26.16	1771	Yes	1	10	10	Assessment required at EIS phase
PV12	Public Viewpoint - Road	153.1537	-29.0296	35.23	20.56	1735	Yes	1	7	7	No further assessment required

Table Notes:

- NARs 14, 17, 32, 33 and 40 have been identified by the client to be non-habitable buildings.
- NARs 75, 76 and 77 have been assessed to be outside of 4km from the Disturbance Corridor and are excluded from assessment.

7 SUMMARY OF FINDINGS AND NEXT STEPS

7.1 Summary of findings

A preliminary desktop assessment of landscape character zones has identified five LCZs within the 5km study area:

- LCZ 01 – Conservation areas
- LCZ 02 – Power easement
- LCZ 03 – Forested non-conservation areas
- LCZ 04 – Larger scale agricultural use
- LCZ 05 – Smaller scale agricultural use

The scoping study identified the following public viewpoints and private receivers within 4km of the Project Area:

- 12 public viewpoints.
- 119 non-associated receivers

The simple assessment identified the following requiring further detailed assessment at the EIS phase:

- 10 public viewpoints.
- 42 non-associated receivers

Table 7-1 contains the details of those identified public viewpoints and private receivers that require detailed assessment at the EIS phase.

The results of the simple assessment presented below represent a theoretical worst-case scenario based on the maximum visual field, without considering mitigating factors such as topography, vegetation, and existing structures that may shape, limit, or eliminate views of the Project.

The final number of public viewpoints and private receivers with projected visual impacts will be reduced through the intermediate and detailed assessment process outlined in Section 7.2, which takes these mitigating factors into account.

It is expected that the mature vegetation around the site will eliminate views from a large percentage of the identified public viewpoints and private receivers.

Table 7-1: Public viewpoints and private receivers requiring further assessment

#	Type	HeightAHD (m)	Distance to Project Area (m)
05	Non Associated Dwelling	9.32	594
06	Non Associated Dwelling	11.28	291
07	Non Associated Dwelling	7.3	659
08	Non Associated Dwelling	7.67	743
09	Non Associated Dwelling	10.16	887
10	Non Associated Dwelling	10.26	711
11	Non Associated Dwelling	9.5	1231
12	Non Associated Dwelling	22.71	155
13	Non Associated Dwelling	22.26	251
15	Non Associated Dwelling	15.94	873
16	Non Associated Dwelling	15.98	1113
20	Non Associated Dwelling	31.6	98
21	Non Associated Dwelling	39.16	906
39	Non Associated Dwelling	59.86	1518

#	Type	HeightAHD (m)	Distance to Project Area (m)
41	Non Associated Dwelling	51.71	1348
42	Non Associated Dwelling	50.29	1112
43	Non Associated Dwelling	47.59	877
44	Non Associated Dwelling	49.19	401
45	Non Associated Dwelling	41.48	67
51	Non Associated Dwelling	37.69	297
52	Non Associated Dwelling	40.2	192
53	Non Associated Dwelling	25.73	545
54	Non Associated Dwelling	24.23	401
55	Non Associated Dwelling	19.87	344
56	Non Associated Dwelling	29.22	203
57	Non Associated Dwelling	26.31	810
58	Non Associated Dwelling	31.36	606
59	Non Associated Dwelling	41.88	582
60	Non Associated Dwelling	33.68	564
61	Non Associated Dwelling	24.67	372
62	Non Associated Dwelling	20.28	301
63	Non Associated Dwelling	19.17	122
64	Non Associated Dwelling	13.89	723
65	Non Associated Dwelling	15.38	394
66	Non Associated Dwelling	14.98	519
67	Non Associated Dwelling	14.33	544
68	Non Associated Dwelling	12.93	302
69	Non Associated Dwelling	13.46	313
70	Non Associated Dwelling	12.4	408
71	Non Associated Dwelling	12.26	500
72	Non Associated Dwelling	9.21	620
126	Non Associated Dwelling	17.93	2153
PV02	Public Viewpoint - Road	8.61	682
PV03	Public Viewpoint - Road	12.74	1
PV04	Public Viewpoint - Road	16.39	238
PV05	Public Viewpoint - Road	39.63	25
PV06	Public Viewpoint - Road	29.14	463
PV07	Public Viewpoint - Road	8.01	1402
PV08	Public Viewpoint - Road	24.46	18
PV09	Public Viewpoint - Road	14	1954
PV10	Public Viewpoint - Road	16.68	1010
PV11	Public Viewpoint - Road	26.16	1771

7.2 Next steps

In accordance with the requirements outlined in the Technical Supplement, the following steps will be undertaken at the EIS phase:

- **Detailed Landscaper Character Assessment:** A field study to assess landscape character types and their sensitivity to change, followed by preparation of a detailed assessment of potential landscape character impacts using the methodology outlined in the Technical Supplement.
- **Intermediate visual impact assessment:** Wireframe modelling will be conducted from each public viewpoint and private receiver identified in this report that requires further assessment
- **Detailed visual impact assessment:** If the intermediate visual impact assessment indicates the need for further investigation, fieldwork will be undertaken and photomontages will be prepared to inform a detailed assessment of the Project's visual impacts

A detailed Landscape and Visual Impact Assessment (LVIA) will be prepared in accordance with the Solar Guideline, Technical Supplement, and SEARs issued for the Project. The LVIA will include:

- On-site and off-site visual mitigation strategies developed in response to the assessment and community consultation, ensuring the Project is integrated into the surrounding landscape and mitigating identified visual impacts to an acceptable level
- An assessment against the performance objectives of the guidelines
- A review of potential cumulative impacts from surrounding renewable energy projects, if applicable.

8 REFERENCES

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Appendix D
Preliminary Biodiversity Assessment

EMU PARK ENERGY HUB - PRELIMINARY BIODIVERSITY ASSESSMENT REPORT

Emu Park Energy Pty Ltd



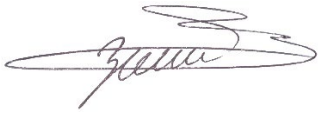
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EXECUTIVE SUMMARY

Background

This preliminary Biodiversity Assessment Report (BAR) has been prepared to support to support the Scoping Report for Emu Park Energy Hub (the Project). The Project includes the construction, operation and decommissioning of up to a 350 MW solar farm with a 200 MW / 800 MWh BESS and associated infrastructure in the Richmond Valley Local Government Area (LGA). The Project will supply electricity to the national electricity grid, largely via the existing electricity transmission network.

The Project would have a preliminary estimated development cost of more than $30 million and would be State Significant Development (SSD) as defined under the New South Wales *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP). Approval will be required from the Minister for Planning and Public Spaces under Part 4 the New South Wales *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project is also being referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW) for potential impacts to Matters of National Environmental Significance (MNES) under Part 9 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Should the Commonwealth DCCEEW determine the Project is a controlled action under Section 75 of the EPBC Act, an assessment and approval under the EPBC Act will be required. This is expected to be under the bilateral agreement between the Commonwealth Government and the NSW Government.

The preliminary BAR improves the accuracy and resolution of likely biodiversity constraints early in the assessment process; thereby facilitating project design (i.e. impact avoidance approach) while minimising the potential for significant project risk. This assessment supports the scoping report and request for Secretary's Environmental Assessment Requirements (SEARs); and will provide the basis for the biodiversity development assessment report (BDAR) as part of the environmental impact statement (EIS).

For the purpose of this study, the following terms have been adopted:

- **Project Area** – the Project Area corresponds with the outer boundary of the property on which the proposed solar farm would be located, which covers an area of approximately 808 hectares (ha).
- **Survey boundary** – the direct disturbance footprint is up to 580 ha and includes solar arrays, electrical infrastructure, roads, and other infrastructure and ancillary buildings. This corridor ensures the EIS will adequately identify potential disturbance impacts but also provide flexibility for the proposed layout to be refined within the surveyed area during detailed design.

Regulatory context

The Project must have regard for environmental matters per the EP&A Act and future development within the Project Area would require:

- Formal assessment under the Biodiversity Offset Scheme (BOS): supporting BDAR and associated retirement of offset credits
- Assessments of MNES under the *Significant Impact Guidelines 1.1 – Matters of National Significance* (DEWHA 2013).

Landscape context

The Project Area is located within the Clarence Lowlands subregion of the South Eastern Queensland Bioregion, featuring predominantly low-lying, gently undulating terrain with elevations below 40 metres. Soils are primarily alluvial floodplain and colluvial deposits, supporting a variety of native vegetation types including dry sclerophyll forests and forested wetlands. Several small creeks and wetlands areas within the Project Area provide important habitat for less mobile amphibious species such as frogs which rely on patches of riparian vegetation to disperse throughout the landscape.

Vegetation across the region has been subject to historic grazing and clearing for forestry, which has subsequently led to gaps in connectivity and fragmentation within the landscape. However, there is still a

large expanse of land within the Project Area which provides connectivity for fauna species, particularly within the central, northern, and eastern extents of the Project Area.

Ecological communities

At this preliminary stage, approximately 198 ha of native dry sclerophyll forest and forested wetland vegetation has been mapped within the survey boundary, comprising of five native Plant Community Types (PCTs):

- PCT 3420: Clarence Lowland Ironbark-Spotted Gum Grassy Forest
- PCT 3421: Clarence Sandstone Pink Bloodwood Grassy Forest
- PCT 3428: Northern Lowland Red Gum-Swamp Turpentine Grassy Forest
- PCT 3987: Far North Floodplain Paperbark-Swamp Oak Forest
- PCT 4001: Northern Floodplain Paperbark Fern Swamp Forest.

The direct impact to native vegetation generates a biodiversity credit obligation under the Biodiversity Assessment Method, 2020 (BAM). Ecosystem credits measure the value of threatened and non-threatened vegetation communities. Based on the preliminary assessment, four BC Act listed threatened ecological communities (TECs) and four EPBC Act listed TECs have the potential to occur within the survey boundary:

- Lowland Rainforest of Subtropical Australia (EPBC Act: Critically Endangered)
- Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (BC Act: Endangered)
- Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (BC Act and EPBC Act: Endangered)
- Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (BC Act and EPBC Act: Endangered)
- Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (BC Act and EPBC Act: Endangered).

Threatened and migratory species

Extensive flora and fauna habitat occurs across the survey boundary including hollow bearing trees, creeks, wetlands, flowering/fruiting trees and shrubs, and potential koala feed trees.

Field validated likelihood-of-occurrence data identified that the Project Area may provide habitat for approximately 39 locally occurring (i.e. <10 km) threatened fauna species and approximately 18 locally occurring threatened flora species with a moderate or greater likelihood of occurrence. One threatened fauna species was identified within the Project Area (Brown Treecreeper - eastern subspecies (*Climacteris picumnus victoriae*)), an ecosystem credit species associated with the extensive forest habitat.

Serious and irreversible impact

A serious and irreversible impact (SAII) is one likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct in accordance with the principles set out in clause 6.7(2) of the *Biodiversity Conservation Regulation 2017* (BC Regulation).

Fifty-four threatened fauna species and 43 threatened flora species have been identified as candidate species relevant to this assessment, of which 24 are listed entities at risk of SAII:

- Beach Stone-curlew (*Esacus magnirostris*) (Breeding)
- Coastal Petaltail (*Petalura litorea*)
- Curlew Sandpiper (*Calidris ferruginea*) (Breeding)
- Eastern Cave Bat (*Vespadelus troughtoni*)
- Eastern Curlew (*Numenius madagascariensis*) (Breeding)

- *Endiandra muelleri* subsp. *bracteate* (Green-leaved Rose Walnut)
- *Grevillea masonii* (Mason's Grevillea)
- Laced Fritillary (*Argynnis hyperbius*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*) (Breeding)
- Large-eared Pied Bat (*Chalinolobus dwyeri*)
- Little Bent-winged Bat (*Miniopterus australis*) (Breeding)
- *Melichrus gibberagee* (Narrow-leaf Melichrus)
- Mitchell's Rainforest Snail (*Thersites mitchellae*)
- *Myrsine richmondensis* (Ripple-leaf Muttonwood)
- *Oldenlandia galioides* (Sweet False Galium)
- *Prostanthera palustris* (Swamp Mint-bush)
- *Prostanthera sejuncta*
- Red Goshawk (*Erythrotriorchis radiatus*)
- Red-tailed Black-Cockatoo (*Calyptorhynchus banksii banksia*)
- Regent Honeyeater (*Anthochaera phrygia*) (Breeding)
- *Rhodamnia rubescens* (Scrub Turpentine)
- *Rhodomyrtus psidioides* (Native Guava)
- *Rotala tripartita*
- Swift Parrot (*Lathamus discolor*) (Breeding).

An assessment of the SAII will be completed during the BDAR component of the EIS.

Indirect and prescribed impacts

The Project would have indirect and prescribed impacts on local ecological communities and species. Indirect and prescribed impacts relevant to the Project include reduction in connectivity through the loss of habitat (native vegetation), reduced viability of adjacent habitat due to edge effects, loss of breeding habitat, and mortality or injury from vehicle strikes. Formal assessment of these impacts would be required during the preparation of the BDAR.

Project refinement to reduce impacts to biodiversity

Preliminary ecological constraints mapping was undertaken for multiple potential sites in the area to inform site selection. Once the Project Area had been selected, constraints mapping was utilised to inform the preliminary project layout that was focused on maximising the potential solar resource across the site, while minimising impacts to biodiversity.

Following this preliminary mapping, a design and layout refinement review was undertaken to focus on locating project infrastructure (including reticulation and access tracks) in existing disturbed and partially cleared areas and native vegetation not associated with a TEC.

Recommendations

The Project would automatically trigger the Biodiversity Offset Scheme (BOS) given the presence of native vegetation, threatened species, and TECs (per the precautionary principle) within the Project Area. As a result, the Project must conform to the ‘avoid, minimise, offset’ hierarchy required by the BOS. Using the hierarchy, proponents must firstly avoid impacts, secondly minimise them and finally offset residual impacts which could not be avoided.

Based on the preliminary assessments undertaken, the following recommendations are made to avoid and minimise impacts on biodiversity:

- Vegetation integrity analysis within the survey boundary should be undertaken early within the assessment process to refine the vegetation mapping with a focus on assessing the condition and extent of to guide avoidance measures
- Further refine the Project footprint to maximise opportunities to avoid biodiversity values and incorporate results and constraints identified during targeted surveys as per the BAM. Biodiversity values relevant to the Project Area include the following:
  - Threatened ecological communities
  - Larger patches of vegetation with connectivity to the broader landscape, that are likely to provide significant habitat values for a variety of local and threatened fauna (e.g. large remnant trees bearing significant hollows, preferred koala feed trees, winter flowering trees for migratory songbirds, flower and nectar bearing trees, etc.)
  - Movement corridors for local and threatened fauna
  - Impact avoidance and minimisation techniques within aquatic and riparian habitats
- Prioritise locating project infrastructure on existing cleared land and/or historically disturbed areas.

A BDAR will be prepared to meet the requirements of BAM 2020 in accordance with the minimum information requirements outlined in BAM Appendix K.

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ACRONYMS AND ABBREVIATIONS

Term / Acronym	Description
Applicant	Emu Park Energy Pty Ltd
Application	Application for development consent under Part 4.7 of the EP&A Act; and determination under Part 9 of the EPBC Act.
asl	above sea level
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BCS	Biodiversity, Conservation and Science division
BOM	Bureau of Meteorology
BV Map	Biodiversity Values Map
CEEC	Critically endangered ecological community
CPHR	Conservation Programs, Heritage, and Regulation (formerly BCS)
Cth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DAWE	Department of Agriculture, Water and the Environment
DBH	Diameter at breast height
DECC	Former NSW Department of Environment and Climate Change
DPE	Former NSW Department of Planning and Environment
DPHI	NSW Department of Planning, Housing and Infrastructure
DPIE	NSW Department of Planning Industry and Environment
EEC	Endangered ecological community
EIS	Environmental impact statement
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021* (NSW)
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EPL	Environment protection licence
FM Act	*Fisheries Management Act 1994* (NSW)
GDE	Groundwater dependent ecosystem
GIS	Geographic Information system
ha	hectare
IBRA	Interim Biogeographic Regionalisation for Australia
KTP	Key threatening process
LEP	Local environmental plan
LGA	Local government area
Local Area	Land within 10 kilometres of the Project Area
LoO	Likelihood of occurrence assessment
m	metre
MNES	Matter of national environmental significance
NEM	National Energy Market
NP&W Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
NVR Map	Native Vegetation Regulatory Map
PCT	Plant community type

Term / Acronym	Description
PMST	Protected Matters Search Tool
Project	Construction and operation of the Emu Park Energy Hub – comprising of up to 350 MW solar farm with a 200 MW / 800 MWh BESS into the National Electricity Market, located in the Richmond Valley Local Government Area.
Project Area	The outer boundary of the property on which the proposed wind farm would be located, which covers an area of approximately 808 ha.
Project disturbance footprint	Area of project-related disturbance determined for the assessment of environmental impacts, which would be refined for the EIS.
REZ	Renewable Energy Zone
SCADA	Supervisory Control and Data Acquisition
SEPP	State Environmental Planning Policy
SSD	State Significant Development
Survey boundary	A survey boundary has been developed in relation to the Project Area and would be adopted for the specialist environmental assessments in the EIS that consider the impacts of vegetation and ground disturbance.
SVTM	State Vegetation Type Map
TEC	Threatened ecological community
Threatened entities	State and Commonwealth listed threatened species or ecological communities
TSPD	Threatened Species Profile Database

1 INTRODUCTION

RPS AAP Consulting Pty Ltd (RPS) was engaged by Emu Park Energy Pty Ltd (the applicant) to preliminary Biodiversity Assessment Report (BAR) to support the Scoping Report for Emu Park Energy Hub (the Project). The Project includes the construction, operation and decommissioning of up to a 350 megawatt (MW) solar farm with a 200 MW / 800 megawatt-hour (MWh) Battery Energy Storage System (BESS) and associated infrastructure in the Richmond Valley Local Government Area (LGA). The project will supply electricity to the national electricity grid, largely via the existing electricity transmission network.

The Scoping Report applies to the preliminary Project Area as shown on **Figure 1-1** within the Richmond Valley LGA. The land within the Project Area is zoned RU1 Primary Production. The Project Area historically has been utilised agriculturally for grazing. The current land use is for cattle and timber production.

This preliminary BAR improves the accuracy and resolution of likely biodiversity constraints early in the assessment process; thereby facilitating project design (i.e. impact avoidance approach) while minimising the potential for significant project risk. This assessment will provide the basis for the Biodiversity Assessment Report, supporting the request for Secretary's Environmental Assessment Requirements (SEARs) as part of Phase 1: the Scoping Report.

1.1 The project

The Project will involve the construction, operation and decommissioning of a solar farm, BESS, electrical infrastructure, other infrastructure and ancillary activities generally including the following components (**Table 1-1**). At the end of its practical life, the solar farm would be decommissioned, and the site returned to its pre-existing land use in consultation with the affected landholders.

The Project would have a preliminary estimated development cost of more than $30 million and would be State Significant Development (SSD) as defined under the New South Wales *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP). Approval will be required from the Minister for Planning and Public Spaces under Part 4 the New South Wales *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project is also being referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW) for potential impacts to Matters of National Environmental Significance (MNES) under Part 9 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Should the Commonwealth DCCEEW determine the Project is a controlled action under Section 75 of the EPBC Act, an assessment and approval under the EPBC Act will be required. This is expected to be under the bilateral agreement between the Commonwealth Government and the NSW Government.

Table 1-1: Project components, including infrastructure and other ancillary activities

Element	Feature	Specification
Energy generation	Solar arrays	• Approximately 560,000 PV panels
Power conversion units	Power station (inverter, transformer and associated equipment)	• 85 units for PV array • 57 inverters for BESS • 6 m x 3 m x 2.4 m (L x H x W) dimensions
Electrical Reticulation Network	Substation site	• 33 kV switching room • Hamonic filter • Capacitor banks • Auxiliary and earthing transformers • 360MVA 330/33/33kV high voltage transformer • High voltage switchgear • SCADA

Element	Feature	Specification
	On site switching station	• 330 kV switching station • Auxiliary power supply for switching station from transmission network • Incoming 330 kV bay from onsite substation • Two outgoing 330 kV bays to transmission network • Duplicate line protection on 330 kV bays
	On site switching station and external connection to the TransGrid Network	• Transmission line easement to connect to the existing 330kV TransGrid overhead powerlines (line 89 cut-ins) • Optical ground wire (OPGW) upgrades from the onsite switching station to the 330 kV transmission substations • All reticulation may be either underground or overhead cables
	Internal electrical reticulation network	• 33 kV electrical reticulation network • Internal solar low voltage cables • Electrical reticulation will generally follow rows of panels and internal access routes, where practical • The solar array/s and BESS will connect into the onsite substation directly • All reticulation may be either underground or overhead cables
Other infrastructure	Operations and Maintenance (O&M) facility	• Site office, maintenance, storage facilities and other associated infrastructure
Energy Storage	Lithium-ion phosphate (LFP) containerised BESS	• 200 MW / 800 MWh • 228 units 60 inverters • 6 m x 3 m x 2.4 m (L x H X W) dimensions
	Temporary storage and Construction	• Additional temporary areas to facilitate storage and construction
	Construction and operational infrastructure	• Site office, parking, maintenance and storage facilities, communications, fencing, meteorological masts • Construction compounds (including office buildings, work areas, parking, waste disposal, storage facilities and associated amenities and infrastructure) • Water management structures
Ancillary activities	Resources for construction and maintenance	• Water, gravel, concrete, aggregate for construction from external sources • Rock crushing, blasting, geotechnical investigations, concrete batching • Pre-construction activities (including but not limited to geotechnical investigations, met mast installation, site establishment works)
Access	Internal access tracks	Nominally 6 m wide unsealed gravel access roads
	Port to site access	Brisbane
Interactions with other projects	None	N/A
Workforce	Construction Operations	300 FTE 5 FTE
Preliminary Disturbance	Maximum project disturbance	Up to 580 ha within the Project Area
Subdivision	Preliminary disturbance	Subdivision and purchase of land for substation/s and access

1.2 The Project Area

For this scoping study, the following terms are used throughout in relation to the solar farm and BESS as shown in **Figure 1-2**:

- **Project Area –** the Project Area corresponds with the outer boundary of the property on which the proposed solar farm would be located, which covers an area of approximately 808 hectares (ha).
- **Survey boundary –** the direct disturbance footprint is up to 580 ha and includes solar arrays, electrical infrastructure, roads, and other infrastructure and ancillary buildings. This corridor ensures the EIS will adequately identify potential disturbance impacts but also provide flexibility for the proposed layout to be refined within the surveyed area during detailed design.

The Project Area and associated disturbance footprint being investigated as part of the scoping phase is a conservative area for early assessment purposes and is likely to be reduced based on final project layout, in consideration of the outcomes of technical and environmental assessments completed for the EIS.

1.3 Purpose

The purpose of this report is to provide initial preliminary biodiversity advice on the Project Area based on desktop research, and a preliminary investigation of the survey boundary. It is noted that no detailed biodiversity assessments have been conducted to date. This report aims to:

- Identify biodiversity constraints from a detailed desktop assessment
- Confirm the presence of some of these constraints through a rapid survey boundary inspection
- Provide advice to avoid and minimise impacts
- Provide advice to inform the Secretary's Environmental Assessment Requirements (SEARs).

1.4 Qualifications and licensing

1.4.1 Qualifications

Reporting was undertaken by James Madden (Bachelor of Science, Master of Research, BAAS24030) and reviewed by Polina Zadorojnaya (Bachelor of Science; BAAS23014). Fieldwork was undertaken by James Madden (Bachelor of Science, Master of Research, BAAS24030) and Joe Baird (Bachelor of Science).

1.4.2 Licensing

Investigations performed as part of this study were conducted under the following licences, approvals and authorities:

- NSW National Parks and Wildlife Service Scientific Investigation Licence SL100536 (Valid to 31 July 2026)
- Animal Research Authority (ARA) for project number: RVF 21/902(2) with project title *Fauna Surveys as part of Environmental Studies*. This gives authority for animal research to occur under the NSW *Animal Research Act 1985*.

The Project Approval Period is from 21 March 2022 to 21 March 2027 with the ARA approval period being from 13 March 2023 to 13 March 2027 (reauthorised annually following compliance with the ARA conditions).

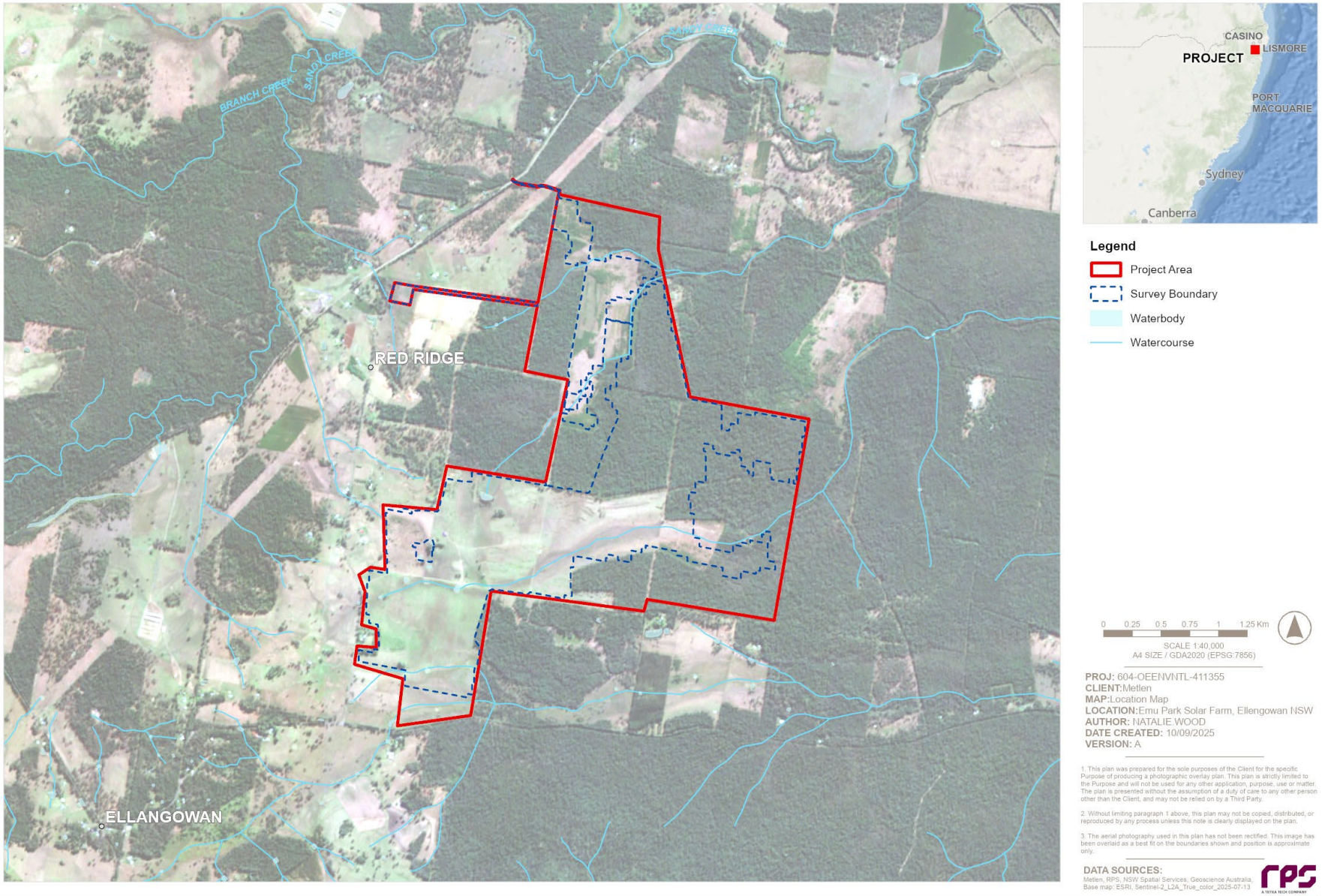


FIGURE 1-1: LOCATION MAP

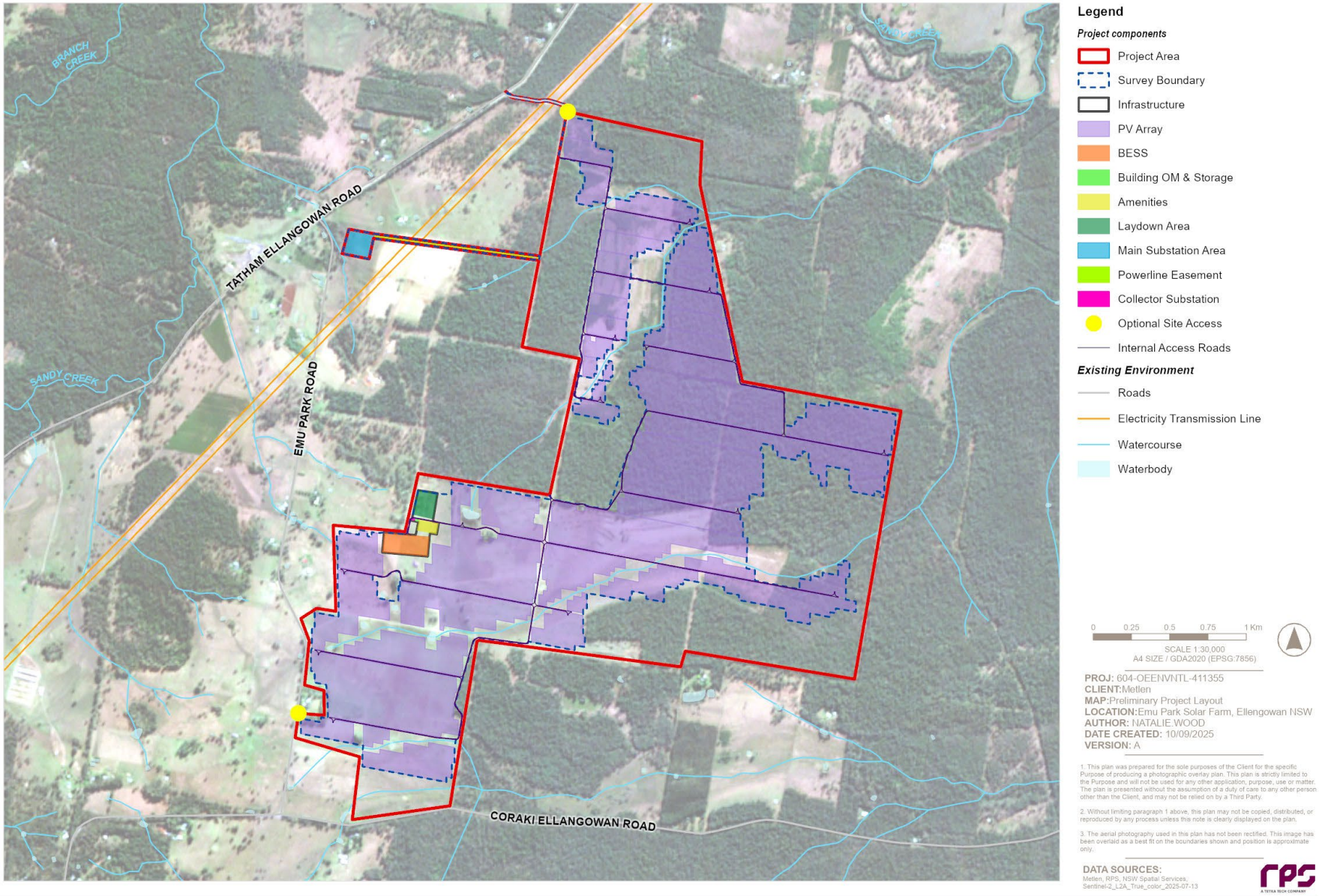


FIGURE 1-2: PRELIMINARY CONCEPTUAL PROJECT LAYOUT

2 REGULATORY CONTEXT

2.1 Commonwealth

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) is the Commonwealth Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places – defined in the EPBC Act as Matters of National Environmental Significance (MNES).

The nine MNES to which the EPBC Act applies are:

1. World heritage properties
2. National heritage places
3. Wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed)
4. Nationally threatened species and ecological communities
5. Migratory species (listed under bilateral migratory bird agreements including Japan [JAMBA], China [CAMBA], Republic of Korea [ROKAMBA])
6. Commonwealth marine areas
7. The Great Barrier Reef Marine Park
8. Nuclear actions (including uranium mining)
9. A water resource, in relation to coal seam gas development and large coal mining development.

The Project will be referred to the Commonwealth DCCEEW for potential impacts to MNES under Part 9 of the EPBC Act.

2.1.2 NSW Bilateral Agreement

To achieve streamlining benefits for all NSW applicants that use the Biodiversity Offset Scheme (BOS; refer **Section 2.2.2.1**) and need approval under the EPBC Act, the Commonwealth Government has endorsed the BOS under the EPBC Act Condition-setting Policy.

Applicants in New South Wales who need an EPBC Act Approval can use the BOS to assess and meet their biodiversity offset requirements.

2.2 State

2.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the system of environmental planning and assessment in New South Wales. Approval for the Project would be sought under Part 4, Division 4.7 of the EP&A Act, which outlines the approval pathway for development deemed to be State Significant Development (SSD).

2.2.2 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) is administered by the New South Wales Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW). The BC Act gives provisions to declare and protect threatened species, populations and ecological communities with a legal threatened status in New South Wales Threatened species (and populations) and ecological communities are listed in Schedules 1 and 2 of the BC Act, respectively. The BC Act also lists ‘Key Threatening Processes’ (KTP) that may threaten the survival of these threatened entities.

2.2.2.1 Biodiversity Assessment Method 2020

An accredited assessor is required to apply the *Biodiversity Assessment Method 2020* (BAM) when preparing a Biodiversity Development Assessment Report (BDAR). The BAM would also be applied to identify reasonable measures and strategies that can be taken to avoid and minimise impacts on biodiversity.

Notional BAM plot data and other GIS information will be populated in the BAM Calculator and "run". Outputs generated from the initial run will be included in an interim credit report from the BAM Calculator relating to the development corridor, clearly identifying the 'Ecosystem Credits' and the 'Species Credits' required to be retired to meet "no net loss", plus any other matters requiring consultation with NSW DCCEEW.

Ultimately, field data and subsequent BAM credit calculations for the development corridor would be utilised to produce a BDAR. Reporting is required to be conducted for the formal project application in accordance with the BAM requirements, being:

- Stage 1 – Biodiversity assessment
- Stage 2 – Impact assessment (biodiversity values)
- Stage 3 – Improving biodiversity values.

2.2.2.2 Biodiversity Offset Scheme

The Biodiversity Offsets Scheme (BOS) applies to all SSD and State Significant Infrastructure (SSI) projects. A BDAR would be required for the proposed SSD unless the Secretary of the New South Wales Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) determines that the Project is not likely to have a significant impact and issue a BDAR Waiver. This would only occur if the Project avoided direct impacts (clearing and/or modification) and/or indirect impacts to all native vegetation, including native groundcovers. The Project is unlikely to avoid all direct and indirect impacts to native vegetation, therefore a waiver will not be sought, and a BDAR will be prepared as part of the EIS in accordance with the BAM.

2.2.3 Fisheries Management Act 1994

The objectives of the *Fisheries Management Act 1994* (FM Act) are to conserve, develop and share the fishery resources of the state for the benefit of present and future generations. One of the objectives of the FM Act is to promote ecologically sustainable development and to conserve threatened species, populations and ecological communities of fish and marine vegetation. The FM act has identified 'Key Fish Habitats' (KFH) as those aquatic habitats that are important to the sustainability of the recreational and commercial fishing industries, the maintenance of fish populations generally, and the survival and recovery of threatened aquatic species.

Impacts to waterways, including KFH and mapped distribution for listed threatened aquatic species would trigger the FM Act. Formal assessment in accordance with the objectives of the FM Act would be included as part of the BDAR, including identification of FM Act listed threatened entities and impact assessments (7-part Tests) if necessary.

2.2.4 Local Land Services Act 2013

The *Local Land Services Act 2013* (LLS Act) formalised the establishment of Local Land Services in 2014. The land management and biodiversity reform framework amendment was developed alongside the BC Act to ensure a balanced approach to rural land management and biodiversity conservation in New South Wales. The legislation came into effect on 25 August 2017. The LLS Act designates rural areas of the state where the clearing of native vegetation is or is not regulated.

The draft Native Vegetation Regulatory (NVR) map provides a visual representation of the categories of land defined and outlined in the LLS Act and LLS Regulation. The map provides guidance to proponents and landholders about where categories of land described in the legislation occur. The land categories help determine if an approval is required under the *Land Management (Native Vegetation) Code 2018* (Land Management Code) or if allowable activities can be utilised to clear vegetation. The NVR map includes six categories as outlined in **Table 2-1**. Mapping of vulnerable and sensitive regulated land continues to legally restrict land clearing in those areas across New South Wales.

Mapping of Category 1 - Exempt and Category 2 - Regulated Land is in draft. While in draft, Category 1 and 2 lands can be considered for vegetation management (DPE 2022b). Where the BOS applies, an assessment of prescribed impacts is required on Category 1 - Exempt Land. Clearing of native vegetation on Category 1 - Exempt Land does not require assessment under the BAM (Subsection 1.5.1[d.]). In practice, this means impact assessment relating to vegetation integrity and habitat suitability are not required on Category 1 - Exempt Land, and biodiversity credits are not generated in the BAM Calculator (BAM-C). The BAM needs to be applied to any part of the Project Area that is not Category 1 - Exempt Land. Mapping associated with the draft NVR map is provided in **Section 4.1.10**.

Table 2-1: Native Vegetation Regulation land category

Land Category	Colour	Criteria
Category 1 – Exempt land	Blue	• Land cleared of native vegetation as at 1 January 1990 or lawfully cleared after 1 January 1990 and before 25 August 2017 • Land containing low conservation value grasslands or groundcover • Native vegetation identified as regrowth in a Property Vegetation Plan (PVP) under the repealed Native Vegetation Act 2003 only where the PVP specifies a regrowth date • Land bio-certified under the *Biodiversity Conservation Act 2016.*
Category 2 – Regulated land (not including vulnerable or sensitive land)	Yellow	• Land not cleared of native vegetation as at 1 January 1990 or unlawfully cleared of native vegetation after 1 January 1990 • Land containing native vegetation grown or preserved using public funds • Land subject to an expired remedial action to restore or protect the biodiversity values • Land in the proximity area of a coastal wetland or littoral rainforest areas of the coastal zone under the *Coastal Management Act 2016* • Land subject to (or previously subject to) a private native forestry plan under either the *Forestry Act 2012* or the *Native Vegetation Act 2003* • Land subject to a private native forestry plan or private native forestry property vegetation plan (PVP) that is in force • Land containing medium conservation value grasslands • Land containing low conservation grasslands beneath the canopy or drip line of woody vegetation • Land is a travelling stock reserve (unless the land is located in the Western Division) • The land is otherwise prescribed by the Local Land Services Regulation as Category 2 - regulated land.
Category 2 – Vulnerable regulated land	Orange	• Steep (greater than 18 degrees from the horizontal) or highly erodible land • Protected riparian areas • Land that is otherwise environmentally sensitive.
Category 2 – Sensitive regulated land	Pink	• Where the Environment Agency Head reasonably believes it to contain: – old growth forest, rainforest, critically endangered ecological communities or critically endangered plants, or core koala habitat – high conservation value grasslands – land recommended for declaration as areas of outstanding biodiversity value – Ramsar wetlands within the meaning of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* – land described as Coastal Wetlands or Littoral Rainforest in the coastal zone referred to in the *Coastal Management Act 2016* – land subject to an approved conservation measure that was the basis for other land being biodiversity certified – conservation areas under the Southern Mallee Land Use Agreement – native vegetation that must be retained under the *Plantation and Reafforestation Act 1999* – land subject to a condition of development consent requiring the land to be set aside for conservation purposes under the *Environmental Planning and Assessment Act 1979*. • Land contained in the following types of agreements:

Land Category	Colour	Criteria
		– biodiversity stewardship agreements, conservation agreements, and wildlife refuge agreements made under the *Biodiversity Conservation Act 2016* – conservation agreement made under the *National Parks and Wildlife Act 1974* – trust agreements made under the *Nature Conservation Trust Act 2001* – conservation areas made under Southern Mallee Land use Agreements – registered property agreements made under the *Native Vegetation Conservation Act 1997* – incentive or conservation property vegetation plans made under the *Native Vegetation Act 2003* that have not expired. • Land required to be set aside, offset or retained as a condition of development consent or subject to a remedial direction, including: – land required to be set aside under a code compliant certificate made under the Land Management (native vegetation) Code 2018 – land currently subject to a remedial action to restore or protect biodiversity values – land required to be set aside under a Ministerial Order made under the *Native Vegetation Act 2003* – land established as an offset in a property vegetation plan made under the *Native Vegetation Act 2003* – land contains native vegetation that is required to be retained under a plantation authorisation made under the *Plantations and Reafforestation Act 1999* – the land is, by a condition of a development consent or approval under the *Environmental Planning and Assessment Act 1979* notified to the Environment Agency Head, required to be set aside for nature conservation, for re-vegetation of native vegetation or as a native vegetation offset.
Sensitive and Vulnerable land category overlap	Brown	• Category 2 - Vulnerable regulated land and Category 2 - Sensitive regulated land apply.
Excluded land	Grey	• Land Management (Native Vegetation) Code 2018 and allowable activities do not apply.

3 METHODOLOGY

3.1 Overview

Methods used to characterise the biodiversity values of the Project Area comprised desktop and field-based investigation techniques. For the purpose of this assessment, the Project Area was used to undertake desktop investigations, whilst the survey boundary was the focus for field-based investigations. The following sections outline survey methods, effort and limitations of the investigation.

3.2 Desktop research

3.2.1 Databases

A review of relevant information was performed to gain an understanding of the biodiversity values occurring or potentially occurring within the Project Area. Information sources reviewed for a 10 km radius of the Project Area included:

- BAM Calculator species output (NSW DCCEEW 2025a)
- Flora and fauna records contained in the NSW DCCEEW BioNet database (NSW DCCEEW 2025b)
- Vegetation Plant Community Type (PCT) descriptions (NSW DCCEEW 2025c)
- Flora and fauna contained in the DCCEEW Protected Matters Search tool (Cth DCCEEW 2025).

3.2.2 Spatial datasets

Desktop analysis of vegetation cover including a review of the resources listed below:

- Mitchell Landscapes (NPWS 2002)
- IBRA Region and subregion mapping (NSW DCCEEW 2016)
- NSW State Vegetation Type Map (NSW DCCEEW 2025d)
- Fisheries Spatial Data Portal (DPI 2025a)
- Recent aerial imagery of the Project Area (ESRI 2025).

3.2.3 Likelihood of occurrence

A likelihood of occurrence analysis was prepared to help refine the ‘subject species’ list for consideration. Five ‘likelihood of occurrence’ categories have been attributed to identified threatened biodiversity by considering:

- The recency of threatened species observations (i.e. recent being less than 10 years and proximity to the Project Area), including application of landscape factors such as patch size and connectivity
- Habitat descriptions as provided in the Threatened Species Profile Database (NSW DCCEEW 2025e)
- Habitat value and condition as determined through the survey boundary inspection
- The effect of existing key threatening process (KTPs).

The five likelihood of occurrence ratings are described in **Table 3-1.**

Table 3-1: Likelihood of occurrence criteria

Likelihood	Criteria for flora species	Criteria for fauna species
None	Habitat within the Project Area and vicinity is unsuitable for the species.	Habitat within the Project Area and vicinity is unsuitable for the species.
Low	Non-cryptic species not detected during targeted surveys (if completed). Habitat within the Project Area is unsuitable for cryptic species due to low habitat abundance, disturbance, lack of appropriate geology, vegetation classification and/or landscape position. Potential for no or few species records.	Habitat within the Project Area is unsuitable for the species due to low habitat abundance, disturbance, lack of appropriate habitat features and/or occurrence outside of known species' distribution. Suitable habitat may be present in the locality and the species has potential to occur at some point in its life cycle, however occurrence is highly unlikely and limited (i.e., potential for fly-by but no suitable foraging habitat present). Potential for no or few species records.
Moderate	The Project Area contains suitable habitat for the species, including appropriate vegetation classification, geology and landscape position. However, habitat may be considered low-quality, fragmented and/or existing in a highly urbanised environment which is unlikely to provide optimum habitat conditions for species' occurrence. Potential for few recent records.	The Project Area contains suitable foraging resources and occurs within the known species' distribution. However, critical habitat elements (i.e., breeding habitat) are absent. The Project Area is unlikely to support resident populations but may be visited by the species intermittently or at certain points of its life cycle. Potential for few recent records.
High	The Project Area contains high-quality suitable habitat for the species, including appropriate vegetation classification, geology and landscape position. The Project Area forms part of a large area of habitat for this species which has not been subject to recent disturbance (i.e. clearing, fire). Potential for many recent records.	The Project Area contains suitable foraging and breeding resources for the species and occurs within the known species' distribution. The Project Area forms part of a large area of high-quality suitable habitat with abundant critical habitat elements. The Project Area is likely to support resident populations and may be visited by the species during regular seasonal movements or migration. Potential for many recent records.
Known	Species identified within the Project Area.	Species identified within the Project Area.

3.3 Field surveys

Field survey techniques applied during the investigation of the survey boundary included:

- Rapid Data Point (RDP) survey (**Section 3.3.1.1**)
- Habitat assessment (**Section 3.3.3.1**)

The following sections describe the survey techniques relevant to this investigation. Survey effort and locations are described in **Section 3.4.**

3.3.1 Vegetation

The classification and description of native vegetation was informed by the analysis of data from Rapid Data Points (RDPs). These survey techniques are further described in the following sections with results presented in **Section 4.2**.

3.3.1.1 Rapid data points

Opportunistic RDP locations were selected to collect representational data and ground truth the findings of the desktop investigation as carried out in **Section 3.2**. Environmental variables considered when determining opportunistic RDPs included the following:

- Existing land use
- Slope and aspect
- Landforms (e.g. riparian zones, ridges)
- Vegetation classification.

Measures obtained represent a simplified dataset comparable to the BAM method. Dominant vascular flora species were recorded to provide a high-level estimate of dominant tree, shrub, grass, and herb species within a 10 m radius of the RDP. High threat weed species were also identified. It is important to note that due to the location of the survey boundary and existing land uses, it was not possible to situation the RDP sites 50 m away from disturbances (i.e. roads, driveways, buildings). However, RDP locations are representative of the current condition of the vegetation within the survey boundary.

3.3.1.2 PCT identification

PCT identification was based on the results obtained from an analysis of rapid floristic survey data only and therefore is preliminary and subject to change following complete biometric plot analysis. A preliminary analysis of the survey data, matching outputs to PCTs in BioNet Vegetation Classification was performed using the following resources:

- PCT identification tool (BioNet Vegetation Classification application; NSW DCCEEW 2025c). This involved selecting known criteria such as general location, vegetation structure and/or dominant species present to identify the likely vegetation communities present within the Project Area
- State Vegetation Type Map (SVTM; NSW DCCEEW 2025d). Vegetation maps were utilised as a preliminary indicator of the PCTs that might occur within the Project Area.

3.3.1.3 Vegetation mapping

The assessment of broad condition zones was to stratify areas of the same PCT into a vegetation zone for the purpose of identifying preliminary vegetation mapping and ground truthing the SVTM. Additional surveys are required to finesse the vegetation mapping, particularly to differentiate PCTs with relatively small differences in species assemblage and structure.

Relatively homogenous land cover (i.e. PCTs) were visually delineated, from recent aerial imagery and assigned preliminary map units based on relevant regional vegetation mapping for investigation. Vegetation boundaries were refined, and condition classes defined to produce vegetation zones (i.e. PCT and condition state). Qualitative condition codes used to subcategorise PCTs are outlined in **Table 3-2**.

Table 3-2: PCT condition classes

Vegetation Condition Class	Description
High	Vegetation community generally resembles pre-European levels of condition, structure and overall integrity. Vegetation is resilient to weed invasion due to dominance of native species within the ground, shrub and canopy layers.
Good	Native canopy present. The understorey is dominated by natives (>50 % native cover). Vegetation condition is below benchmark value but above that defined for poor condition.
Moderate	Native vegetation in a structurally modified state, exemplified by an unnatural dominance of species in a non-characteristic stratum combined with the absence of characteristic species in the dominant strata (e.g. native grasslands derived from grassy woodlands, native shrublands derived from dry sclerophyll forests).
Poor	Understorey dominated by exotic species (i.e., > 50% exotic cover). Native shrub layer has been replaced by weeds.
Derived	No native canopy or shrub storey present, however ground cover dominant (i.e., >50% native cover) in native grasses. • Land with a vegetation integrity score <15 where the PCT is representative of an endangered or critically endangered ecological community
Disturbed/cleared	• Land with a vegetation zone has a vegetation integrity score <17 where the PCT is associated with threatened species habitat (as represented by ecosystem credits), or is representative of a vulnerable ecological community • Land with a vegetation zone has a vegetation integrity score <20 where the PCT is not representative of a TEC or associated with threatened species habitat.

PCT extents were calculated estimated using Geographic Information System (GIS) and reported. Where data gaps were identified, such as in locations that were unable to be surveyed, SVTM was relied upon, along with field data collected in adjacent areas.

3.3.2 Flora

3.3.2.1 Threatened flora searches

Habitat suitability for threatened flora was opportunistically assessed throughout the Project Area in conjunction with RDP surveys. No formal targeted threatened flora surveys were undertaken as part of this assessment (**Section 4.4.3**).

3.3.3 Fauna

3.3.3.1 Fauna habitat survey

The nature and extent of fauna habitats within the survey boundary were opportunistically assessed in conjunction with RDP surveys. RDP assessments for threatened and native fauna included consideration of important indicators of habitat condition and complexity, including the occurrence of microhabitats such as tree hollows, fallen logs, bush rock, caves and crevices, manmade structures, riparian areas, wetlands and water bodies. Indirect indicators of fauna use of the survey boundary, such as droppings, diggings, footprints, scratches, nests, burrow paths and runways, were recorded. In conjunction with threatened species surveys, observations for koala activity (individual, scratch marks, scats etc) were searched for opportunistically.

Opportunistic sightings obtained from active searches used secondary indications (scratches, scats, diggings, tracks etc.) and direct observation to census resident fauna. Observations recorded included:

- Distinctive scats left by mammals
- Scratch marks made by various types of arboreal animals
- Nests made by various birds
- Feeding scars on Eucalyptus trees made by Gliders
- Whitewash, regurgitation pellets and prey remains from Owls
- Aural recognition of bird and frog calls
- Skeletal material of vertebrate fauna
- Searches beneath rocks and logs for reptiles and frogs
- Chewed *Allocasuarina* cones – indicative of foraging Glossy Black-cockatoo (*Calyptorhynchus lathami*).

3.4 Weather and timing

Survey effort performed as part of this investigation is summarised in **Table 3-3**.

Table 3-3: Survey timing, effort and weather conditions (Casino Airport AWS: 058208; BOM 2024)

Survey undertaken (e.g., method / targeted species)	Date	Temperature Minimum (ºC)	Temperature Maximum (ºC)	Rainfall (mm)
RDP's and observational fauna survey	30/09/2024	14.4	28.2	0.4
	1/10/2024	11.2	23.7	15.4
	2/10/2024	12.0	21.7	0
	3/10/2024	12.2	22.5	0.4

3.5 Limitations

3.5.1 Data availability and accuracy

The collated threatened flora and fauna species records obtained from the BioNet Database for the region are known to vary in accuracy and reliability due to the reliability of information provided to the CPHR division of NSW DCCEEW, and/or the need to protect specific threatened species locations. For the purposes of this preliminary BAR, this information has been considered to have an accuracy of plus and/or minus 1 km, however for some threatened species, records may be denatured by up to 2 km. Similar limitations are known to exist with the EPBC Protected Matters Search Tool.

Data recorded by RPS during the survey period has been gathered using Garmin 64s handheld GPS units with up to 3 m accuracy, Map Grid of Australia (MGA) 2020 (MGA 20-GDA 94) Zone 56.

3.5.2 Vegetation mapping

Due to the scale of the Project Area and the preliminary nature of the assessment completed, vegetation mapping is also preliminary in nature and is subject to change following formal vegetation assessment as part of the EIS BDAR.

4 BIODIVERSITY ASSESMENT

4.1 Landscape context

An overview of the landscape context relevant to the Project Area is outlined in **Table 4-1**.

Table 4-1: Landscape context summary

Feature	Description
IBRA	Clarence Lowlands IBRA Subregion of the South Eastern Queensland Bioregion (refer to **Section 4.1.1**)
New South Wales (Mitchell) Landscapes	The Project Area intersects with three landscapes (refer to **Section 4.1.2**): • Clarence - Richmond Alluvial Plains • Grafton - Whiporie Basin • Lamington Volcanic Slopes.
Topography	The Project Area is located across low undulating rises and plains, with elevation ranging from approximately 10 m above sea level (asl) to 40 m asl.
Rivers, streams, estuaries and dams.	Numerous unnamed watercourses occur across the Project Area, including four 1st order ephemeral watercourses and one 4th order ephemeral watercourse. The 4th order ephemeral watercourse, located in the southernmost extent of the Project Area, contains mapped FM Act Key Fish Habitat (KFH); Modelled Threatened Species Distribution for the Southern Purple Spotted Gudgeon occurs (refer **Section 4.1.7**).
Soils	The Project Area intersects with six soil landscapes, including: • Ellangowan (9539eg) • Mckee (9539mc) • Sandy Creek (9539sc) • Tabbimoble variant a (9539tma) • Yorklea (9540yo) • Yorklea variant a (9540yoa). Refer to **Section 4.1.4 f**or a description of each soil landscape.

4.1.1 Bioregion (IBRA7)

The Project Area is located within the Clarence Lowlands subregion of the South Eastern Queensland Bioregion (**Figure 4-1**). Before IBRA version 6, the South East Queensland bioregion did not extend beyond the Queensland border, and a large part of what was the North Coast Bioregion is now the South East Queensland Bioregion. As such, no description for the South Eastern Queensland Bioregion exists, and therefore the description for the North Coast bioregion is provided as follows (NPWS 2003):

The North Coast Bioregion runs up the east coast of NSW from just north of Newcastle to just inside the Qld border. The Sydney Basin Bioregion bounds the North Coast Bioregion in the south and the Nandewar and New England Tablelands bioregions lie against its western boundary. The Tweed, Richmond, Clarence, Coffs Harbour, Bellinger, Nambucca, Macleay, Hastings and Manning River catchments all fall in the North Coast Bioregion.

The general trend in this bioregion from east to west is from a sub-tropical climate on the coast with hot summers, through sub-humid climate on the slopes to a temperate climate in the uplands in the western part of the bioregion, characterised by warm summers and no dry season. A montane climate occurs in a small area in the southwest of the bioregion at higher elevations.

The North Coast Bioregion covers northern NSW from the shoreline to the Great Escarpment. Typically, there is a sequence from coastal sand barrier, through low foothills and ranges, to the steep slopes and gorges of the Escarpment itself, with rainfall increasing inland along this transect.

The North Coast Bioregion is one of the most diverse in NSW. It has Devonian and Permian bedrocks that are part of the New England Fold Belt and have been closely faulted as they were thrust over the northern margin of the Sydney Basin. Small bodies of granite and granodiorite have intruded the sedimentary rocks and there are three centres of Tertiary basalt eruption.

The soil and vegetation patterns in the bioregion are very complex because of the different substrates, the topographic variation and the climatic differences encountered across and along the bioregion. In general, only the most fertile soils (normally from basalts) support rainforests, but exceptions to this are found in numerous protected pockets where plant nutrients have accumulated through organic cycling in litter. On the basalts the soils are typically red, friable loams or clay loams with high fertility, good structure and excellent water-holding capacity. On granites and most of the quartz rich sedimentary rocks, shallow yellow earths are found on hillcrests, yellow and brown texture contrast profiles are found on the slopes, and organic loams or sandy loams are found on the alluvial plains. In the coastal dunes, deep siliceous sands and very well developed podsols can be found.

In the north of the bioregion, soils derived from basalts support sub-tropical and warm temperate rainforests, or wet sclerophyll forests. Dominant species include *Argyrodendron actinophyllum* (Black Booyong), *Argyrodendron trifoliolatum* (White Booyong), *Araucaria cunninghamii* (Hoop Pine), *Archontophoenix cunninghamiana* (Bangalow palm), *Calamus muelleri* (Climbing Palm), *Cyathea australis* (Rough Tree Fern), *Toona australis* (Australian Cedar), *Flindersia australis* (Teak), *Eucalyptus acmenoides* (White Mahogany), *Eucalyptus propinqua* (Small-fruited Grey Gum), *Eucalyptus microcorys* (Tallowwood) and *Eucalyptus saligna* (Sydney Blue Gum). Forests occurring on soils derived from granites are mainly eucalypt vegetation communities. The dominant species include *Eucalyptus pilularis* (Blackbutt), *Eucalyptus saligna*, *Eucalyptus maculata* (Spotted Gum), *Eucalyptus punctata* (Grey Gum), *Eucalyptus tereticornis* (Forest Red Gum), *Corymbia gummifera* (Red Bloodwood), *Lophostemon confertus* (Brush Box) and *Eucalyptus acmenoides*. Freshwater margins are occupied by *Casuarina glauca* (Swamp Oak) and *Melaleuca quinquenervia* (Paperbark) while *Eucalyptus grandis* (Flooded Gum) grows on alluvial river flats.

4.1.2 New South Wales (Mitchell) Landscape

The Project Area intersects with three Mitchell Landscape units. The majority of the Project Area occurs within the Grafton - Whiporie Basin landscape. The low-lying plains in the northern and southern extents of the Project Area intersect with the Clarence - Richmond Alluvial Plains landscape, while the elevated slope in the southwest intersects with the Lamington Volcanic Slopes landscape (**Figure 4-2**). These landscapes are described below in **Table 4-2** (NPWS 2002).

Table 4-2: New South Wales (Mitchell) Landscapes (NPWS 2002) of the Project Area

NSW Mitchell Landscape	Landscape, geology, and rainfall	Soil	Vegetation
Clarence - Richmond Alluvial Plains	Wide valleys, channels, floodplains, terraces and estuaries of the Clarence and Richmond Rivers and other coastal streams on Quaternary alluvium, general elevation 0 to 50 m, local relief 15 m.	Deep brown earths and structured brown clay on floodplains. Terrace with yellow texture-contrast soil containing ironstone concretions.	Extensively cleared the valley floor supported forest of *Eucalyptus amplifolia* (Cabbage Gum), *Eucalyptus tereticornis* (Forest Red Gum), *Angophora subvelutina* (Broad-leaved Apple), *Casuarina cunninghamiana* (River Oak), *Grevillea robusta* (Silky Oak), *Angophora floribunda* (Rough-barked Apple), *Flindersia australis* (Native Teak), *Eucalyptus bosistoana* (Coastal Grey Box), *Corymbia intermedia* (Pink Bloodwood), *Corymbia maculata* (Spotted Gum), *Eucalyptus paniculata* (Grey Ironbark), *Melaleuca quinquenervia* (Broad-leaved Paperbark), *Acacia melanoxylon* (Blackwood) and *Casuarina litoralis* (Black She-oak). On the margins of the basalt based Lamington Volcanic Slopes Landscape; dry closed forest with *Croton verreauxii* (Native Cascarilla),

NSW Mitchell Landscape	Landscape, geology, and rainfall	Soil	Vegetation
			Drypetes deplanchei (Yellow Tulip), *Polyscias elegans* (Silver Basswood), *Guioa semiglauca* (Guioa), *Toona australis* (Red Cedar) with abundant vines and emergent *Araucaria cunninghamii* (Hoop Pine). Salt marsh, mangrove communities and *Melaluca quinquenervia* (Paperbark) freshwater swamps occur in the estuary.
Grafton - Whiporie Basin	Extensive low undulating hills and large drainage basins on sub-horizontal upper Jurassic interbedded quartz sandstone, lithic sandstone, clayey siltstone and coal measures. Often exhibits ironstone concretions in the weathering profile. General elevation 50 to 150 m, local relief 50 m.	Yellow and brown texture-contrast soils on slopes and dark grey clays along valley floor streamlines.	Dry hardwood forest of; *Corymbia maculata* (Spotted Gum), *Eucalyptus pilularis* (Blackbutt), *Eucalyptus pyrocarpa* (Large-fruited Blackbutt), with grasses and *Macrozamia* sp.
Lamington Volcanic Slopes	Very extensive hills and ridges forming a broadly circular pattern 50km in diameter with radial drainage centred on Mt Warning. The Tertiary Lamington volcanics complex of multiple layers of flows of basalt, rhyolite and trachyte and pyroclastics including tuff and agglomerate. General elevation 50 to 1120 m, local relief varies considerably and is greatest in the higher landscape where it is up to 500 m.	Soils are mostly red and brown gradational structured loams with high organic content and high fertility. On lower slopes adjacent to valleys red, brown and grey-brown texture-contrast soils occur.	Most of the landscape is covered in subtropical closed forest with stands of cool temperate *Nothofagus moorei* (Antarctic beech) above 1000 m.

4.1.3 Topography

Topography within the Project Area ranges from 10 m to 40 m above sea level (asl). The terrain is predominantly flat with some gentle rises occurring in the central and southern extents of the Project Area.

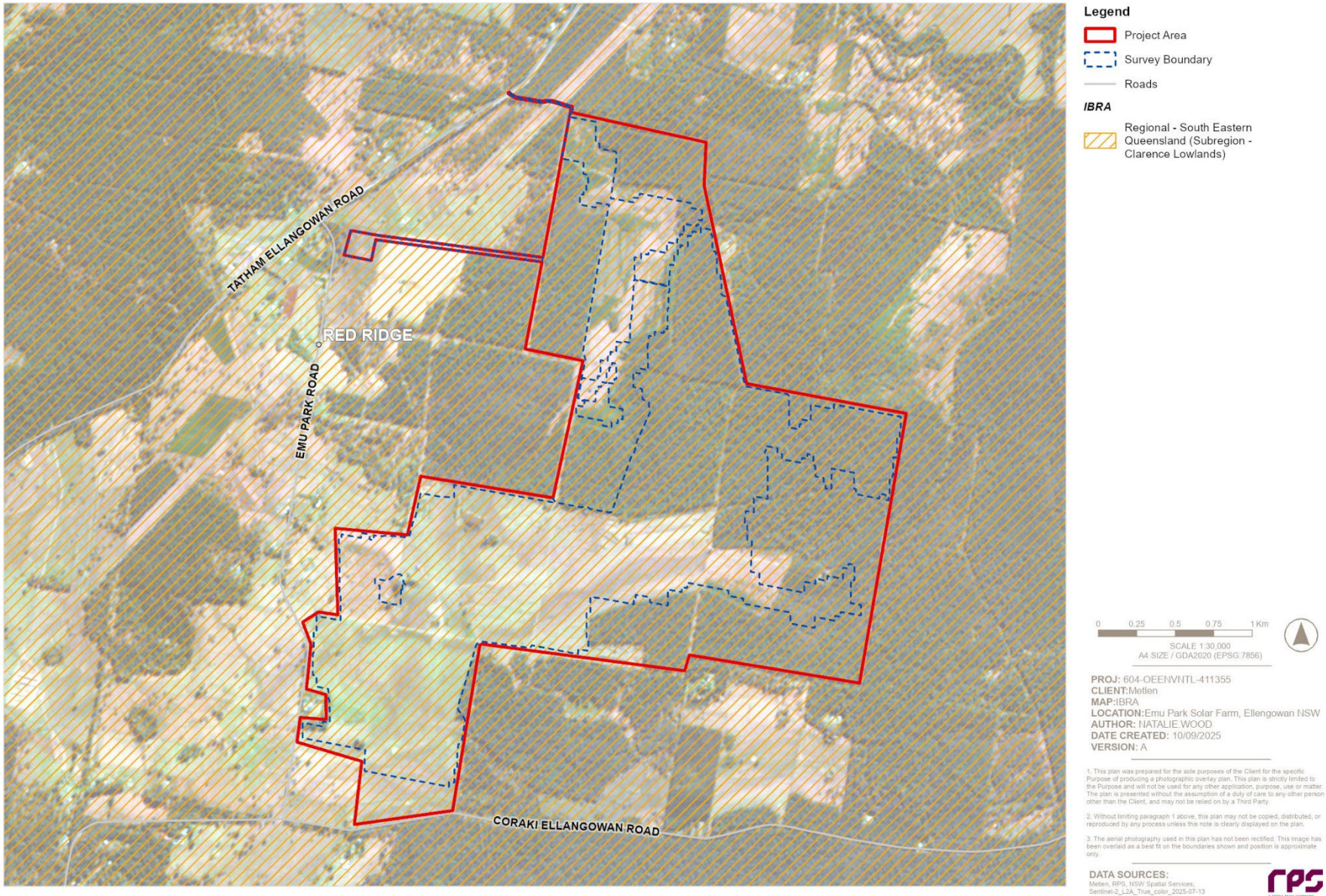


FIGURE 4-1: IBRA

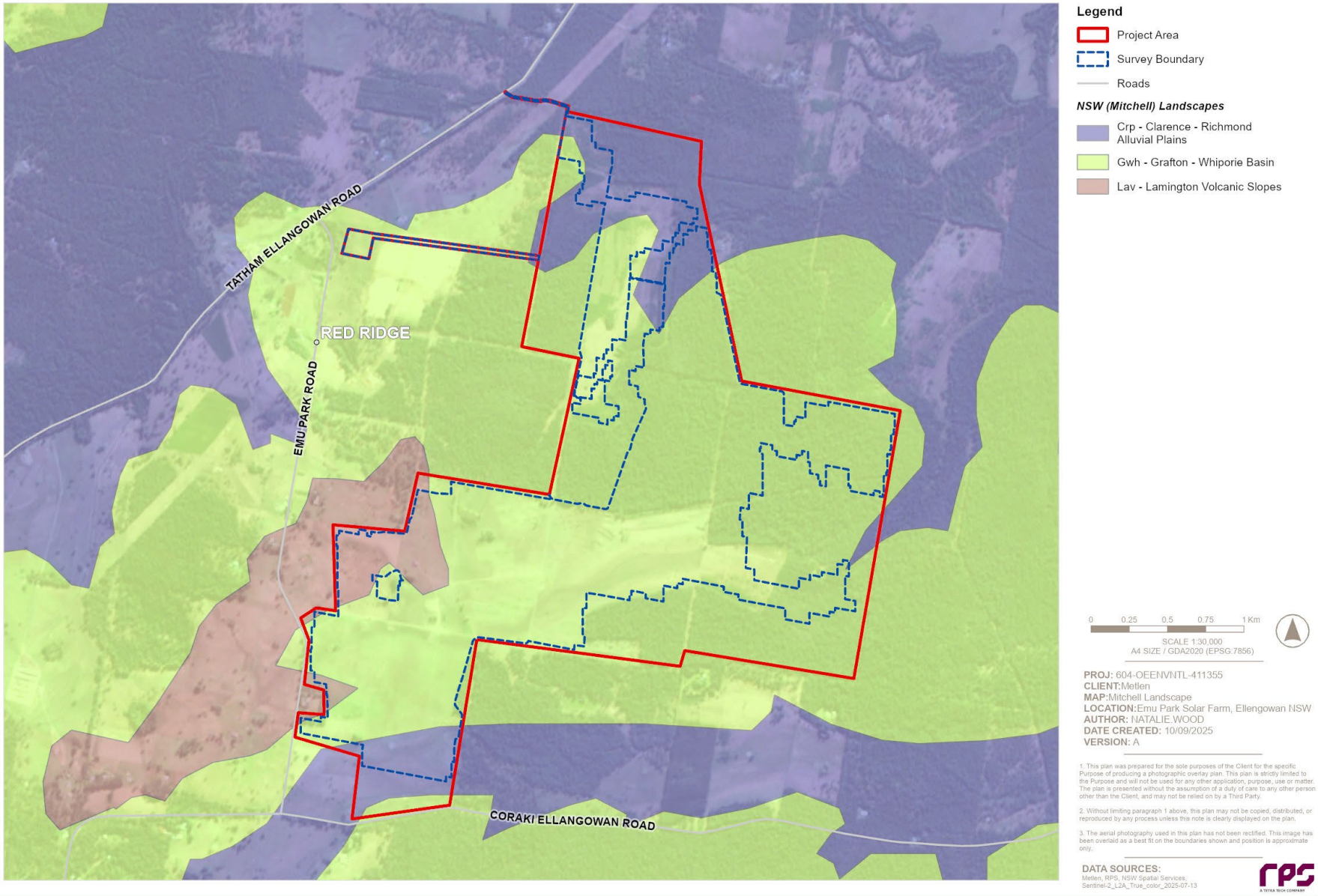


FIGURE 4-2: NSW (MITCHELL) LANDSCAPE

4.1.4 Soils

Soil landscapes within the Project Area comprise of soils mapped on the Soil Landscapes of the Woodburn 1:100,000 Sheet (see **Figure 4-3**) and described in **Table 4-3** (Morand 2001).

Table 4-3: Soil Landscapes of the Woodburn 1:100 000 Sheet (Morand 2001).

Soil Landscape Name and Code	Geology	Soils	Limitations
Ellangowan (9539eg)	Grafton Formation—thin to thick-bedded silty quartz sandstone, lithic sandstone, clayey siltstone, minor claystone and coal, conglomerate. A large area of gravels, which could be weathered conglomerate, occurs throughout the northern part of this soil landscape. Depth to bedrock varies, but is generally 1 – 2 m. The soil generally grades into highly weathered soft rock and hard fresh rock.	Moderately deep to deep (>100 cm), poorly drained Grey and Brown Kurosols and Kandosols (Gleyed Podzolic Soils and Yellow Podzolic Soils) on hillslopes and crests. Moderately deep to deep (>100 cm), well-drained Chernic Tenosols (Siliceous Sands) on areas of gravels.	Erodible, acidic and sodic/dispersive soils with low fertility, low permeability, high aluminium toxicity potential and localised stoniness. Moderately saline subsoils exist. High sheet and gully erosion hazard when cleared. High run-on when adjacent to erosional soil landscapes.
Mckee (9539mc)	Basalt and basaltic colluvium from the Lamington Volcanics. Tertiary basalt (not part of the Lamington Volcanics) occurs on the south of the sheet. Soils generally grade into a zone of highly weathered saprolite that forms the upper part of otherwise unweathered basalt.	Moderately deep to deep (>80 cm), well drained Brown Dermosols (Chocolate Soils) on hillslopes and crests. Deep (>150 cm), poorly drained Grey Vertosols (Grey Clays; Black Earths) within small drainage depressions.	Shallow, stony, erodible soils with high shrink-swell. Localised mass movement hazard; localised steep slopes.
Sandy Creek (9539sc)	Quaternary alluvium (alluvium, sand, clay) overlying Grafton Formation (sandstone, siltstone, claystone, conglomerate). Soils overlie an undetermined depth of aggraded material. No bedrock was observed.	Deep (>100 cm), poorly drained Grey and Brown Kandosols (Grey and Brown Earths) on upper slopes (near basalt boundaries). Deep (>150 cm), poorly drained Grey and Brown Kurosols (Gleyed Podzolic Soils; Soloths) on slopes and plains.	Highly erodible, hard-setting, sodic/dispersive soils of low fertility, moderate salinity and low permeability. Localised waterlogging; permanently high water tables; flood hazard.
Tabbimoble variant a (9539tma)	Alluvium and sediments of undetermined depth derived from the rocks of the Kangaroo Creek Sandstone (quartz sandstone), Grafton Formation (sandstone, siltstone, claystone, conglomerate), Walloon Coal Measures (sandstone, carbonaceous siltstone,	Deep (>150 cm), poorly drained Redoxic Hydrosols (Gleyed Podzolic Soils; Humic Gleys). Deep (>150 cm), poorly drained Brown Chromosols (Yellow Podzolic Soils/Gleyed Podzolic Soils) also occur within	Poorly drained soils with strong acidity, low permeability and low fertility. Sodic/dispersive subsoils with localised high shrink-swell (generally within landscape variant tma). High flood hazard; high run-on; waterlogged soils; high foundation hazard.

Soil Landscape Name and Code	Geology	Soils	Limitations
	shale, mudstone, coal, minor oil shale) and the Bundamba Group (quartz sandstone, quartz-lithic sandstone, feldspathic sandstone, conglomerate).	landscape variant tma.	
Yorklea (9540yo) and Yorklea variant a (9540yoa)	Grafton Formation – thin to thick-bedded silty quartz sandstone, lithic sandstone, clayey siltstone, minor claystone and coal.	Moderately deep (70 – 150 cm), poorly drained Red, Brown and Yellow Kurosols (Red and Yellow Podzolic Soils, Soloths, Lateritic Podzolic Soils) and moderately deep to deep (100 – 150 cm), well-drained Red and Yellow Dermosols and Kandosols (Red and Yellow Earths).	Highly erodible, hard-setting, dispersive, seasonally waterlogged soils of low fertility. Localised salinity.

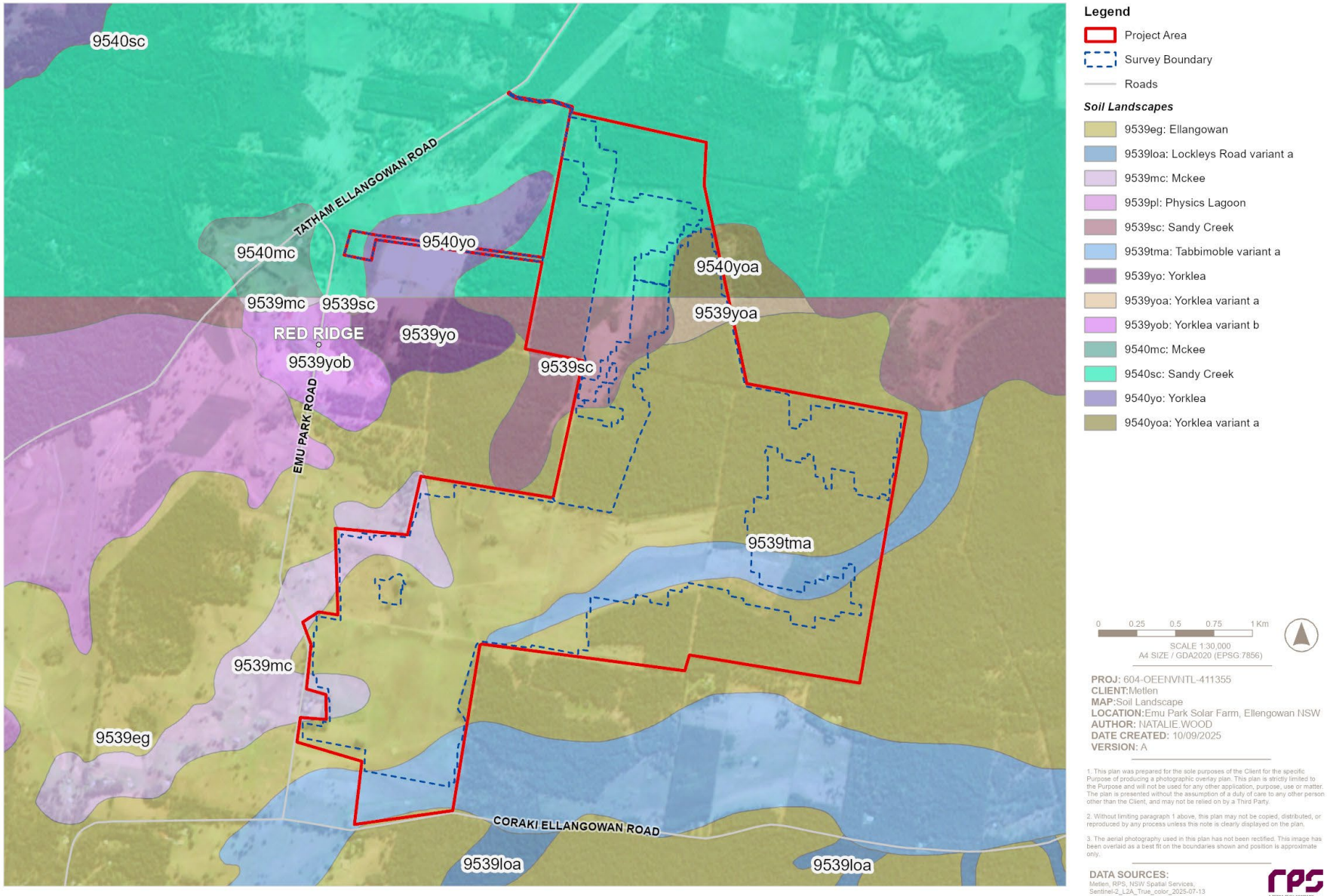


FIGURE 4-3: SOIL LANDSCAPE

4.1.5 Connectivity

Vegetation within the locality has been subject to clearing for forestry, timber plantation, and historic grazing since at least the 1980s, which has subsequently led to gaps in connectivity and fragmentation within the landscape. However, within the Project Area there is still a large expanse of land which provides connectivity for fauna species; particularly within the central, northern, and eastern extents of the Project Area.

The native vegetation within the Project Area provides a large buffer of vegetation to allow mobile fauna species to transverse south into the Bungawalbin State Conservation Area and into patches of native vegetation to the north and west of the Project Area.

Riparian vegetation along the various unnamed watercourses consists of patches of riparian vegetation in the northern and eastern extents of the Project Area. This is important for less mobile amphibious species such as frogs which rely on patches of riparian vegetation to disperse throughout the landscape.

Large areas of cleared agricultural land occurs throughout the southern and western portions of the Project Area, although some scattered paddock trees may enable mobile species such as birds and bats to disperse throughout the landscape (see **Figure 4-4**).

4.1.6 Groundwater Dependant Ecosystems

All watercourses within the Project Area are a part of the Northern Rivers Catchment area. High potential Groundwater Dependent Ecosystems occur in low lying areas consisting of PCT 3987 - Far North Floodplain Paperbark-Swamp Oak Forest and PCT 4001 - Northern Floodplain Paperbark Fern Swamp Forest (forested wetlands).

4.1.7 River and streams

All watercourses within the Project Area are a part of the Northern Rivers Catchment area (see **Figure 4-5**). Within the Project Area, there are several unnamed watercourses which drain into Sandy Creek in the east. There are also numerous ephemeral drainage lines present, and some farm dams scattered across the Project Area.

‘Stream order’ is used to describe the hierarchy of streams from the top to the bottom of a catchment. The Strahler stream order system is used to describe the hierarchy of streams from the top to the bottom of a catchment is based on the confluence (joining) of streams of the same order (DPE 2022). Watercourses identified within the Project Area include four 1st order ephemeral watercourses and one 4th order ephemeral watercourse.

4.1.7.1 Key Fish Habitat

The Project Area contains mapped FM Act Key Fish Habitat (KFH); Modelled Threatened Species Distribution for the Southern Purple Spotted Gudgeon (*Mogurnda adspersa*). This is mapped along the 4th order ephemeral watercourse in the southern extent of the Project Area (**Figure 4-5**) which flows in an easterly direction. Watercourses would require buffers to avoid development impacts.

4.1.7.2 Wetlands

No wetlands are mapped within the Project Area, although there are several farm dams which supply a water resource to stock grazing over the land. The largest of the dams spans about 100 m at the widest point. Farm dams may also provide habitat for a range of aquatic bird species which were observed utilising the dams during survey boundary investigations. Two PCTs (3987 and 4001) are classified as forested wetlands and may intermittently flood and provide habitat for a range of semiaquatic flora and fauna species. The nearest important wetland is the Moreton Bay Ramsar site, located over 120 km northeast of the Project Area.

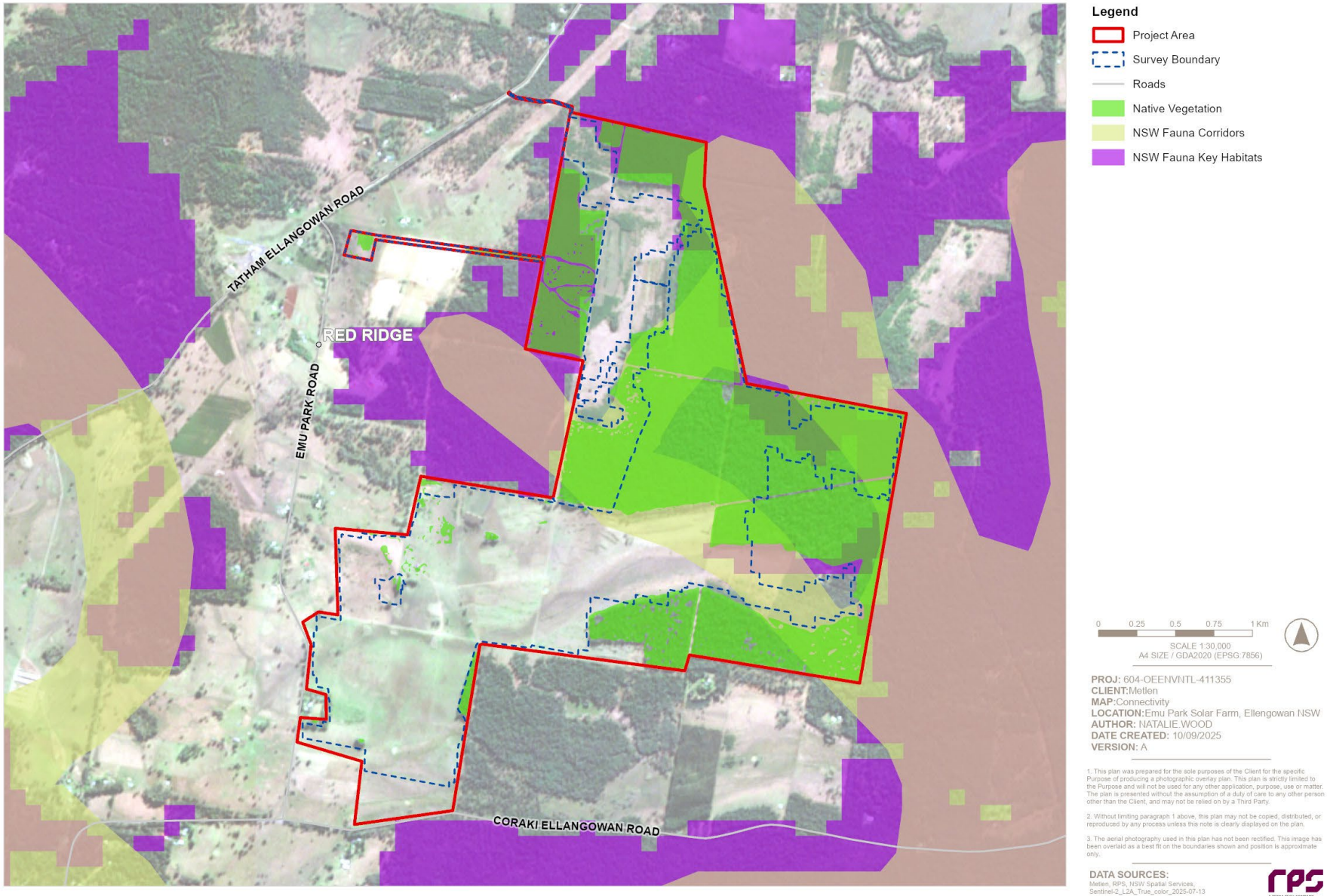


FIGURE 4-4: CONNECTIVITY

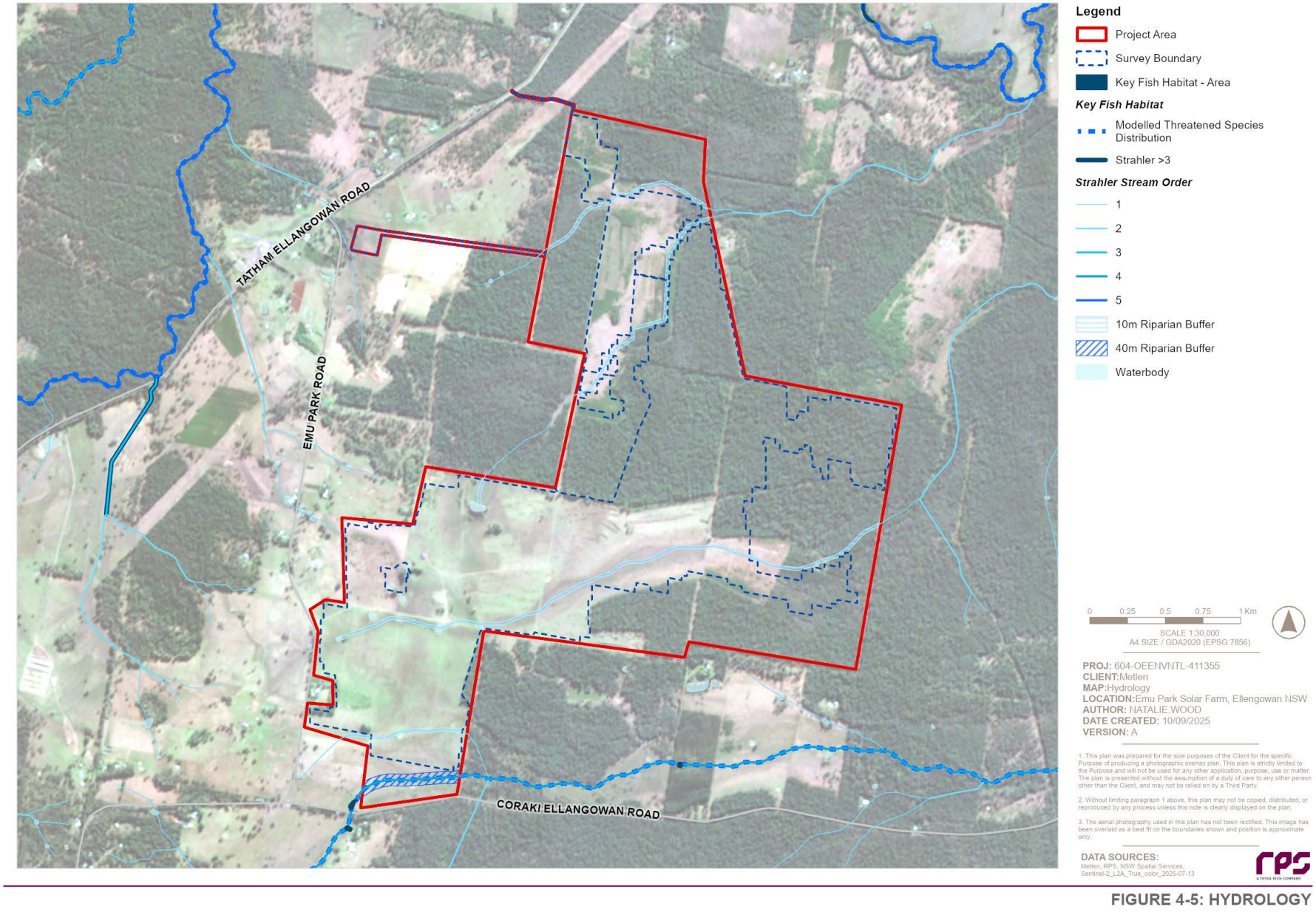


FIGURE 4-5: HYDROLOGY

4.1.8 Important areas

4.1.8.1 Biodiversity values

Clause 7.3(3) of the *Biodiversity Conservation Regulation 2017* describes 11 types of land the Environment Agency Head may include on the BV Map (NSW DCCEEW 2025f). No biodiversity values are mapped within the Project Area. Biodiverse riparian land mapping is located approximately 1,200 m north of the Project Area (**Figure 4-6**).

4.1.8.2 Areas of Outstanding Biodiversity Value

Areas of Outstanding Biodiversity Value (AOBV) are declared under the BC Act to identify, highlight and effectively manage sites that make significant contributions to the persistence of biodiversity in New South Wales, Australia and globally. There are four AOBV in New South Wales (NSW DCCEEW 2025f):

1. Gould's Petrel – critical habitat declaration
2. Little penguin population in Sydney's North Harbour – critical habitat declaration
3. Mitchell's Rainforest Snail in Stotts Island Nature Reserve – critical habitat declaration
4. Wollemi Pine – critical habitat declaration.

No registered AOBVs occur within the Project Area or surrounds. No impacts to the above AOBV are expected as a result of the Project.

4.1.8.3 Wetlands of national environmental significance (Ramsar)

No Ramsar Wetlands are located in the locality of the Project Area. The closest Ramsar Wetland is the Moreton Bay Ramsar site, located over 120 km northeast of the Project Area.

4.1.8.4 BAM important habitat mapping

No important areas for the Swift Parrot, Regent Honeyeater, Migratory Shorebird or Plains Wanderer important habitat mapping occurs within the Project Area. The closest important area is the Migratory Shorebird Important Area - Richmond River Estuary, located over 21 km to the east of the Project Area.

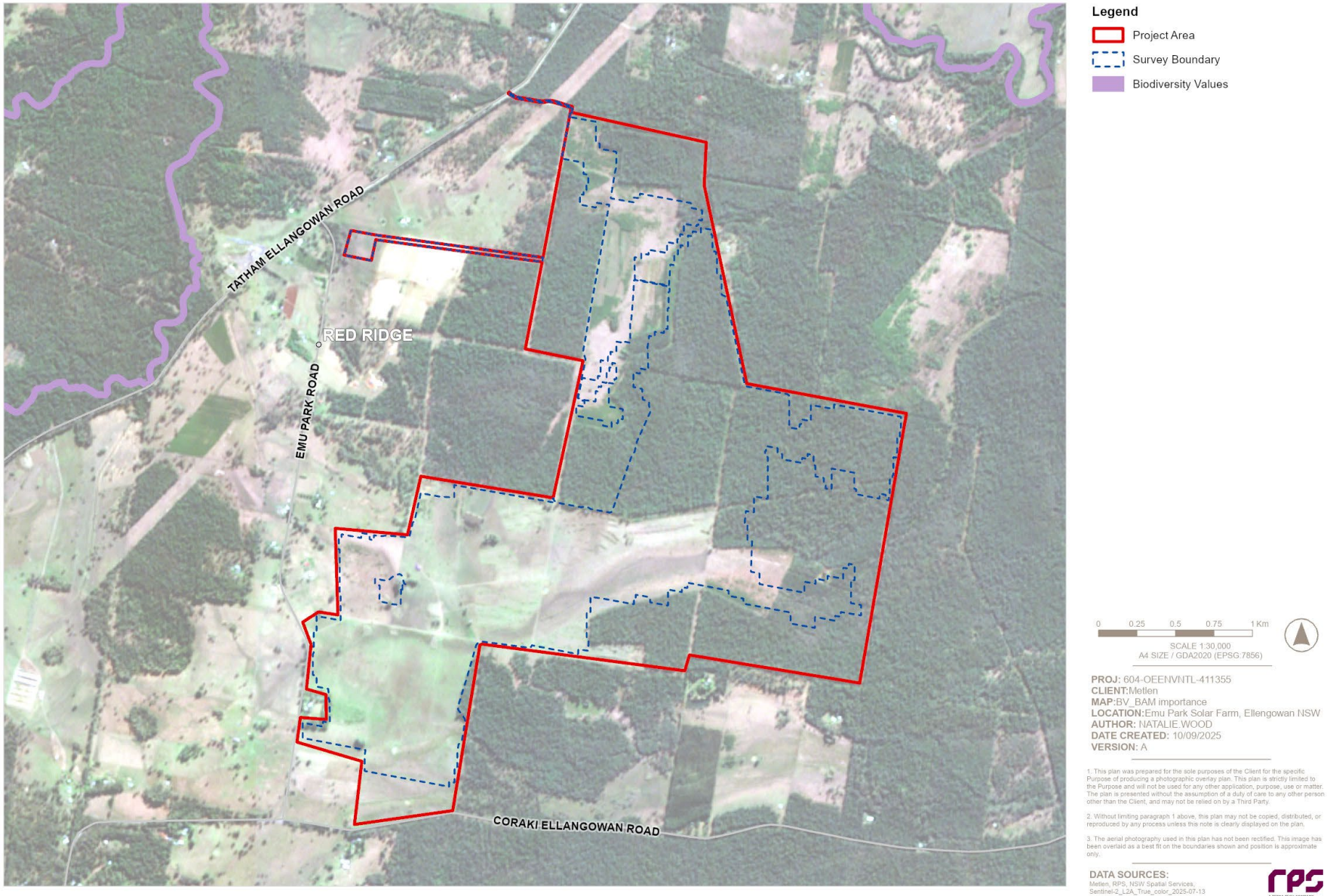


FIGURE 4-6: BIODIVERSITY VALUES AND BAM IMPORTANT AREAS

4.1.9 State Environmental Planning Policy (Biodiversity and Conservation) 2021

State environmental planning policy for koala habitat protection is contained in two chapters of the *SEPP (Biodiversity and Conservation) 2021*:

- Chapter 3 'Koala habitat protection 2020' applies to rural zoned land (RU1 Primary Production, RU2 Rural Landscape and RU3 Forestry) in 74 local government areas (LGAs).
- Chapter 4 'Koala habitat protection 2021' applies to the remaining zones in 74 LGAs, and to all zones in Metropolitan Sydney (Blue Mountains, Campbelltown, Hawkesbury, Ku-ring-gai, Liverpool, Northern Beaches, Hornsby, Wollondilly) and the Central Coast.

Chapters 3 and 4 of the *SEPP (Biodiversity and Conservation) 2021* aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline by:

- Requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat
- Encouraging the identification of areas of core koala habitat
- Encouraging the inclusion of areas of core koala habitat in conservation zones.

The Richmond Valley LGA is listed in Schedule 2 of the *SEPP (Biodiversity and Conservation) 2021*, therefore, Chapter 3 'Koala habitat protection 2020' of the SEPP applies. The Project Area occurs within the North Coast koala management area. Additionally, koala use trees listed in Schedule 3 of the SEPP occur within the Project Area including:

- *Allocasuarina torulosa*
- *Corymbia gummifera*
- *Corymbia intermedia*
- *Corymbia maculata*
- *Eucalyptus bancroftii*
- *Eucalyptus grandis*
- *Eucalyptus moluccana*
- *Eucalyptus propinqua*
- *Eucalyptus resinifera*
- *Eucalyptus robusta*
- *Eucalyptus siderophloia*
- *Eucalyptus tereticornis*
- *Melaleuca quinquenervia*

4.1.10 Draft Native Vegetation Regulatory map

The draft native vegetation regulatory (NVR) map displays all available categories identified in the LLS Act (see **Figure 4-7**). This includes:

- Category 1 - exempt land (draft)
- Category 2 - regulated land (draft)
- Category 2 - vulnerable regulated land (in-force)
- Category 2 - sensitive regulated land (in-force)

- Areas where category 2 - sensitive and vulnerable regulated lands overlap (in-force).

Mapping of Category 2 - vulnerable regulated land and Category 2 - sensitive regulated land once finalised would legally restricts land clearing in those areas across New South Wales and should be considered when making decisions about native vegetation management. The Project Area consists of:

- Category 1 exempt land – located within previously cleared areas that exhibit existing disturbance for grazing. This is the second most dominant category in the survey boundary
- Category 2 regulated land – occurs across the majority of the Project Area and is representative of partially cleared to relatively intact woodland areas across the Project Area. This is the most dominant category in the survey boundary.

The NVR map would require formal update and assessment following PCT mapping refinement for the Project Area.

4.1.10.1 Historical imagery

Historical imagery from 1985 shows there has been extensive historical clearing pre-dating 1990 (refer **Plate 4-1)**. Category 1 - Exempt Land category applies to land that was cleared prior to 1990. Generally, the current extent of clearing is similar to the 1985 extent of clearing.

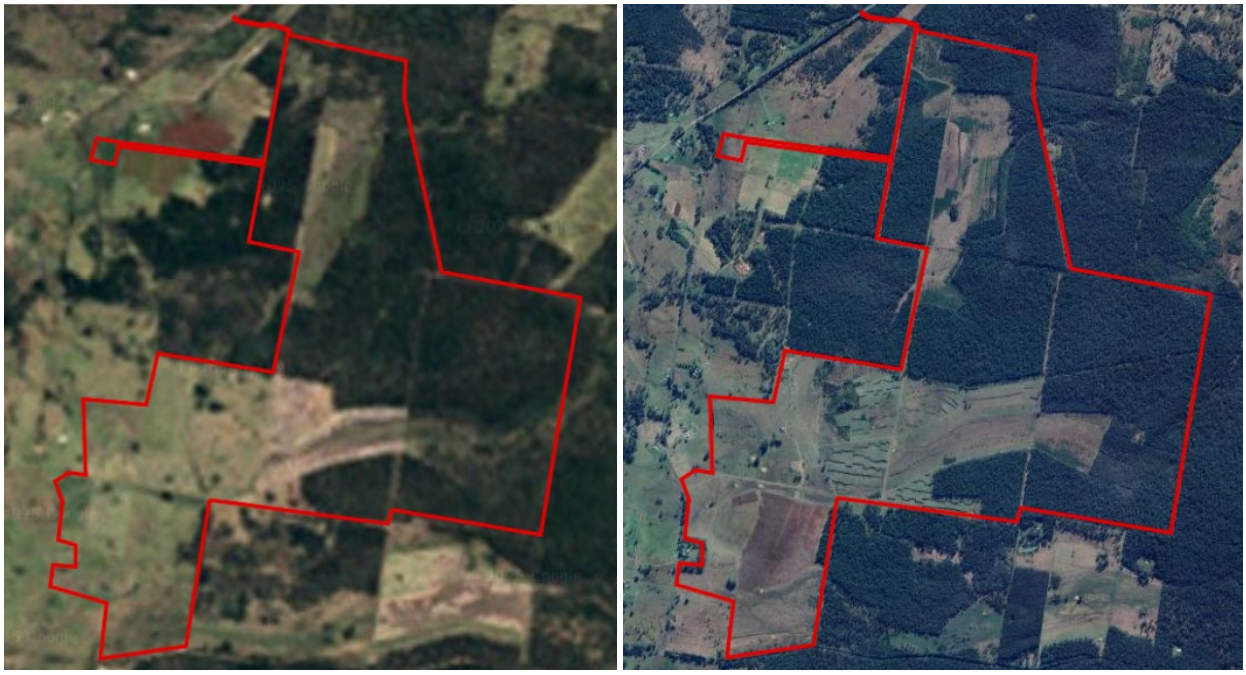


Plate 4-1: Historical imagery from 31/12/1985 and recent imagery from 17/07/2024 (Google Earth 2024)

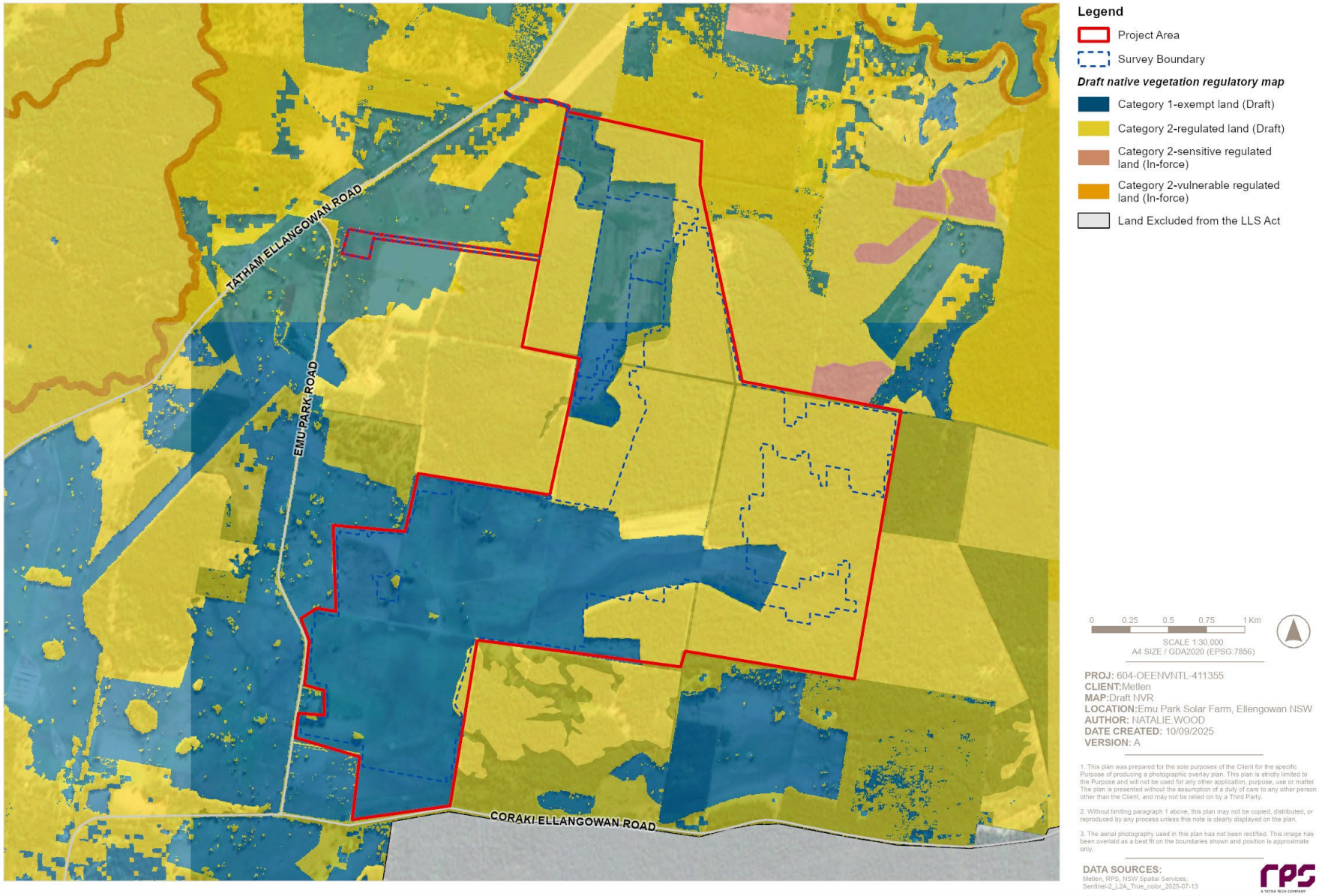


FIGURE 4-7: DRAFT NATIVE VEGETATION REGULATORY MAP

4.1.11 Likelihood of occurrence

Database searches identified 39 threatened fauna species, 18 threatened flora species and five threatened ecological communities (TECs) as having a moderate to high potential to occur within a 10 km radius of the Project Area (NSW DCCEEW 2025b, Cth DCCEEW 2025; **Table 4-4**, **Table 4-5**).

Field investigations have focused on evaluating the importance of habitat located within the survey boundary for these species. The complete LoO analysis is presented in **Appendix A**.

Table 4-4: Species with a moderate or greater likelihood of occurrence

Scientific Name	Common Name	BC Act	EPBC Act	LoO
Amphibia				
Crinia tinnula	Wallum Froglet	V	-	Moderate
Litoria brevipalmata	Green-thighed Frog	V	-	Moderate
Litoria olongburensis	Olongburra Frog	V	V	Moderate
Mixophyes iteratus	Giant Barred Frog	V	V	Moderate
Aves				
Anthochaera phrygia	Regent Honeyeater	CE	CE	Moderate
Burhinus grallarius	Bush Stone-curlew	E	-	Moderate
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	Moderate
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	V	Moderate
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	CE	E	Moderate
Dromaius novaehollandiae - endangered population	Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	EP	-	High
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Moderate
Erythrotriorchis radiatus	Red Goshawk	E	E	Moderate
Falco hypoleucos	Grey Falcon	V	V	High
Hirundapus caudacutus	White-throated Needletail	P	V,M,MAR	Moderate
Lathamus discolor	Swift Parrot	E	CE,MAR	Moderate
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	E	E	Moderate
Ninox connivens	Barking Owl	V	-	High
Ninox strenua	Powerful Owl	V	-	Moderate
Parvipsitta pusilla	Little Lorikeet	V	-	High
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	-	Moderate
Turnix melanogaster	Black-breasted Button-quail	CE	V	Moderate
Tyto novaehollandiae	Masked Owl	V	-	High
Insecta				
Argynnis hyperbius	Laced Fritillary	E	CE	Moderate
Mammalia				
Aepyprymnus rufescens	Rufous Bettong	V	-	Moderate
Chalinolobus dwyeri	Large-eared Pied Bat	E	E	Moderate
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Moderate
Miniopterus australis	Little Bent-winged Bat	V	-	Moderate
Myotis macropus	Southern Myotis	V	-	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	LoO
Notamacropus dorsalis	Black-striped Wallaby	E	-	Moderate
Petauroides volans	Greater Glider	E	E	High
Petaurus australis	Yellow-bellied Glider	V	V	Moderate
Petaurus norfolcensis	Squirrel Glider	V	-	High
Phascogale tapoatafa	Brush-tailed Phascogale	V	-	High
Phascolarctos cinereus	Koala	E	E	High
Potorous tridactylus tridactylus	Northern long-nosed potoroo	V	V	Moderate
Pseudomys novaehollandiae	New Holland Mouse	P	V	Moderate
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	High
Reptilia				
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	V	V	Moderate
Saltuarius moritzi	Moritz's leaf-tailed gecko	-	E	Moderate
Flora				
Arthraxon hispidus	Hairy Jointgrass	V	V	Moderate
Cryptostylis hunteriana	Leafless Tongue Orchid	V	V	Moderate
Eucalyptus glaucina	Slaty Red Gum	V	V	High
Hibbertia marginata	Bordered Guinea Flower	V	V	Moderate
Macadamia integrifolia	Macadamia Nut	-	V	Moderate
Macadamia tetraphylla	Rough-shelled Bush Nut	V	V	Moderate
Marsdenia longiloba	Slender Marsdenia	E	V	Moderate
Myrsine richmondensis	Ripple-leaf Muttonwood	E	E	Moderate
Owenia cepiodora	Onion Cedar	V	V	Moderate
Pedleya acanthoclada	Thorny Pea	V	V	Moderate
Persicaria elatior	Tall Knotweed	V	V	High
Phaius australis	Southern Swamp Orchid	E	E	Moderate
Polygala linariifolia	Native Milkwort	E	-	High
Rhodamnia rubescens	Scrub Turpentine	CE	CE	Moderate
Rhodomyrtus psidioides	Native Guava	CE	CE	Moderate
Syzygium hodgkinsoniae	Red Lilly Pilly	V	V	Moderate
Thesium australe	Austral Toadflax	V	V	Moderate
Tylophora woollsii	Cryptic Forest Twiner	E	E	Moderate

V = Vulnerable, E = Endangered, CE = Critically Endangered, MAR = Marine, M = Migratory, - = Not listed

Table 4-5: BC Act and EPBC Act TECs predicted to occur in the locality

BC Act Listing	EPBC Act Listing	Source
Endangered – Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	Endangered – Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	PMST (Cth DCCEEW 2025), SVTM (NSW 2022).
Endangered – Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Endangered – Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	PMST (Cth DCCEEW 2025), SVTM (NSW 2022).
Endangered – Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered)	Endangered – Coastal Swamp Oak (*Casuarina glauca*) Forest of New South	PMST (Cth DCCEEW 2025),

BC Act Listing	EPBC Act Listing	Source
	Wales and South East Queensland ecological community	SVTM (NSW 2022).
Not listed	Critically Endangered – Lowland Rainforest of Subtropical Australia	PMST (Cth DCCEEW 2025).
Endangered – Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	Not listed	SVTM (NSW 2022).

4.1.12 Predicted threatened species (ecosystem credits)

Predicted threatened species generate 'ecosystem credits' and are known as 'ecosystem credit species'. Ecosystem credit species are threatened species whose occurrence can generally be predicted by vegetation surrogates and/or landscape features, or that have a low probability of detection using targeted surveys.

Sixty ecosystem credit species are associated with the PCTs mapped within the Project Area (**Table 4-6**). These species do not need to be surveyed for to confirm presence/absence as they are assumed to be present within the Project Area.

Table 4-6: Predicted ecosystem credit species

Ecosystem credit species	Common name	BC Act	EPBC Act	SAII candidate species	Habitat constraint
Anseranas semipalmata	Magpie Goose	V	-	-	-
Anthochaera phrygia	Regent Honeyeater	CE	CE	SAII Breeding	As per Important Habitat Map.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	-	-
Botaurus poiciloptilus	Australasian Bittern	E	E	-	Waterbodies; Brackish or freshwater wetlands.
Calidris alba	Sanderling	V	-	-	As per Important Habitat Map.
Calidris canutus	Red Knot	-	E	-	As per Important Habitat Map.
Calidris ferruginea	Curlew Sandpiper	CE	CE	SAII Breeding	As per Important Habitat Map.
Calidris tenuirostris	Great Knot	V	V	-	As per Important Habitat Map.
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	-	Presence of *Allocasuarina* and *Casuarina* species.
Chalinolobus nigrogriseus	Hoary Wattled Bat	V	-	-	-
Charadrius leschenaultii	Greater Sand-plover	V	V	-	As per Important Habitat Map.
Charadrius mongolus	Lesser Sand-plover	V	E	-	As per Important Habitat Map.
Chthonicola sagittata	Speckled Warbler	V	-	-	-
Circus assimilis	Spotted Harrier	V	-	-	-
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	V	-	-
Coracina lineata	Barred Cuckoo-shrike	V	-	-	-

Ecosystem credit species	Common name	BC Act	EPBC Act	SAII candidate species	Habitat constraint
Daphoenositta chrysoptera	Varied Sittella	V	-	-	-
Dasyurus maculatus	Spotted-tailed Quoll	V	E	-	-
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	-	Swamps; Shallow, open freshwater or saline wetlands or shallow edges of deeper wetlands within 300m of these swamps. Waterbodies; Shallow lakes, lake margins and estuaries within 300m of these waterbodies.
Esacus magnirostris	Beach Stone-curlew	CE	-	SAII Breeding	-
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-	-	-
Glossopsitta pusilla	Little Lorikeet	V	-	-	-
Grus rubicunda	Brolga	V	-	-	-
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	-	-	Waterbodies; Within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines.
Hieraaetus morphnoides	Little Eagle	V	-	-	Nest trees - live (occasionally dead) large old trees within vegetation.
Hirundapus caudacutus	White-throated Needletail	V	V	-	-
Irediparra gallinacea	Comb-crested Jacana	V	-	-	Waterbodies; Freshwater wetlands with a good surface cover of floating aquatic vegetation.
Ixobrychus flavicollis	Black Bittern	V	-	-	Waterbodies; Land within 40 m of freshwater and estuarine wetlands, in areas of permanent water and dense vegetation.
Lathamus discolor	Swift Parrot	E	CE	SAII Breeding	As per Important Habitat Map.
Limosa lapponica baueri	Bar-tailed Godwit (baueri)	-	V	-	As per Important Habitat Map.
Limosa limosa	Black-tailed Godwit	V	E	-	As per Important Habitat Map.
Lophoictinia isura	Square-tailed Kite	V	-	-	Nest trees.
Macropus dorsalis	Black-striped Wallaby	E	-	-	-
Melanodryas cucullata cucullata	South-eastern Hooded Robin	E	E	-	-
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	-	-	-
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V	-	-	-

Ecosystem credit species	Common name	BC Act	EPBC Act	SAII candidate species	Habitat constraint
Miniopterus australis	Little Bent-winged Bat	V	-	SAII Breeding	Caves; Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records in BioNet with microhabitat code 'IC – in cave'; observation type code 'E nest-roost'; with numbers of individuals >500; or from the scientific literature.
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-	SAII Breeding	Caves; Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records with microhabitat code "IC - in cave;" observation type code "E nest-roost;" with numbers of individuals >500
Numenius madagascariensis	Eastern Curlew	-	CE	SAII Breeding	As per Important Habitat Map.
Nyctophilus bifax	Eastern Long-eared Bat	V	-	-	-
Ozimops lumsdenae	Northern Free-tailed Bat	V	-	-	-
Pandion cristatus	Eastern Osprey	V	-	-	Presence of stick-nests in living and dead trees (>15m) or artificial structures within 100m of a floodplain for nesting.
Petaurus australis	Yellow-bellied Glider	V	V	-	-
Petroica boodang	Scarlet Robin	V	-	-	-
Phoniscus papuensis	Golden-tipped Bat	V	-	-	-
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	-	-	-
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	V	-	-	-
Pseudomys novaehollandiae	New Holland Mouse	-	V	-	-
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	-	Breeding camps.
Ptilinopus magnificus	Wompoo Fruit-Dove	V	-	-	-
Ptilinopus regina	Rose-crowned Fruit-Dove	V	-	-	-
Ptilinopus superbus	Superb Fruit-Dove	V	-	-	-
Rostratula australis	Australian Painted Snipe	E	E	-	-
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	-	-
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-	-	-

Ecosystem credit species	Common name	BC Act	EPBC Act	SAII candidate species	Habitat constraint
Stagonopleura guttata	Diamond Firetail	V	V	-	-
Syconycteris australis	Common Blossom-bat	V	-	-	-
Thylogale stigmatica	Red-legged Pademelon	V	-	-	-
Tyto longimembris	Eastern Grass Owl	V	-	-	-
Xenus cinereus	Terek Sandpiper	V	V	-	As per Important Habitat Map.

V = Vulnerable, E = Endangered, CE = Critically Endangered, - = Not Listed.

4.1.13 Candidate threatened species (species credits)

Candidate threatened species generate 'species credits' and are known as 'species credit species'. Species credit species are threatened species for which vegetation surrogates and/or landscape features cannot reliably predict the likelihood of their occurrence or components of their habitat. A targeted survey or an expert report is required to confirm the presence of these species. Ecological surveys may identify additional threatened species within the Project Area for inclusion as species credit species.

4.1.13.1 Flora

The BAM regards all threatened flora species as 'species credit' species. Targeted surveys or an expert report are required for those species identified by BAM-C. A total of 43 threatened flora species have been considered as candidate species for this assessment (**Table 4-7**).

Table 4-7: Candidate threatened flora species

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
Acacia ruppii	Rupp's Wattle	E	E	-	All year	-
Angophora robur	Sandstone Rough-barked Apple	V	V	-	All year	-
Arthraxon hispidus	Hairy Jointgrass	V	V	-	January; February; March; April; November; December	-
Belvisia mucronata	Needle-leaf Fern	E	-	-	All year	Cliffs; Escarpments and boulders. Epiphytes or Lithophytes.
Callistemon linearifolius	Netted Bottle Brush	V	-	-	January; October; November; December	-
Centranthera cochinchinensis	Swamp Foxglove	E	-	-	January; February; March	Semi-permanent/ephemeral wet areas or within a 50 m buffer. Swamps; or within a 50 m buffer.

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
						Waterbodies; including wetlands, or within a 50 m buffer.
Coatesia paniculata	Axe-Breaker	E	-	-	All year	-
Cynanchum elegans	White-flowered Wax Plant	E	E	-	All year	-
Cyperus aquatilis	Water Nutgrass	E	-	-	January; February; March; April	-
Desmodium acanthocladum	Thorny Pea	V	V	-	All year	-
Eleocharis tetraquetra	Square-stemmed Spike-rush	E	-	-	January; February	Semi-permanent/ephemeral wet areas; in small drainage depressions which are only seasonally or intermittently wet and may include non-natural features, or within 50m. Waterbodies; Stream edges, low lying areas or in and on the margins of freshwater swamps or within 50m.
Elionurus citreus	Lemon-scented Grass	E	-	-	January; February; December	-
Endiandra hayesii	Rusty Rose Walnut	V	V	-	All year	-
Endiandra muelleri subsp. bracteata	Green-leaved Rose Walnut	E	-	SAII	All year	-
Eucalyptus glaucina	Slaty Red Gum	V	V	-	All year	-
Eucalyptus tetrapleura	Square-fruited Ironbark	V	V	-	All year	-
Geodorum densiflorum	Pink Nodding Orchid	E	-	-	January; February; March	-
Gossia fragrantissima	Sweet Myrtle	E	E	-	All year	-
Grevillea banyabba	Banyabba Grevillea	V	V	-	All year	-

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
Grevillea masonii	Mason's Grevillea	E	E	SAII	All year	Grafton formation geology.
Indigofera baileyi	Bailey's Indigo	E	-	-	January; February; November; December	-
Lindernia alsinoides	Noah's False Chickweed	E	-	-	January; February; November; December	Damp areas or adjacent to riparian areas (including disturbed areas). Swamps; Shallow, freshwater areas.
Lindsaea incisa	Slender Screw Fern	E	-	-	All year	-
Marsdenia longiloba	Slender Marsdenia	E	V	-	January; February; November; December	-
Maundia triglochinoides	-	V	-	-	January; February; March; November; December	Riparian areas/drainage lines, water ponding, man-made dams and drainage channels up to 1 m deep. Semi-permanent/ephemeral wet areas. Swamps; Shallow swamps up to 1 m deep. Waterbodies; Shallow waterbodies up to 1 m deep.
Melaleuca irbyana	Weeping Paperbark	E	-	-	All year	-
Melichrus gibberagee	Narrow-leaf Melichrus	E	E	SAII	January; February; March; April; May; September; October; November; December	-
Melichrus hirsutus	Hairy Melichrus	E	E	-	All year	-
Myrsine richmondensis	Ripple-leaf Muttonwood	E	E	SAII	All year	-

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
Olax angulata	Square-stemmed Olax	V	V	-	All year	-
Oldenlandia galioides	Sweet False Galium	E	-	SAII	January; February; March; April; May; December	-
Paspalidium grandispiculatum	-	V	V	-	January; February; March; April; May; October; November; December	-
Persicaria elatior	Tall Knotweed	V	V	-	January; February; March; April; May; December	Semi-permanent/ephemeral wet areas; or within 50 m. Swamps; or within 50 m. Waterbodies; including wetlands, or within 50 m.
Phaius australis	Southern Swamp Orchid	E	E	-	September; October	-
Phyllanthus microcladus	Brush Sauropus	E	-	-	All year	-
Polygala linariifolia	Native Milkwort	E	-	-	January; February; October; November; December	-
Prostanthera palustris	Swamp Mint-bush	E	E	SAII	February; March; April; May; June	-
Prostanthera sejuncta	-	V	-	SAII	All year	Jurassic geology on sandstone
Quassia sp. *Moonee Creek*	Moonee Quassia	E	E	-	All year	-
Rhodamnia rubescens	Scrub Turpentine	E	E	SAII	All year	-
Rhodomyrtus psidioides	Native Guava	E	E	SAII	All year	-
Rotala tripartita	-	E	-	SAII	January; February; March; December	Shallow swampy or poorly drained areas including gilgai. Semi-permanent/ephemeral wet areas; sites may dry out for several months

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
						but rarely longer. Swamps. Waterbodies; Farm dams and freshwater wetlands or within 50m.
Tephrosia filipes	=	V	-	-	January; February; October; November; December	-

V = Vulnerable, E = Endangered, CE = Critically Endangered, - = Not Listed.

4.1.13.2 Fauna

Targeted surveys or an expert report are required for fauna species identified as species credit species by BAM-C. A total of 55 threatened fauna species have been considered as candidate species for this assessment (**Table 4-8**).

Table 4-8: Candidate threatened fauna species

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
Aepyprymnus rufescens	Rufous Bettong	V	-	-	All year	-
Anthochaera phrygia	Regent Honeyeater	E	E	SAII Breeding	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Argynnis hyperbius	Laced Fritillary	E	E	SAII	March; April; May; June	Arrowhead Violet (*Viola betonicifolia*).
Burhinus grallarius	Bush Stone-curlew	E	-	-	All year	Fallen/standing dead timber including logs.
Cacophis harriettae	White-crowned Snake	V	-	-	January; February; March; April; September; October; November; December	Litter. Rocky areas; Surface rocks. Fallen/standing dead timber including logs; or within 50m of fallen timber including logs.
Calidris alba	Sanderling	V	-	-	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
Calidris canutus	Red Knot	-	E	-	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Calidris ferruginea	Curlew Sandpiper	E	E	SAII Breeding	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Calidris tenuirostris	Great Knot	V	V	-	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Calyptorhynchus banksii banksii	Red-tailed Black-Cockatoo (coastal subspecies)	E	-	SAII	All year	-
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	-	April; May; June; July; August	Presence of *Allocasuarina* and *Casuarina* species. Hollow bearing trees; Living or dead tree with hollows greater than 15cm diameter and higher than 8m above ground.
Cercartetus nanus	Eastern Pygmy-possum	V	-	-	January; February; March; October; November; December	-
Chalinolobus dwyeri	Large-eared Pied Bat	E	E	SAII	January; November; December	Cliffs; Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels.
Charadrius leschenaultii	Greater Sand-plover	V	V	-	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
Charadrius mongolus	Lesser Sand-plover	V	E	-	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	V	V	-	January; February; March; April; September; October; November; December	Leaf and bark litter. Fallen/standing dead timber including logs; Timber and logs on the ground.
Crinia tinnula	Wallum Froglet	V	-	-	All year	-
Dromaius novaehollandiae	Emu population in the New South Wales North Coast Bioregion	EP	-	-	All year	-
Erythrotriorchis radiatus	Red Goshawk	E	E	SAII	All year	-
Esacus magnirostris	Beach Stone-curlew	E	-	SAII Breeding	January; February; March; April; May; June; July; August; September; October; November; December	-
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	-	-	July; August; September; October; November; December	Waterbodies; Within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines Living or dead mature trees within suitable vegetation within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines.
Hieraaetus morphnoides	Little Eagle	V	-	-	August; September; October	Nest trees - live (occasionally dead) large old trees within vegetation.
Hoplocephalus bitorquatus	Pale-headed Snake	V	-	-	January; February; March; November; December	-
Hoplocephalus stephensii	Stephens' Banded Snake	V	-	-	January; February; March; October; November; December	Hollow bearing trees; or within 500 m of this habitat. Within 500 m of arboreal vine tangles. Fallen/standing dead timber including logs; or

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
						within 500 m of this habitat.
Lathamus discolor	Swift Parrot	E	E	SAII Breeding	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Lichenostomus fasciogularis	Mangrove Honeyeater	V	-	-	All year	-
Limosa lapponica baueri	Bar-tailed Godwit (baueri)	-	V	-	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Limosa limosa	Black-tailed Godwit	V	E	-	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Litoria aurea	Green and Golden Bell Frog	E	V	-	January; February; March; November; December	Semi-permanent/ephemeral wet areas; Within 1km of wet areas. Swamps; Within 1km of swamp. Waterbodies; Within 1km of waterbody.
Litoria brevipalmata	Green-thighed Frog	V	-	-	January; February; March; April; September; October; November; December	Semi-permanent/ephemeral wet areas. Swamps. Waterbodies.
Litoria olongburensis	Olongburra Frog	V	V	-	January; February; March; August; September; October; November; December	-
Lophoictinia isura	Square-tailed Kite	V	-	-	January; September; October; November; December	Nest trees.
Miniopterus australis	Little Bent-winged Bat	V	-	SAII Breeding	January; February; December	Caves; Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
						records in BioNet with microhabitat code 'IC – in cave'; observation type code 'E nest-roost'; with numbers of individuals >500; or from the scientific literature.
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-	SAII Breeding	January; February; December	Caves; Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records with microhabitat code "IC - in cave;" observation type code "E nest-roost;" with numbers of individuals >500.
Mixophyes iteratus	Giant Barred Frog	V	V	-	January; February; March; October; November; December	Land within 50m of semi-permanent and permanent drainages.
Myotis macropus	Southern Myotis	V	-	-	January; February; March; October; November; December	Waterbodies with permanent pools/stretches 3m or wider, including rivers, large creeks, billabongs, lagoons, estuaries, dams and other waterbodies, on or within 200m of the site.
Nettapus coromandelianus	Cotton Pygmy-Goose	E	-	-	All year	Waterbodies; Deep permanent fresh waters on floodplains with floating and submergent vegetation.
Ninox connivens	Barking Owl	V	-	-	All year	Hollow bearing trees; a living or dead tree with a hollow >20 cm diameter that occurs >4 metres above the ground.
Ninox strenua	Powerful Owl	V	-	-	All year	Hollow bearing trees; a living or dead tree with a hollow >20 cm diameter that occurs >4 metres above the ground.

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
Numenius madagascariensis	Eastern Curlew	-	E	SAII Breeding	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.
Pandion cristatus	Eastern Osprey	V	-	-	April; May; June; July; August; September; October; November	Presence of stick-nests in living and dead trees (>15m) or artificial structures within 100m of a floodplain for nesting.
Petalura litorea	Coastal Petaltail	E	-	SAII	January; February; November; December	Swamps; Vegetation within 500 m of swamps.
Petauroides volans	Southern Greater Glider	E	E	-	All year	-
Petaurus norfolcensis	Squirrel Glider	V	-	-	All year	-
Phascogale tapoatafa	-	V	-	-	January; February; March; April; May; June; December	-
Phascolarctos cinereus	Koala	E	E	-	All year	Presence of koala use trees - refer to Survey Comments field in TBDC.
Planigale maculata	Common Planigale	V	-	-	All year	-
Potorous tridactylus	Long-nosed Potoroo	V	V	-	All year	-
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	-	October; November; December	Breeding camps.
Thersites mitchellae	Mitchell's Rainforest Snail	E	E	SAII	All year	-
Todiramphus chloris	Collared Kingfisher	V	-	-	All year	Hollow bearing trees; Hollows in large mangrove trees, or hollows or arboreal termitaria in *Eucalyptus* or *Melaleuca* adjacent to mangroves and estuarine foraging habitat.
Turnix maculosus	Red-backed Button-quail	V	-	-	All year	-
Tyto novaehollandiae	Masked Owl	V	-	-	All year	Hollow bearing trees; a living or dead tree with a hollow >20 cm diameter that

Scientific name	Common name	BC Act	EPBC Act	SAII candidate species	NSW DCCEEW approved survey period	Habitat constraint
						occurs >4 metres above the ground.
Vespadelus troughtoni	Eastern Cave Bat	V	-	SAII	January; November; December	Caves; Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, crevices or boulder piles, or within two kilometres of old mines, tunnels, old buildings or sheds.
Xenus cinereus	Terek Sandpiper	V	V	-	No survey required. The species is assessed for species credits via the Important Habitat Map in BOAMS.	As per Important Habitat Map.

V = Vulnerable, EP = Endangered Population, E = Endangered, CE = Critically Endangered, - = Not Listed.

4.2 Vegetation

4.2.1 Plant community type

The vegetation within the Project Area and survey boundary is comprised of six native PCTs along with cleared / exotic vegetation as outlined in **Table 4-9** to **Table 4-14** below, and shown in **Figure 4-8**.

Table 4-9: Preliminary PCTs within the survey boundary and Project Area

PCT	Description	Condition	Area (hectares)	
			Survey boundary	Project Area
0	Cleared/exotic	Poor	382.12	447.20
3420	Clarence Lowland Ironbark-Spotted Gum Grassy Forest	Moderate	27.14	171.97
3421	Clarence Sandstone Pink Bloodwood Grassy Forest	Moderate	149.58	151.25
3428	Northern Lowland Red Gum-Swamp Turpentine Grassy Forest	Moderate	20.95	31.87
3987	Far North Floodplain Paperbark-Swamp Oak Forest	Moderate	0.22	0.46
4001	Northern Floodplain Paperbark Fern Swamp Forest	Moderate	0.15	4.81
		TOTAL	**580.16**	**807.57**

4.2.1.1 PCT 3420: Clarence Lowland Ironbark-Spotted Gum Grassy Forest

Table 4-10: PCT 3420: Clarence Lowland Ironbark-Spotted Gum Grassy Forest

Attribute	Description
Photo	
Description	A tall to very tall sclerophyll open forest with a grassy ground cover on rolling siltstone and claystone hills in the lowlands of the lower Clarence and Richmond valleys, from the Glenugie area to Yorklea in the north coast hinterland. The canopy has a diverse suite of trees, almost always including ironbarks (*Eucalyptus siderophloia* or *Eucalyptus crebra*), very frequently *Corymbia henryi* and commonly *Eucalyptus moluccana*. In addition, red gums (*Eucalyptus glaucina* or *Eucalyptus amplifolia*) may occasionally occur. The sparse mid-stratum is layered and includes small trees and shrubs. The tallest component of the mid-stratum very frequently comprises scattered individuals of *Alphitonia excelsa*. The lower layers almost always include one or more species of Acacia, commonly *Acacia concurrens* or more rarely *Acacia aulacocarpa* or *Acacia leiocalyx* subsp. *leiocalyx*. Occasional shrubs such as *Breynia oblongifolia* complete the mid-stratum. The mid-dense ground layer typically includes grasses, forbs, twiners, vines and a hardy fern. *Imperata cylindrica* is almost always present with *Lobelia purpurascens*, *Eustrephus latifolius*, *Vernonia cinerea*, *Themeda triandra* and *Entolasia stricta* very frequent. This PCT typically occurs at elevations of below 80 metres asl in a hot, moist climate. The mapped substrates on which this PCT is found often include sandstone in their description, but the prominent grass-forb groundcover suggests it primarily occurs on clay-rich sediments. At higher elevations this PCT grades into PCT 3422, with which it overlaps floristically, and into PCT 3428 near the edges of floodplains. PCT 3422 differs in that *Eucalyptus moluccana* is rare and *Persoonia stradbrokensis* and *Allocasuarina torulosa* are common. Red gums and *Lophostemon suaveolens* are almost always present in PCT 3428.
Condition	Moderate
Dominant species	*Acacia concurrens, Acacia leiocalyx* subsp. *leiocalyx, Alphitonia excelsa, Callistemon salignus, Casuarina glauca, Corymbia intermedia, Eleocharis acuta, Entolasia stricta, Eucalyptus resinifera, Eucalyptus robusta, Eucalyptus siderophloia, Eucalyptus tereticornis, Imperata cylindrica, Lophostemon suaveolens, Melaleuca nodosa, Microlaena stipoides, Ottochloa gracillima, Parsonsia straminea, Themeda triandra*
RDP plot	Woodland 1, Woodland 2, Woodland 6, Woodland 7, Woodland 9
Vegetation formation	Dry Sclerophyll Forests (Shrub/grass sub-formation)
Percent cleared	55.29%
Associated TEC	• BC Act: Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (Endangered).

4.2.1.2 PCT 3421: Clarence Sandstone Pink Bloodwood Grassy Forest

Table 4-11: PCT 3421: Clarence Sandstone Pink Bloodwood Grassy Forest

Attribute	Description
Photo	
Description	A very tall sclerophyll open forest with a mid-stratum of soft-leaved shrubs and small trees and a grassy ground cover found on gently undulating sandstone hills from Nana Glen to Yorklea in the Lower Clarence and Richmond River valleys on the north coast. The canopy very frequently includes bloodwoods (*Corymbia intermedia*, *Corymbia gummifera*), commonly accompanied by mahoganies and apples of which *Eucalyptus resinifera*, *Angophora subvelutina*, *Eucalyptus acmenoides* and *Angophora robur* are the most frequent. The canopy may also include *Eucalyptus siderophloia* which is only occasional present however may be locally prominent. A sparse mid-stratum almost always includes *Alphitonia excelsa* and one or more Acacia species, of which *Acacia concurrens* and *Acacia aulacocarpa* are most frequent and abundant. *Allocasuarina torulosa* or *Allocasuarina littoralis* and scattered *Persoonia stradbrokensis*, *Banksia integrifolia* and *Leucopogon lanceolatus* are also commonly present. The mid-dense ground layer typically includes grasses, twiners, forbs and a hardy fern. *Imperata cylindrica* and *Pteridium esculentum* are almost always present and *Themeda triandra*, *Vernonia cinerea*, *Entolasia stricta*, *Hibbertia vestita* and *Lomandra longifolia* are very frequent. Common ground covers include *Cymbopogon refractus*, *Lobelia purpurascens*, *Pomax umbellata* and *Desmodium varians*. This PCT occurs at low elevations, typically below 100 metres asl, however up to 200 metres asl in a hot, wet climate with a mean annual rainfall of 1150 mm. On the adjacent coarser-grained sandstones this PCT grades into PCT 3574, which has similar canopy species to this PCT, however *Alphitonia excelsa* and *Banksia integrifolia* are rarely present and it includes shrubs and graminoids such as *Pultenaea retusa*, *Lepidosperma laterale* and *Dianella caerulea* which are rare in this PCT.
Condition	Moderate
Dominant species	*Acacia leiocalyx* subsp. *leiocalyx, Alphitonia excelsa, Corymbia gummifera, Corymbia intermedia, Eucalyptus resinifera, Eucalyptus siderophloia, Imperata cylindrica, Lomandra longifolia, Lophostemon suaveolens, Syncarpia glomulifera*
RDP plot	Woodland 4, Woodland 5
Vegetation formation	Dry Sclerophyll Forests (Shrub/grass sub-formation)
Percent cleared	19.47%
Associated TEC	No associated TEC.

4.2.1.3 PCT 3428: Northern Lowland Red Gum-Swamp Turpentine Grassy Forest

Table 4-12: PCT 3428: Northern Lowland Red Gum-Swamp Turpentine Grassy Forest

Attribute	Description
Photo	
Description	A mid-tall sclerophyll open forest with a mid-stratum of a soft-leaved shrubs and Melaleucas with a ground cover of grasses and graminoids that is typically found on alluvium in the lowlands of the Lower Clarence and Richmond valleys, north-east NSW, primarily in the Orara Valley, Pillar Valley, Coldstream and Bungawalbin areas. The canopy almost always includes red gum eucalypts (*Eucalyptus tereticornis*, *Eucalyptus seeana*, *Eucalyptus bancroftii* and *Eucalyptus glaucina*) and *Lophostemon suaveolens*, which is also present in the mid-stratum. The mid-dense mid-stratum almost always includes one or more Melaleuca species and Acacia species, of which *Melaleuca nodosa*, *Melaleuca alternifolia* and *Acacia concurrens* are the most frequent and abundant. *Alphitonia excelsa* is also very frequent in the mid-stratum and the vine *Parsonsia straminea* commonly scrambles into the higher strata. The ground layer is typically comprised of a diverse suite of graminoids and forbs, very frequently including *Imperata cylindrica*, *Themeda triandra* and *Lomandra longifolia* and commonly *Lobelia purpurascens*, *Vernonia cinerea*, *Entolasia stricta* and *Centella asiatica*. While this PCT is often found on or near the edge of floodplains, it can occur on sedimentary substrates of the Clarence-Morton Basin near the upper limit of the floodplain. It occurs at low elevations (mean 40 metres asl) in hot, wet climates (mean annual rainfall of 1140 mm). In similar environments it grades into PCT 4046 which differs in that *Acacia aulacocarpa*, the vines *Geitonoplesium cymosum* and *Gynochthodes jasminoides* and the grass *Ottochloa gracillima* are more frequent while *Acacia concurrens*, Melaleucas and *Themeda triandra* are more frequent in this PCT.
Condition	Moderate
Dominant species	*Casuarina glauca, Alphitonia excelsa*
RDP plot	Woodland 3
Vegetation formation	Dry Sclerophyll Forests (Shrub/grass sub-formation)
Percent cleared	71.92%
Associated TEC	• BC Act: Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (Endangered) • EPBC Act: Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions (Endangered)

4.2.1.4 PCT 3987: Far North Floodplain Paperbark-Swamp Oak Forest

Table 4-13: PCT 3987: Far North Floodplain Paperbark-Swamp Oak Forest

Attribute	Description
Photo	
Description	A mid-high to very tall, mid-dense to dense forest of *Casuarina glauca* and *Melaleuca quinquenervia*, rarely with eucalypts in the canopy or as emergents, which occurs on coastal lowland alluvium or estuarine deposits, north from Maclean, north coast. The vine *Parsonsia straminea* is almost always present, often forming part of the canopy and sometimes locally abundant. The mid-stratum commonly includes scattered to mid-dense mesic small trees or vines, however no single species is frequent. Species occasionally include *Callistemon salignus*, and rarely *Glochidion ferdinandi* and *Cupaniopsis anacardioides*. The sparse to dense ground layer is comprised of grasses and forbs, occasionally including high cover of the grass *Ottochloa gracillima*. This PCT occurs mainly in very warm, wet locations receiving 1140-1730 mean annual rainfall, at low elevations of up to 10 metres asl. It has a similar geographic range as PCT 3989, however occurs more frequently on alluvium and extends further inland. This PCT is often highly disturbed, with low native and high exotic species richness, which obscures its relationship with PCT 3989 and other communities in similar habitats.
Condition	Moderate
Dominant species	*Casuarina glauca, Imperata cylindrica, Juncus usitatus*
RDP plot	Cleared 5
Vegetation formation	Forested Wetlands
Percent cleared	75.84%
Associated TEC	• BC Act: Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered) • EPBC Act: Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community (Endangered)

4.2.1.5 PCT 4001: Northern Floodplain Paperbark Fern Swamp Forest

Table 4-14: PCT 4001: Northern Floodplain Paperbark Fern Swamp Forest

Attribute	Description
Photo	
Description	A mid-high to very tall Melaleuca open forest with a sparse to absent mid-stratum and a ground layer of sedges, ferns and aquatic forbs. This PCT is found on coastal floodplains and alluvial back swamps between Port Macquarie and Casino, north coast. The tree canopy almost always includes a high cover of *Melaleuca quinquenervia*, commonly with a sparse cover of *Casuarina glauca* and rarely *Eucalyptus tereticornis*. Where present, the mid-stratum is a sparse cover of small trees which includes those species also present in the taller tree canopy, occasionally accompanied or replaced by *Lophostemon suaveolens* or rarely *Melaleuca alternifolia*. The vine *Parsonsia straminea* occurs almost always on tree stems of the mid and upper strata. The ground layer is characterised by a sparse to dense cover, often in or adjoining standing fresh water, depending on prevailing seasonal conditions. Species very frequently include *Carex appressa*, and commonly *Enydra woollsii*, *Persicaria strigosa* and *Centella asiatica*, with a patchy cover of ferns *Hypolepis muelleri* or *Telmatoblechnum indicum*. Wide ranging distribution from coast to hinterland near lagoons, billabongs and on depressions, flats and soaks with prolonged periods of inundation, however not recorded above 30 metres asl. Grades into a wide range of coastal swamp forests or dry sclerophyll forests in response to change in edaphic conditions.
Condition	Moderate
Dominant species	*Acacia concurrens, Alphitonia excelsa, Carex appressa, Corymbia intermedia, Entolasia marginata, Eucalyptus siderophloia, Eucalyptus tereticornis, Melaleuca nodosa, Oplismenus aemulus, Parsonsia straminea, Persicaria hydropiper*
RDP plot	Woodland 8, Woodland 10
Vegetation formation	Forested Wetlands
Percent cleared	72.88%
Associated TEC	• BC Act: Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered) • EPBC Act: Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland (Endangered)

4.3 Threatened ecological communities

Four mapped PCTs are associated with four BC Act listed TECs and three EPBC Act listed TECs (see **Figure 4-9**). An additional EPBC Act TEC was identified from the PMST in **Section 4.1.11**, as described in **Table 4-15**.

Table 4-15: Threatened Ecological Communities with the potential to occur within the survey boundary

PCT	BC Act Listing	EPBC Act Listing
N/A	Not listed	Lowland Rainforest of Subtropical Australia (Critically Endangered)
3420	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (Endangered)	Not listed
3428	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (Endangered)	Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions (Endangered)
3987	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered)	Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community (Endangered)
4001	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Endangered)	Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland (Endangered)

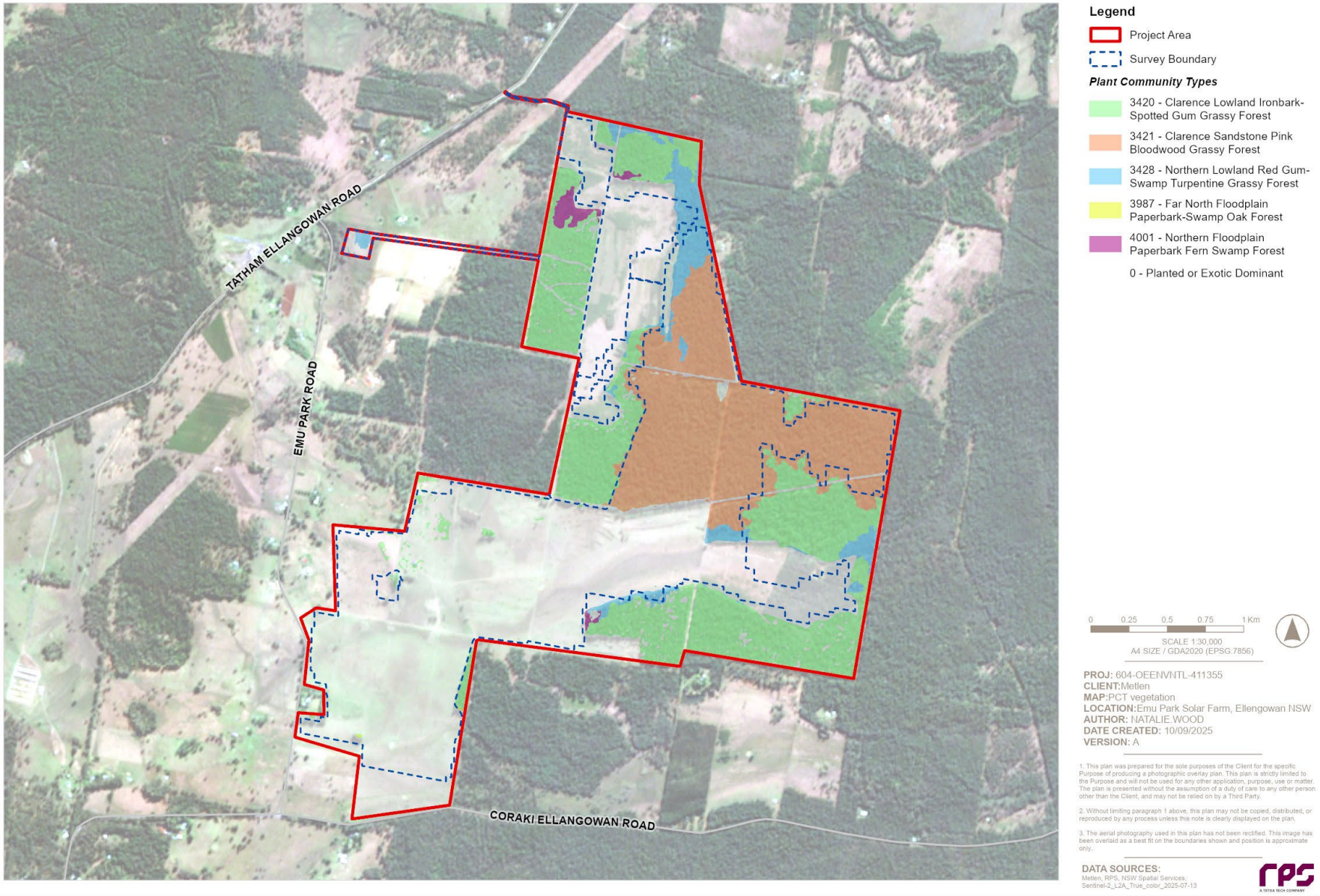


FIGURE 4-8: PLANT COMMUNITY TYPES

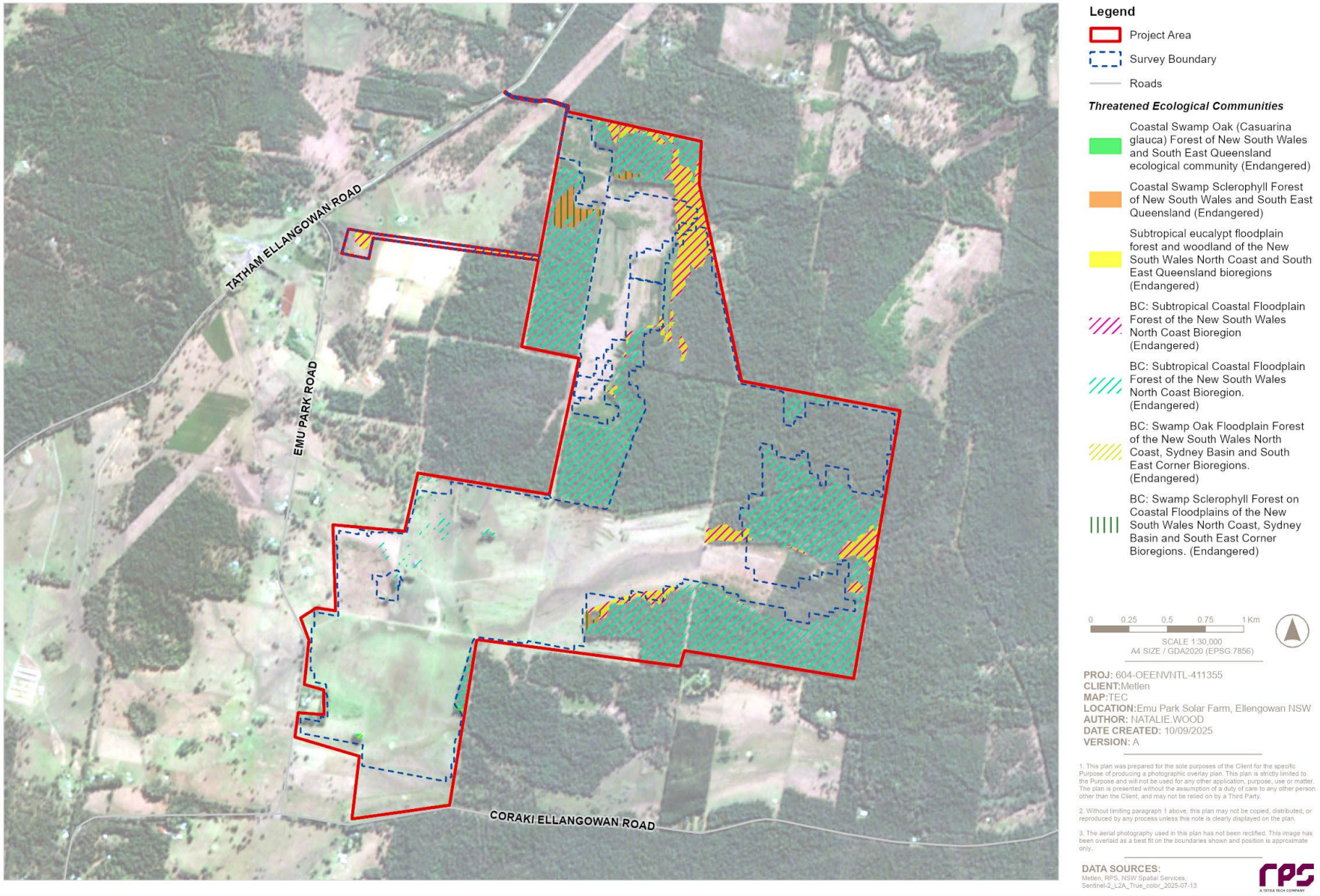


FIGURE 4-9: THREATENED ECOLOGICAL COMMUNITIES

4.4 Flora

4.4.1 General findings

A total of 86 flora species were recorded by RDPs within the Project Area. Of these species, 64 were native and 22 were exotic (see full list in **Appendix B**).

4.4.2 Exotic species

A total of six exotic species were identified within the survey boundary (refer to **Table 4-16**). Exotic species with Biosecurity duties, their management requirements under the *Biosecurity Act 2015*, and status as a weed of national significance (WoNS) and or High Threat Weed, are listed in **Table 4-16**. Two WoNs were identified within the Project Area, including *Lantana camara* (Lantana) and *Senecio madagascariensis* (Fireweed) and infestations should be contained.

Of concern, *Solanum viarum* (Tropical Soda Apple) was identified throughout the survey boundary and associated control measures must be implemented, including notifying the local control authority of new infestations, destroying the plants and associated fruit, ensuring subsequent generations are destroyed, and ensuring the land is kept free of the plant.

Table 4-16: Biosecurity Duties for Weeds occurring within the survey boundary

Scientific Name	Common Name	WoNS	High Threat Weed	Duty under *Biosecurity Act 2015*
Ambrosia artemisiifolia	Annual Ragweed	-	-	**General Biosecurity Duty:** All pest 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.
Andropogon virginicus	Whiskey Grass	-	Yes	**General Biosecurity Duty:** All pest 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.
Cenchrus clandestinus	Kikuyu Grass	-	Yes	**General Biosecurity Duty:** All pest 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.
Chloris gayana	Rhodes Grass	-	Yes	**General Biosecurity Duty:** All pest 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.
Cinnamomum camphora	Camphor Laurel	-	Yes	**General Biosecurity Duty:** All pest 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.

Scientific Name	Common Name	WoNS	High Threat Weed	Duty under *Biosecurity Act 2015*
Cirsium vulgare	Spear Thistle	-	-	**General Biosecurity Duty:** All pest 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.
Eragrostis curvula	African Lovegrass	-	Yes	**General Biosecurity Duty:** All pest 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.
Lantana camara	Lantana	Yes	Yes	**General Biosecurity Duty:** All pest 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. **Prohibition on certain dealings:** Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Senecio madagascariensis	Fireweed	Yes	Yes	**General Biosecurity Duty:** All pest 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. **Prohibition on certain dealings:** Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Solanum mauritianum	Tobacco Bush	-	-	**General Biosecurity Duty:** All pest 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.
Solanum viarum	Tropical Soda Apple	-	-	**General Biosecurity Duty:** All pest 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. **Control Zone (All of NSW):** Owners and occupiers of land on which there is tropical soda apple must notify the local control authority of new infestations; destroy the plants including the fruit; ensure subsequent generations are destroyed; and ensure the land is kept free of the plant. A person who deals with a carrier of tropical soda apple must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant on the land, or on or in a carrier.

4.4.3 Threatened flora

No threatened flora species were recorded within the survey boundary during preliminary surveys. Three occurrences of *Polygala linariifolia* and two occurrences of *Eucalyptus glaucina* have been previously recorded outside of the Project Area on neighbouring properties (**Figure 4-10**). Database searches identified 18 threatened flora species with a moderate to high potential to occur within the locality as identified in **Section 3.2.3.**

Seasonal targeted threatened flora surveys would be required to specifically search for candidate threatened species with a known or predicted distribution within the Project Area (see **Table 4-7**).

4.5 Fauna

4.5.1 General findings

A total of 50 native and four exotic fauna species were identified within the survey boundary. See **Appendix B** for the full fauna inventory.

4.5.2 Fauna habitat

Key fauna habitat features are summarised in **Table 4-17**, however results are preliminary and will be confirmed via additional surveys.

Table 4-17 Key habitat features of the survey boundary

Habitat feature	Extent and condition within survey boundary
Hollow-bearing trees	A number of small hollows (2-10 cm diameter) were recorded in the vegetated areas of the survey boundary. Larger hollows are likely to be present within the survey boundary due to the extensive area of dry sclerophyll forest present.
Dead wood including stags and ground logs	Numerous fallen stags and logs are located within the survey boundary. Some large fallen logs were hollow providing potential sheltering habitat for reptiles, insects, and small passerine birds.
Weed thickets	One WoNS of concern, *Lantana camara* (Lantana), was identified throughout the survey boundary which leads to habitat degradation and out competition of natives (DPI 2024b). *Lantana camara* also provides habitat and shelter for invasive species such as pigs and rabbits which were recorded within the survey boundary.
Bush rock and rocky outcrops	No rocky outcrops or surface rocks were observed within or near the survey boundary.
Waterbodies such as wetlands, streams, rivers and dams	A number of unnamed natural waterbodies are located within the survey boundary. Numerous dams provide permanent and semi-permanent water for a range of aquatic bird species which were observed utilising the dams during survey boundary investigations. The largest dam is located within the south-western extent of survey boundary and is approximately 100 m in length, providing potential habitat for a range of waterbird species, amphibians and fish species.
Nests and roosts	No stick nests were observed within the survey boundary.
Distinctive scats (e.g., those of the Spotted-tailed Quoll or Koala)	No distinctive scats were located within the survey boundary.
Allocasuarina spp.	*Allocasuarina* spp. were present within the survey boundary.
Flying-fox camps	No roosts or evidence of recent roosts were observed within the survey boundary.
Microchiropteran bat subterranean roosts (caves, culverts, tunnels and disused mine shafts)	No distinctive subterranean bat roosts were observed within the survey boundary.
Winter-flowering eucalypts	*Eucalyptus grandis, Eucalyptus moluccana, Eucalyptus racemosa* subsp. *racemosa, Eucalyptus robusta, Eucalyptus siderophloia,* and *Eucalyptus*

Habitat feature	Extent and condition within survey boundary
	tereticornis are present in the survey boundary and could provide seasonal foraging habitat.
Koala feed trees	*Allocasuarina torulosa, Corymbia gummifera, Corymbia intermedia, Corymbia maculata, Eucalyptus bancroftii, Eucalyptus grandis, Eucalyptus moluccana, Eucalyptus propinqua, Eucalyptus resinifera, Eucalyptus robusta, Eucalyptus siderophloia, Eucalyptus tereticornis, Melaleuca quinquenervia* were present within the survey boundary and may support Koala feeding. These trees are listed as koala use trees under Schedule 3 of the *State Environmental Planning Policy (Biodiversity and Conservation) 2021*; North Coast koala Management Area.
Amphibian habitats	The survey boundary contains three unnamed first order creeks and varied permanent and semi-permanent water sources including areas subject to inundation and small dams (including a human-made dam approximately 100 m in length) which create areas of ponding.
Mistletoes	No mistletoes were observed within the survey boundary.

4.5.3 Threatened fauna

One threatened fauna species, the Brown Treecreeper - eastern subspecies (*Climacteris picumnus victoriae*) was opportunistically identified within the survey boundary. The species is an ecosystem credit species and is listed as Vulnerable under the BC Act and EPBC Act.

Multiple occurrences of the threatened bird and mammal species have been previously recorded outside of the Project Area on neighbouring properties and public roads (**Figure 4-10**; NSW DCCEEW 2025b). Additionally, database searches identified 39 threatened fauna species with a moderate to high potential to occur within the locality as identified in **Section 3.2.3.**

Seasonal targeted threatened fauna surveys would be required to specifically search for candidate threatened species with a known or predicted distribution within the survey boundary (see **Table 4-8**).

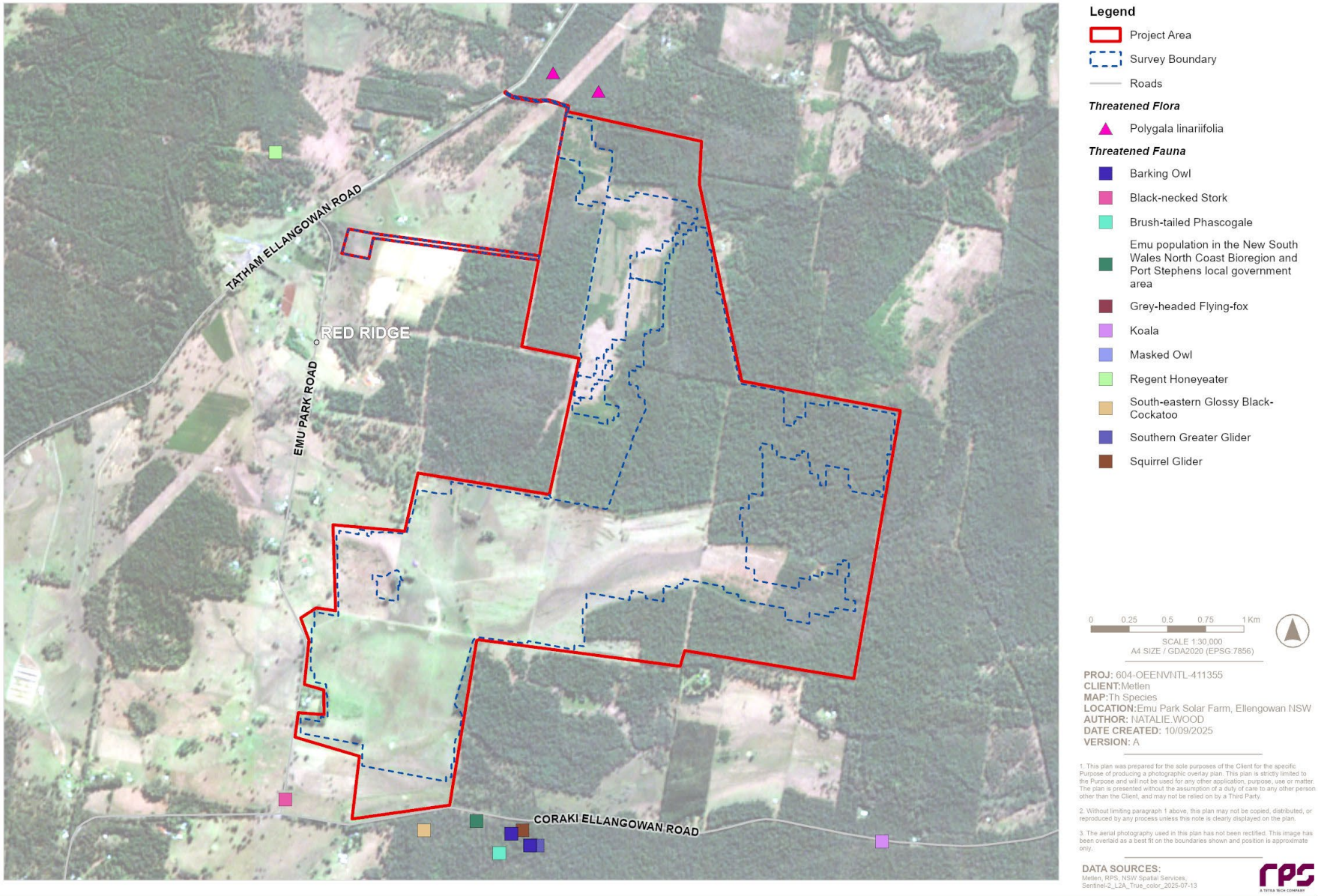


FIGURE 4-10: THREATENED SPECIES

4.6 Matters of National Environmental Significance

Matters of national environmental significance (MNES) relevant to the Project Area are addressed below.

4.6.1 World heritage properties

The Project Area is not within proximity to a World Heritage Area.

4.6.2 National heritage places

The Project Area is not within proximity to a National Heritage Place.

4.6.3 Wetlands of international importance (declared Ramsar wetlands)

No Ramsar Wetlands are located in the locality of the Project Area. The closest Ramsar Wetland is the Moreton Bay Ramsar site, located over 120 km northeast of the Project Area.

4.6.4 The Great Barrier Reef Marine Park

The Great Barrier Reef Marine Park does not occur within or adjacent to the Project Area.

4.6.5 Commonwealth Marine Area

The Project Area is not within proximity to a Commonwealth Marine Area.

4.6.6 Listed threatened ecological communities

Three EPBC Act listed TEC are associated with PCTs mapped within the Project Area being:

- Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions EEC
- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community EEC
- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland EEC.

4.6.7 Listed threatened and migratory species

One EPBC Act listed threatened fauna species, the Brown Treecreeper - eastern subspecies (*Climacteris picumnus victoriae*), was opportunistically identified within the survey boundary.

Previous records of the Grey-headed Flying-fox (*Pteropus poliocephalus*), Koala (*Phascolarctos cinereus*), Regent Honeyeater (*Anthochaera phrygia*), South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*), and the Southern Greater Glider (*Petauroides volans*) have been recorded outside of the Project Area on neighbouring properties and public roads (**Figure 4-10**; NSW DCCEEW 2025b).

A total of 23 threatened and migratory fauna species and 17 threatened flora species listed under the EPBC Act have habitats which may occur within the locality (refer to **Appendix A**). Species have a moderate or greater likelihood of occurrence within the Project Area are listed in **Table 4-18** and **Table 4-19**.

Table 4-18: EPBC Act listed threatened fauna species with a moderate to high likelihood of occurrence

Scientific Name	Common Name	EPBC Act
Anthochaera phrygia	Regent Honeyeater	CE
Argynnis hyperbius	Laced Fritillary	CE
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V
Chalinolobus dwyeri	Large-eared Pied Bat	E

Scientific Name	Common Name	EPBC Act
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	V
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	E
Dasyurus maculatus	Spotted-tailed Quoll	E
Erythrotriorchis radiatus	Red Goshawk	E
Falco hypoleucos	Grey Falcon	V
Hirundapus caudacutus	White-throated Needletail	V,M,MAR
Lathamus discolor	Swift Parrot	CE,MAR
Litoria olongburensis	Olongburra Frog	V
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	E
Mixophyes iteratus	Giant Barred Frog	V
Petauroides volans	Greater Glider	E
Petaurus australis	Yellow-bellied Glider	V
Phascolarctos cinereus	Koala	E
Potorous tridactylus tridactylus	Northern long-nosed potoroo	V
Pseudomys novaehollandiae	New Holland Mouse	V
Pteropus poliocephalus	Grey-headed Flying-fox	V
Saltuarius moritzi	Moritz's leaf-tailed gecko	E
Turnix melanogaster	Black-breasted Button-quail	V

V = Vulnerable, E = Endangered, CE = Critically Endangered, MAR = Marine, M = Migratory

Table 4-19: EPBC Act listed threatened flora species with a moderate to high likelihood of occurrence

Scientific Name	Common Name	EPBC Act
Arthraxon hispidus	Hairy Jointgrass	V
Cryptostylis hunteriana	Leafless Tongue Orchid	V
Eucalyptus glaucina	Slaty Red Gum	V
Hibbertia marginata	Bordered Guinea Flower	V
Macadamia integrifolia	Macadamia Nut	V
Macadamia tetraphylla	Rough-shelled Bush Nut	V
Marsdenia longiloba	Slender Marsdenia	V
Myrsine richmondensis	Ripple-leaf Muttonwood	E
Owenia cepiodora	Onion Cedar	V
Pedleya acanthoclada	Thorny Pea	V
Persicaria elatior	Tall Knotweed	V
Phaius australis	Southern Swamp Orchid	E
Rhodamnia rubescens	Scrub Turpentine	CE
Rhodomyrtus psidioides	Native Guava	CE
Syzygium hodgkinsoniae	Red Lilly Pilly	V
Thesium australe	Austral Toadflax	V
Tylophora woollsii	Cryptic Forest Twiner	E

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

5 DISCUSSION

5.1 Vegetation communities

Direct impacts associated with the Project Area will be subject to further assessment at the EIS stage in accordance with the BAM in the BDAR. Further field surveys are required to confirm the extent and condition of vegetation clearing requirements (i.e. vegetation integrity plots in line with the BAM).

At this preliminary stage, approximately 197.67 ha of native dry sclerophyll forest and a further 0.37 ha of native forested wetland has been mapped within the survey boundary, comprised of five native PCTs:

- PCT 3420: Clarence Lowland Ironbark-Spotted Gum Grassy Forest
- PCT 3421: Clarence Sandstone Pink Bloodwood Grassy Forest
- PCT 3428: Northern Lowland Red Gum-Swamp Turpentine Grassy Forest
- PCT 3987: Far North Floodplain Paperbark-Swamp Oak Forest
- PCT 4001: Northern Floodplain Paperbark Fern Swamp Forest.

The direct impact to native vegetation generates a biodiversity credit obligation under the BAM. Ecosystem credits measure the value of non-threatened vegetation communities and TECs that provide habitat for threatened species, that can be reliably predicted to occur based on the presence of PCTs and landscape features.

An offset for all impacts on PCTs is generated if the vegetation zone has a vegetation integrity score of:

a. ≥15, where the PCT is representative of an EEC or a CEEC

b. ≥17, where the PCT is associated with threatened species habitat (as represented by ecosystem credits) or represents a vulnerable ecological community

c. ≥20, where the PCT does not represent a TEC and is not associated with threatened species habitat.

5.2 Threatened ecological communities

Based on the preliminary assessment, four BC Act listed and four EPBC Act listed TECs may occur within the Project Area. The Project may result in direct (i.e., clearing) and indirect (i.e., fragmentation) impacts to these TECs.

Within the survey boundary, direct impacts to 27.14 ha of the BC Act listed *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion* EEC, 20.95 ha of the BC and EPBC Act listed *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion* EEC, 0.22 ha of the BC and EPBC Act listed *Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* EEC, and 0.15 ha of the BC and EPBC Act listed *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* EEC may occur.

No direct impacts are proposed to the EPBC Act listed *Lowland Rainforest of Subtropical Australia* CEEC, however, indirect impacts may occur.

Direct impacts to TECs would be formally assessed within the BDAR during the EIS process. None of these TECs are listed as being at risk of an SAII. At this preliminary stage, all above listed TECs are assumed present within the Project Area in accordance with the precautionary principle.

5.3 Threatened species

Threatened species would require formal assessment in accordance with BAM under the BC Act at the EIS phase. Under the BAM, there are two distinct categories of threatened species:

- **Ecosystem species**: are readily predicted by habitat surrogates. Ecosystem credits species do not require any formal assessment under the BAM. These species are predicted to occur based on the

vegetation type/s present. Any ecosystem species however, that are listed under the EPBC Act, would require their own assessment in a separate component of the assessment report

- **Species credits:** are not readily predicted by habitat or vegetation. Species credit species require targeted survey and if identified (or likely based on other data), then habitat must be mapped. Species credits carry their own offset obligation and are additional to assessments of native vegetation.

Threatened species that may occur in the survey boundary and require formal survey are discussed further below.

5.3.1 Threatened flora

The LoO assessment (**Appendix A**) identified that the Project Area may provide habitat for 18 locally occurring threatened flora species with a moderate or greater likelihood of occurrence. A number of *Polygala linariifolia* individuals have been recorded in the locality, and the dry eucalypt forest and sandy soils within the Project Area are consistent with the habitat description for this species.

A total of 43 flora candidate species were identified as relevant to this assessment, of which ten are listed as entities at risk of SAII (**Section 4.1.13.1**):

- *Endiandra muelleri* subsp. *bracteate* (Green-leaved Rose Walnut)
- *Grevillea masonii* (Mason's Grevillea)
- *Melichrus gibberagee* (Narrow-leaf Melichrus)
- *Myrsine richmondensis* (Ripple-leaf Muttonwood)
- *Oldenlandia galioides* (Sweet False Galium)
- *Prostanthera palustris* (Swamp Mint-bush)
- *Prostanthera sejuncta*
- *Rhodamnia rubescens* (Scrub Turpentine)
- *Rhodomyrtus psidioides* (Native Guava)
- *Rotala tripartita*

These species mentioned above are most at risk of potential direct impact by the construction of the solar farm. Further details regarding the distribution, habitats, and ecology of each threatened species are provided in **Appendix A**. An assessment of the SAII would need to be completed in the BDAR as part of the EIS.

5.3.2 Threatened fauna

The field validated likelihood-of-occurrence data (**Appendix A**) identified that the Project Area may provide habitat for 39 locally occurring threatened fauna species with a moderate of greater likelihood of occurrence (**Section 4.1.11**).

Occurrences of the Barking Owl (*Ninox connivens*), Black-necked Stork (*Ephippiorhynchus asiaticus*), Brush-tailed Phascogale (*Phascogale tapoatafa*), Emu (*Dromaius novaehollandiae* – threatened population), Grey-headed Flying-fox (*Pteropus poliocephalus*), Koala (*Phascolarctos cinereus*), Masked Owl (*Tyto novaehollandiae*), Regent Honeyeater (*Anthochaera phrygia*), South-eastern Glossy Black-Cockatoo (Calyptorhynchus lathami lathami), Southern Greater Glider (Petauroides volans), and Squirrel Glider (*Petaurus norfolcensis*) have been previously recorded adjacent the Project Area. These species could be supported by the dry forests and forested wetlands of the Project Area.

Additionally, the native vegetation present may provide potential foraging and sheltering habitat for four threatened frog species, 18 threatened bird species, one threatened insect species, 11 threatened mammal species, three threatened microbat species, and two threatened reptiles which have habitat within the Project Area or have been historically recorded within the locality.

Fifty-four threatened fauna species have been identified as candidate species relevant to this assessment of which 14 are listed entities at risk of SAII (**Section 4.1.13.2**):

- Regent Honeyeater (*Anthochaera phrygia*) (Breeding)

- Laced Fritillary (*Argynnis hyperbius*)
- Curlew Sandpiper (*Calidris ferruginea*) (Breeding)
- Red-tailed Black-Cockatoo (*Calyptorhynchus banksii banksia*)
- Large-eared Pied Bat (*Chalinolobus dwyeri*)
- Red Goshawk (*Erythrotriorchis radiatus*)
- Beach Stone-curlew (*Esacus magnirostris*) (Breeding)
- Swift Parrot (*Lathamus discolor*) (Breeding)
- Little Bent-winged Bat (*Miniopterus australis*) (Breeding)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*) (Breeding)
- Eastern Curlew (*Numenius madagascariensis*) (Breeding)
- Coastal Petaltail (*Petalura litorea*)
- Mitchell's Rainforest Snail (*Thersites mitchellae*)
- Eastern Cave Bat (*Vespadelus troughtoni*)

No important area habitat mapping for the Regent Honeyeater, Swift Parrot, Curlew Sandpiper, or Eastern Curlew occurs within the locality of the Project Area, and therefore these species will be excluded from further assessment in the BDAR as part of the EIS. Of the highest concern are SAII species that may be potentially impacted by the construction and operation of the solar farm. An assessment of the SAII would need to be completed in the BDAR as part of the EIS.

Although no suitable cave habitat for microbats has been identified and few historical records of threatened microbats exist within the locality, foraging habitat exists within the Project Area and targeted surveys for these species will be conducted in accordance with the BAM.

Other threatened fauna species of note are mammal species that have been previously recorded within the locality such as the Brush-tailed Phascogale (*Phascogale tapoatafa*), Grey-headed Flying-fox (*Pteropus poliocephalus*), Koala (*Phascolarctos cinereus*), Southern Greater Glider (*Petauroides volans*), and Squirrel Glider (*Petaurus norfolcensis*). Primary feed trees (**Table 4-17**) are essential to the Koala and woodland connectivity is essential for arboreal mammals such as the Brush-tailed Phascogale, Southern Greater Glider, and Squirrel Glider.

Additionally, avian species that have been previously recorded within the locality such as the Barking Owl (*Ninox connivens*), Black-necked Stork (*Ephippiorhynchus asiaticus*), Emu (*Dromaius novaehollandiae*), Masked Owl (*Tyto novaehollandiae*), Regent Honeyeater (*Anthochaera phrygia*), and South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*) are reliant on dry eucalypt forest and forested wetlands for foraging and breeding.

5.4 Indirect impacts

The Project may have indirect impacts on local ecological communities and species. The following indirect impacts may be applicable to the Project (as listed in the BAM):

- Inadvertent impacts to adjacent habitat or vegetation
- Reduced viability of adjacent habitat due to edge effects
- Reduced viability of adjacent habitat due to noise, dust or light spill
- Transport of weeds and pathogens from the site to adjacent vegetation
- Increased risk of starvation or exposure and loss of shade or shelter
- Loss of breeding habitat
- Removal and disturbance of rocks, including bush rock
- Erosion and sedimentation
- Increase in predators and pest animal populations.

Project components that have the potential to cause indirect impacts on biodiversity values include:

- Electrical reticulation network consisting of substation(s), switchyard, transmission line and internal electrical reticulation
- Internal access tracks
- Hardstands and construction laydown areas
- An operation and maintenance facility including car parking
- Site construction compound(s) including security fencing
- Ancillary storage area.

The nature, extent, and duration of the potential indirect impacts in relation to the Project are described broadly in **Table 5-1**. Potential mitigation measures to minimise or mitigate these indirect impacts are detailed in **Section 6**.

Table 5-1: Potential indirect impacts associated with the Project

Indirect impact	Details
Reduction in surface water quality and changes to surface water flows	The Project may lead to changes in hydrology and water quality as a result of: • disruption to natural flows and processes due to increased hard surface area • increase of hard surfaces leading to an increased volume of water entering downstream waterways • introduction of contaminants into surface water, such as nutrients, chemicals, and sediment from urban and other land uses, including the disturbance of soils during construction.
Changes to groundwater	The Project may affect groundwater quality, including from salinity and contamination as a result of: • clearing for construction • construction works involving large excavations • diversion of surface water, including installation of buildings and hard surfaces.
Soil disturbance	The Project may cause soil erosion and sedimentation and disturbance to contaminated soils, which can lead to changes in water quality as a result of: • vegetation clearing • construction works involving large excavations • the management of spoil during construction.
Spread of disease	The Project may increase the risk of spreading infection/disease as a result of: • soil transportation on contaminated footwear, vehicles and machinery, and in residential garden establishment • increased site visitation rates • earthworks and activities conducted during construction • increased surface water runoff.
Spread of weeds	The Project may increase the spread of invasive species and weeds as a result of: • new environmental conditions at the edges of developments such as altered light levels, windspeed, and temperature, that may facilitate the spread of weeds • use of inappropriate species in landscaping and revegetation • accidental dispersal of weed seeds and plant material • altered fire regimes.
Predation/competition/land degradation by pest/domestic fauna	The Project may increase the spread of pest fauna and/or access to natural areas by domestic fauna, leading to increased predation and competition with native fauna as a result of: • clearing that creates new movement pathways that can be used by pest fauna to expand their range • clearing that changes conditions at the edges of habitat that favour pest fauna • direct predation of native fauna by pest/domestic fauna • pest fauna destroying habitat and spreading disease.

Indirect impact	Details
Altered fire regimes and increased fire risk	The Project has the potential to alter fire regimes and increase fire risk as a result of: • arson or the accidental lighting of fires • increased burns for hazard reduction to protect assets, particularly within asset protection zones • reduced burns in some areas due to risk to urban areas.
Fauna mortality and injury, fauna displacement and the introduction of barriers to fauna movement	The Project may increase the likelihood of fauna mortality and fauna displacement, and would introduce barriers to fauna movement as a result of: • direct mortality as a result of collisions with vehicles or new structures, shooting, poaching, or secondary poisoning during pest control • displacement due to clearing for the development • introduction of linear barriers such as fences, roads and railways, which can affect fauna movement and predation.
Fauna disturbance due to noise, dust or light	The Project may increase noise, dust and light as a result of: • clearing for the development • construction activities, including use of heavy vehicles and machinery • increased noise levels from traffic due to new roads or increased traffic on existing roads • artificial light from commercial areas, and along transport routes.
Inadvertent impacts on adjacent habitat or vegetation	The Project may cause inadvertent impacts on adjacent habitat, vegetation or important habitat features, such as hollow bearing trees as a result of: • impacts adjacent to construction sites • road, trail and powerline maintenance • high frequency land management such as mowing and slashing or weed control.

5.5 Prescribed biodiversity impacts

Prescribed biodiversity impacts are impacts on biodiversity values in addition to, or instead of, impacts from clearing vegetation and/or loss of habitat. Prescribed additional biodiversity impacts (prescribed impacts) must be assessed as part of the BOS, as per clause 6.1 of the BC Regulation.

Such prescribed impacts (including direct and indirect impacts) include (section 6 of the BAM; DPIE 2020):

(a) the impacts of development on the following habitat of threatened species or ecological communities

(i) karst, caves, crevices, cliffs, rocks and other geological features of significance

(ii) human made structures

(iii) non-native vegetation.

(b) the impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range and maintains their lifecycle

(c) the impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining or other development)

(d) the impacts of wind turbine strikes on protected animals

(e) the impacts of vehicle strikes on threatened species of animals or on animals that are part of a threatened ecological community.

Of the above prescribed impacts, the development with the Project has the potential to result in prescribed impacts a, b, c, and e (**Table 5-2**).

Potential mitigation measures that will be confirmed in the EIS BDAR that are potentially applicable to the Project have been discussed in **Section 6**.

Table 5-2: Potential prescribed impacts associated with the Project

Prescribed impact type	Associated potential direct impacts	Associated potential indirect impacts
Rocks	Removal of habitat (rocks)	Removal of bush rock habitat and reduction in sheltering and basking rock habitat for reptiles.
Non-native vegetation	Removal of habitat (non-native vegetation)	Disturbance Weed invasion Spread of plant/animal disease Pest animals/predation/competition Soil erosion/sedimentation Urban run-off (water quality).
Habitat connectivity/movement	Reduction in connectivity through the loss of habitat (native vegetation)	Reduction in habitat connectivity and edge effects
Water bodies/hydrological processes	Removal of habitat (water bodies)	Change in water flows/quantity/run-off (water quality).
Vehicle strikes	Death of species individuals	Increased vehicle movement during construction and operation may increase risk of vehicle strike.

5.6 Impact avoidance measures already undertaken

Preliminary ecological constraints mapping was undertaken for multiple potential sites in the area to inform site selection. Once the Project Area had been selected, constraints mapping was utilised to inform the preliminary project layout that was focused on maximising the potential solar resource across the site, while minimising impacts to biodiversity.

Following this preliminary mapping, a design and layout refinement review was undertaken to focus on locating project infrastructure (including reticulation and access tracks) in existing disturbed and partially cleared areas and native vegetation not associated with a TEC.

Further impact avoidance will be undertaken during the EIS, following targeted survey and vegetation mapping refinement as discussed in **Section 6.1** below.

6 RECOMMENDATIONS

The Project would automatically trigger the Biodiversity Offset Scheme (BOS) given the presence of native vegetation, threatened species, and TECs (per the precautionary principle) within the Project Area. As a result, the Project must conform to the 'avoid, minimise, offset' hierarchy required by the BOS.

Impacts from clearing native vegetation and threatened species habitat can be avoided by locating the Project disturbance footprint in areas:

- Lacking biodiversity values (i.e., previously cleared areas that are dominant in exotic species)
- Where the native vegetation or threatened species habitat is in the poorest condition
- That avoid habitat for species with a high biodiversity risk weighting or land mapped on the important habitat map, or native vegetation that is a TEC/SAII or a highly cleared PCT
- That are outside of the buffer area around breeding habitat features such as nest trees or caves.

The design development process for the Project must be completed in consideration of:

- Alternative modes or technologies that would avoid or minimise impacts on biodiversity values
- Alternative routes that would avoid or minimise impacts on biodiversity values
- Alternative locations that would avoid or minimise impacts on biodiversity values, and/or
- Alternative sites within a property on which the Project is located that would avoid or minimise impacts on biodiversity values.

Based on the preliminary assessments undertaken across the current Project Area and survey boundary, the following recommendations are made to avoid and minimise impacts on biodiversity:

- Vegetation integrity analysis within the survey boundary should be undertaken early within the assessment process to refine the vegetation mapping. Vegetation integrity analysis should focus on assessing the condition and extent of TECs within the survey boundary to guide avoidance measures
- Further refine the Project disturbance footprint to maximise avoidance of biodiversity values. The design development process should address identified constraints and future ecological surveys proposed for the BAM, including vegetation integrity assessments and targeted surveys for threatened flora and fauna. Biodiversity values relevant to the Project Area include the following:
  - Threatened Ecological Communities[1]:
    - Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (BC Act: Endangered)
    - Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (EPBC and BC Act: Endangered)
    - Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (EPBC and BC Act: Endangered).
  - Larger patches of vegetation with connectivity to the broader landscape. Additionally, old growth remnant trees should be prioritised for avoidance as these likely provide significant habitat values for a variety of local and threatened fauna (i.e. large remnant trees bearing significant hollows, preferred koala feed trees, winter flowering trees for migratory songbirds, flower and nectar bearing trees, etc.)
  - Impact avoidance and minimisation techniques within aquatic and riparian habitats which may provide suitable habitat for threatened fauna (i.e., Southern Purple Spotted Gudgeon, Wallum Froglet, Green and Golden Bell Frog, Green-thighed Frog, Olongburra Frog, and Giant Barred Frog).

[1] The extent of these TECs have only been preliminary mapped at this stage and future vegetation integrity analysis should focus on assessing TEC condition and extent within the survey boundary to guide avoidance measures.

- Identify and maximise avoidance of potential fauna movement corridors across the landscape
- Prioritise existing cleared land and/or historically disturbed pasture for the Project disturbance footprint.

The Project Area contains suitable habitat for a variety of threatened entities, including ten flora and 14 fauna species (candidate species) at risk of SAII. For SSD projects, the role of the decision maker is to take likely SAII into consideration and determine if there are any additional and appropriate measures that would minimise the impact if approval were granted. Assessments of SAII will be completed as part of the BDAR.

Detailed vegetation surveys will be completed to assess the condition and extent of vegetation within the Project Area. This would include a formal assessment of the dry sclerophyll forests and forested wetlands present on-site and their conformity to associated TECs. Avoidance of areas conforming to TECs will require demonstration of avoidance.

Any further reduction in the extent of the Project footprint in areas of biodiversity constraint would improve the viability of the Project and reduce impacts to biodiversity as a result of the Project. Incorporating biodiversity considerations into the design development process and maintaining habitat corridors between and throughout the Project Area and surrounding locality are highly likely to reduce biodiversity impacts. In NSW, biodiversity carries a fiscal cost to the impacts of development. This is guided by the BAM and is quantified through the requirement for retiring credits in accordance with the BOS. Credits are quantified in the Project Area, and then must be offset by either:

1. Retiring credits based on like-for-like offset rules
2. Funding a biodiversity conservation action that benefits the threatened species, habitat or ecological community
3. Making a payment to the Biodiversity Conservation Fund calculated using the Biodiversity Conservation Fund Charge System.

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Appendix A
Likelihood of Occurrence

Apx Table 1: Likelihood of Occurrence

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
Acronychia littoralis	Scented Acronychia	E	E	-	Scented Acronychia is found between Fraser Island in Queensland and Port Macquarie on the north coast of NSW. Scented Acronychia grows in littoral rainforest on sand.	Low
Aepyprymnus rufescens	Rufous Bettong	V	-	-	The original range from Coen in north Queensland to central Victoria has been reduced to a patchy distribution from Cooktown, Queensland, to north-eastern NSW as far south as Mt Royal National Park. In NSW it has largely vanished from inland areas but there are sporadic, unconfirmed records from the Pilliga and Torrington districts. Rufous Bettongs inhabit a variety of forests from tall, moist eucalypt forest to open woodland, with a tussock grass understorey. A dense cover of tall native grasses is the preferred shelter. They sleep during the day in cone-shaped nests constructed of grass in a shallow depression at the base of a tussock or fallen log. At night they feed on grasses, herbs, seeds, flowers, roots, tubers, fungi and occasionally insects.	Moderate
Anthochaera phrygia	Regent Honeyeater	CE	CE	-	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. The distribution of the species has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests.	Moderate
Argynnis hyperbius	Laced Fritillary	E	CE	-	Restricted to south-east Queensland and north-east NSW in open swampy coastal areas where the larval food plant Arrowhead Violet Viola betonicifolia occurs. Most recently known from a few widespread localities between Port Macquarie and Gympie	Moderate
Arthraxon hispidus	Hairy Jointgrass	V	V	-	Occurs over a wide area in south-east Queensland, the northern tablelands and north coast of NSW. Moisture and shade-loving grass,	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
					found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps.	
Botaurus poiciloptilus	Australasian Bittern	E	E	-	The Australasian Bitterns is 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 and spikerushes. Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails.	Low
Burhinus grallarius	Bush Stone-curlew	E	-	-	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. Largely nocturnal, being especially active on moonlit nights. Feed on insects and small vertebrates, such as frogs, lizards and snakes. Nest on the ground in a scrape or small bare patch	Moderate
Calidris acuminata	Sharp-tailed Sandpiper	P	V,M,MAR	-	Freshwater or saltwater wetlands- the muddy edges of lagoons, swamps, lakes, dams, soaks, sewage dams or temporary floodwaters.	Low
Calidris ferruginea	Curlew Sandpiper	CE	CE,M,MAR	-	The Curlew Sandpiper is distributed around most of the coastline of Australia. It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes the inland	Low
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	-	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. Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (Allocasuarina littoralis) and Forest Sheoak (A. torulosa) are important foods.	Moderate
Chalinolobus dwyeri	Large-eared Pied Bat	E	E	-	Located in a variety of drier habitats, including the dry sclerophyll forests and woodlands to the east and west of the Great Dividing Range. Can also be found on the edges of rainforests and in wet sclerophyll forests. This species roosts in caves and mines in groups of between 3 and 37 individuals. 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	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
					concrete structures such as derelict buildings. They remain loyal to the same cave over many years.	
Charadrius leschenaultii	Greater Sand-plover	V	V,M,MAR	-	Occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons. Non-breeding in Australia. Diet includes insects, crustaceans, polychaete worms and molluscs.	Low
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	V	-	Found in eucalypt woodlands (including box-gum woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and river red gum forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains.	Known
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	V	V	-	The Three-toed Snake-tooth Skink occurs on the coast and ranges from the Macleay valley in NSW to south-eastern Queensland. It is very uncommon south of Grafton. Rainforest and occasionally moist eucalypt forest, on loamy or sandy soils.	Moderate
Crinia tinnula	Wallum Froglet	V	-	-	Wallum Froglets are found in acid paperbark swamps and sedge swamps of the coastal 'wallum' country. Their tadpoles are adapted to acid conditions and may be outcompeted by the Common Froglet. Males call from the base of vegetation in and around the breeding site and are almost impossible to locate. Calling occurs from Autumn to Spring, being most strongly associated with flooding following rainfall. Its range extends from SE QLD to the Kurnell Peninsular of Sydney.	Moderate
Cryptostylis hunteriana	Leafless Tongue Orchid	V	V	-	Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland. The larger populations typically occur in woodland dominated by Scribbly Gum (Eucalyptus sclerophylla), Silvertop Ash (E. sieberi), Red Bloodwood (Corymbia gummifera) and Black Sheoak (Allocasuarina littoralis); appears to prefer open areas in the understorey of this community and is often found in association with the Large Tongue Orchid (C. subulata) and the Tartan Tongue Orchid (C. erecta).	Moderate
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	CE	E	-	Recorded between Bundaberg in Queensland and the Hastings River in NSW. Usually inhabits drier rainforests and adjacent wetter eucalypt forest but also found in the wetter lowland rainforests.	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
Cynanchum elegans	White-flowered Wax Plant	E	E	-	Recorded from rainforest gullies scrub and scree slopes from the Gloucester district to the Wollongong area and inland to Mt Dangar. The species has been recorded as far west as Merriwa in the upper Hunter River valley.	Low
Dasyurus maculatus	Spotted-tailed Quoll	V	E	-	Spotted-tailed Quoll are found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Queensland. Only in Tasmania is it still considered common. Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Quolls use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites.	Moderate
Dichanthium setosum	Bluegrass	V	V	-	Occurs on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, as well as in Queensland and Western Australia. 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.	Low
Dromaius novaehollandiae - endangered population	Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	EP	-	-	The species was formerly widespread in north-eastern NSW, but that population is now isolated and largely restricted to coastal and near-coastal areas between Ballina - Evans Head and Red Rock, extending west to the Bungawalbin area. There have also been recent records from the Port Stephens area. On the NSW north coast, Emus occur in a range of predominantly open lowland habitats, including grasslands, heathland, shrubland, open and shrubby woodlands, forest, and swamp and sedgeland communities, as well as the ecotones between these habitats.	High
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	-	Mainly found on shallow, permanent, freshwater terrestrial wetlands, and surrounding marginal vegetation, including swamps, floodplains, watercourses and billabongs, freshwater meadows, wet heathland, farm dams and shallow floodwaters, as well as extending into adjacent grasslands, paddocks and open savannah woodlands. They also forage within or around estuaries and along intertidal shorelines, such as saltmarshes, mudflats and sandflats, and mangrove vegetation.	Moderate
Erythrotriorchis radiatus	Red Goshawk	E	E	-	Red Goshawks inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers.	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
Eucalyptus glaucina	Slaty Red Gum	V	V	-	Found only on the north coast of NSW and in separate districts: near Casino where it can be locally common, and farther south, from Taree to Broke, west of Maitland. Grows in grassy woodland and dry eucalypt forest. Grows on deep, moderately fertile and well-watered soils.	High
Falco hypoleucos	Grey Falcon	V	V	-	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. Also occurs near wetlands where surface water attracts prey. In NSW it occurs on the plains of the Murray-Darling Basin, and particularly west of the Darling River.	High
Gallinago hardwickii	Latham's Snipe	V	V,M,MAR	-	Latham's Snipe is a non-breeding migrant to the south east of Australia including Tasmania, passing through the north and New Guinea on passage. Latham's Snipe breed in Japan and on the east Asian mainland. seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration.	Low
Gossia fragrantissima	Sweet Myrtle	E	E	-	Dry subtropical and riverine rainforest.	Low
Grantiella picta	Painted Honeyeater	V	V	-	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, brigalow and box-gum woodlands and box-ironbark forests.	Low
Hibbertia marginata	Bordered Guinea Flower	V	V	-	Grassy or shrubby dry open eucalypt forest at low altitudes on sandstone.	Moderate
Hirundapus caudacutus	White-throated Needletail	P	V,M,MAR	-	An aerial species found in feeding concentrations over cities, hilltops and timbered ranges.	Moderate
Lathamus discolor	Swift Parrot	E	CE,MAR	-	The Swift Parrot occurs in woodlands and forests of NSW from May to August, where it feeds on eucalypt nectar, pollen and associated insects. In NSW mostly occurs on the coast and south west slopes. The Swift Parrot is dependent on flowering resources across a wide range of habitats in its wintering grounds in NSW . This species is migratory, breeding in Tasmania and also nomadic, moving about in response to changing food availability.	Moderate
Litoria brevipalmata	Green-thighed Frog	V	-	-	This species is distributed from south-east Queensland to the NSW Central Coast. It occurs in a range of habitat types including rainforest, moist eucalypt forest, dry eucalypt forest and heath, but is most closely associated with wetter forest types in the southern part	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
					of its range. Calling and breeding is highly correlated with heavy rainfalls that lead to the formation of large ephemeral pools in a range of sites, but always in association with some native vegetation. Calling occurring only for one or two nights at a time anywhere between September and May.	
Litoria olongburensis	Olongburra Frog	V	V	-	The Wallum Sedge Frog is found in coastal areas from Fraser Island in south-east Queensland to Woolgoolga in northern NSW. The species is strongly associated with acid swamps and sedge swamps, known as wallum swamps, with the tadpoles being adapted to living in a low pH environment. Individuals can be observed on emergent vegetation at any time and are most active after rainfall events that flood the swamplands.	Moderate
Macadamia integrifolia	Macadamia Nut	-	V	-	Macadamia Nut occurs from Mt Bauple, near Gympie, to Currumbin Valley in the Gold Coast hinterland, south-east Queensland. The species was known to occur in north-east New South Wales; was described from 1850-60 specimens collected from Camden Haven, and there are specimens also from Lismore. This species grows in remnant rainforest, including complex mixed notophyll forest, and prefers partially open areas such as rainforest edges.	Moderate
Macadamia tetraphylla	Rough-shelled Bush Nut	V	V	-	Confined chiefly to the Richmond and Tweed Rivers in north-east NSW, extending just across the border into Queensland. Found in subtropical rainforest, usually near the coast.	Moderate
Maccullochella ikei	Clarence River Cod	-	E	E	Eastern Freshwater Cod is only found in the Clarence and Richmond River catchments of northern NSW. Eastern Freshwater Cod are typically found in clear, flowing streams with rocky substrate and large amounts of in-stream cover such as boulders or large woody debris. Such areas provide complex habitats which influence the quality and quantity of food and shelter.	None
Marsdenia longiloba	Slender Marsdenia	E	V	-	Subtropical and warm temperate rainforest, lowland moist eucalypt forest adjoining rainforest and, sometimes, in areas with rock outcrops.	Moderate
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	E	E	-	Occupy a wide range of eucalypt woodlands, Acacia shrublands and open forests. The south-eastern form (subspecies cucullata) is found from Brisbane to Adelaide and throughout much of inland NSW, with the exception of the extreme north-west, where it is replaced by subspecies picata. However, it is common in few places, and rarely found on the coast	Moderate
Miniopterus australis	Little Bent-winged Bat	V	-	-	Coastal north-eastern NSW and eastern Queensland. Little Bent-wing Bat is an insectivorous bat that roost in caves, in old mines, in tunnels, under bridges, or in similar structures. They breed in large aggregations in a small number of known caves and may travel 100s	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
					km from feeding home ranges to breeding sites. Little Bent-wing Bat has a preference for moist eucalypt forest, rainforest or dense coastal banksia scrub where it forages below the canopy for insects.	
Mixophyes fleayi	Fleay's Barred Frog	E	E	-	The sister species to the Stuttering Frog. This frog is found in upland areas on the eastern side of the ranges in south-east Queensland and northeast NSW. Inhabits rainforest and wet eucalypt forest of the escarpment and foothills, usually close to gravely streams, breeding in similar style to the Southern Barred Frog.	Low
Mixophyes iteratus	Giant Barred Frog	V	V	-	The Giant Barred Frog is distributed along the coast and ranges from Eumundi in south-east Queensland to Warrimoo in the Blue Mountains. It inhabits rainforest and wet sclerophyll forest, but is also found within cleared farmland where fringing vegetation is retained, including lantana beds. Many sites where the Giant Barred Frog is known to occur are the lower reaches of streams which have been affected by major disturbances such as clearing, timber harvesting and urban development in their headwaters.	Moderate
Myotis macropus	Southern Myotis	V	-	-	The Large-footed Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Moderate
Myrsine richmondensis	Ripple-leaf Muttonwood	E	E	-	Subtropical and dry rainforest and swamp forest on creek flats and slopes on basalt derived soil	Moderate
Ninox connivens	Barking Owl	V	-	-	The Barking Owl is found throughout continental Australia except for the central arid regions. Although still common in parts of northern Australia, the species has declined greatly in southern Australia and now occurs in a wide but sparse distribution in NSW. Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas.	High
Ninox strenua	Powerful Owl	V	-	-	In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains suggesting occupancy prior to land clearing. Can occupy both un-logged and lightly logged forests as well as undisturbed forests where it usually roosts on the limbs of dense trees in gully areas. It is most commonly recorded within red turpentine in tall open forests and black she-oak within open forests. Large mature trees with hollows at least 0.5 m deep are required for nesting. Tree hollows are particularly important for the Powerful Owl because a large proportion of the diet is made up of hollow-dependent arboreal marsupials.	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
Notamacropus dorsalis	Black-striped Wallaby	E	-	-	Black-striped Wallaby populations are associated with open forest with thick regrowth brigalow or other shrubby woodland, closed forest margins and dense wet sclerophyll forests with a viney understorey.	Moderate
Numenius madagascariensis	Eastern Curlew	P	CE,M,MAR	-	The Eastern curlew spends its breeding season in northeastern Asia, including Siberia to Kamchatka, and Mongolia. Its breeding habitat is composed of marshy and swampy wetlands and lakeshores. Most individuals winter in coastal Australia, with a few heading to South Korea, Thailand, Philippines and New Zealand, where they stay at estuaries, beaches, and salt marshes. It uses its long, decurved bill to probe for invertebrates in the mud. It may feed in solitary but it generally congregates in large flocks to migrate or roost. Its call is a sharp, clear whistle, cuuue-reee, often repeated.	Low
Owenia cepiodora	Onion Cedar	V	V	-	Subtropical and dry rainforest on or near soils derived from basalt.	Moderate
Parvipsitta pusilla	Little Lorikeet	V	-	-	Distributed in forests and woodlands from the coast to the western slopes of the Great Dividing Range in NSW, extending westwards to the vicinity of Albury, Parkes, Dubbo and Narrabri. Mostly occur in dry, open eucalypt forests and woodlands. They feed primarily on nectar and pollen in the tree canopy. Nest hollows are located at heights of between 2 m and 15 m, mostly in living, smooth-barked eucalypts. Most breeding records come from the western slopes.	High
Paspalidium grandispiculatum	-	V	V	-	In NSW, Paspalidium grandispiculatum is likely to be restricted to poor sandy soils on sandstone. It has been found in open forest of Turpentine (Syncarpia glomulifera) on undulating topography as well as in drier foresdt types on ridges.	Low
Pedleya acanthoclada	Thorny Pea	V	V	-	Dry rainforest and fringes of riverine subtropical rainforest. On basalt-derived soils at low elevations.	Moderate
Persicaria elatior	Tall Knotweed	V	V	-	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance. Tall Knotweed has been recorded in south-eastern NSW (Mt Dromedary (an old record), Moruya State Forest near Turlinjah, the Upper Avon River catchment north of Robertson, Bermagui, and Picton Lakes. In northern NSW it is known from Raymond Terrace (near Newcastle) and the Grafton area (Cherry Tree and Gibberagee State Forests).	High
Petauroides volans	Greater Glider	E	E	-	The Southern Greater Glider occurs in eastern Australia, where it has a broad distribution from around Proserpine in Queensland (Qld), south through NSW and the Australian Capital Territory (ACT), to Wombat State Forest in central Victoria. It is typically found in highest abundance in taller, montane, moist eucalypt forests on fertile soils, with relatively old trees and abundant hollows in north and south-eastern NSW.	High

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
Petaurus australis	Yellow-bellied Glider	V	V	-	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. Found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria.	Moderate
Petaurus norfolcensis	Squirrel Glider	V	-	-	The species is widely though sparsely distributed in eastern Australia, from northern Queensland to western Victoria. Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey. Require abundant tree hollows for refuge and nest sites. Diet varies seasonally and consists of Acacia gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein.	High
Petrogale penicillata	Brush-tailed Rock-wallaby	E	V	-	Found in rocky areas in a wide variety of habitats including rainforest gullies, wet and dry sclerophyll forest, open woodland and rocky outcrops in semi-arid country. Commonly sites have a northerly aspect with numerous ledges, caves and crevices. 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. 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.	Low
Phaius australis	Southern Swamp Orchid	E	E	-	Swampy grassland or swampy forest including rainforest, eucalypt or paperbark forest, mostly in coastal areas.	Moderate
Phascogale tapoatafa	Brush-tailed Phascogale	V	-	-	The Brush-tailed Phascogale has a patchy distribution around the coast of Australia. In NSW it is mainly found east of the Great Dividing Range although there are occassional records west ot the divide. Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabit heath, swamps, rainforest and wet sclerophyll forest.	High
Phascolarctos cinereus	Koala	E	E	-	Inhabits eucalypt forests and woodlands. The suitability of these forests for habitation depends on the size and species of trees present, soil nutrients, climate and rainfall. In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range.	High

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
Polygala linariifolia	Native Milkwort	E	-	-	Grows in dry sclerophyll communities from Warialda area to Weebah gate on the Qld border.	High
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	-	-	In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. It may be extinct in the southern, central and New England tablelands. Inhabits open box-gum woodlands on the slopes, and box-cypress-pine and open box woodlands on alluvial plains.	Moderate
Potorous tridactylus tridactylus	Northern long-nosed potoroo	V	V	-	Inhabits coastal heath and wet and dry sclerophyll forests. Generally found in areas with rainfall greater than 760 mm. Requires relatively thick ground cover where the soil is light and sandy. The long-nosed potoroo is found on the south-eastern coast of Australia, from Queensland to eastern Victoria and Tasmania, including some of the Bass Strait islands. In NSW it is generally restricted to coastal heaths and forests east of the Great Dividing Range.	Moderate
Pseudomys novaehollandiae	New Holland Mouse	P	V	-	The New Holland Mouse currently has a disjunct, fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. Across the species' range the New Holland Mouse is known to inhabit open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	Moderate
Pteropus poliocephalus	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. This species is a canopy-feeding frugivore and nectarivore of rainforests, open forests, woodlands, melaleuca swamps and banksia woodlands. Bats commute daily to foraging areas, usually within 15 km of the day roost although some individuals may travel up to 70 km.	High
Rhodamnia rubescens	Scrub Turpentine	CE	CE	-	Rhodamnia rubescens is known to occur from coastal districts of NSW north from Batemans Bay to Bundaberg in Queensland. Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. This species is characterised as highly to extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	Moderate
Rhodomyrtus psidioides	Native Guava	CE	CE	-	Rhodomyrtus psidioides is known to occur from coastal districts of NSW north from Gosford to Maryborough in Queensland. Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines. This species is characterised being extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
Rostratula australis	Australian Painted Snipe	E	E, MAR	-	In NSW, this species has been recorded at the Paroo wetlands, Lake Cowell, Macquarie Marshes and Hexham Swamp. Most common in the Murray-Darling Basin. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds.	Low
Saltuarius moritzi	Moritz's leaf-tailed gecko	-	E	-	Moritz's leaf-tailed gecko is patchily distributed from the Hunter River (NSW) in the south, to the Clarence River in the north on both public and private land. Moritz's leaf-tailed gecko occurs in rainforest, wet sclerophyll forest, gorges and along wetter drainage lines in dry sclerophyll forest (Wilson & Swan 2021; M. Greenlees 2022, pers comm. 1 March). The species occasionally uses rock outcrops and boulders to forage but is most frequently observed on larger trees and fallen logs that contain crevices and hollows in which it presumably takes shelter during the day (M Greenlees 2022, pers comm. 1 March).	Moderate
Stagonopleura guttata	Diamond Firetail	V	V	-	Found in grassy eucalypt woodlands, including box-gum woodlands and snow gum woodlands. Also occurs in open forest, mallee, natural temperate grassland, and in secondary grassland derived from other communities. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Cental and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the Bega Valley.	Low
Syzygium hodgkinsoniae	Red Lilly Pilly	V	V	-	Usually found in riverine and subtropical rainforest on rich alluvial or basaltic soils	Moderate
Thesium australe	Austral Toadflax	V	V	-	Grows 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 or grassy woodland. Grows on kangaroo grass tussocks but has also been recorded within the exotic coolatai grass.	Moderate
Tringa nebularia	Common Greenshank	P	E,M,MAR	-	Habitat is diverse, both inland and coastal. Found inland on both permanent and temporary wetland- billabongs, swamps, lakes, floodplains, sewage, farms and saltwater ponds. On the coast, it uses sheltered estuaries and bays with extensive mudflats, mangrove swamps, muddy shallows of harbours and lagoons and occasionally rocky tidal edges.	Low
Turnix melanogaster	Black-breasted Button-quail	CE	V	-	The Black-breasted Button-quail is endemic to south-eastern Queensland and far north-eastern NSW, at scattered sites from the Byfield region south to the Border Ranges and mainly on and east of	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	FM Act	Habitat	LoO
					the Great Divide but extending inland to the inner western slopes, up to 300 km from the coast. Preferred habitat is drier low closed forests, including dry rainforests, vine forest and vine thickets, often in association with hoop pine, and bottletree scrubs.	
Tylophora woollsii	Cryptic Forest Twiner	E	E	-	This species grows in moist eucalypt forest, moist sites in dry eucalypt forest and rainforest margins. Thought to be wind-dispersed. Plants appear to persist as a network of stems under leaf litter when aerial stems are absent.	Moderate
Tyto novaehollandiae	Masked Owl	V	-	-	Inhabits a diverse range of wooded habitat that provide tall or dense mature trees with hollows suitable for nesting and roosting. Mostly recorded in open forest and woodlands adjacent to cleared lands. Nest in hollows, in trunks and in near vertical spouts or large trees, usually living but sometimes dead. Nest hollows are usually located within dense forests or woodlands. Extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner.	High

Appendix B
Species List

Apx Table 2: Flora species

Scientific Name	Common Name	Family	BC Act	EPBC Act	Exotic
Acacia concurrens	Curracabah	Fabaceae (Mimosoideae)	-	-	
Acacia leiocalyx subsp. *leiocalyx*	Curracabah	Fabaceae (Mimosoideae)	-	-	
Acmena smithii	Lilly Pilly	Myrtaceae	-	-	
Allocasuarina torulosa	Forest Oak	Casuarinaceae	-	-	
Alphitonia excelsa	Red Ash	Rhamnaceae	-	-	
Ambrosia artemisiifolia	Annual Ragweed	Asteraceae	-	-	Yes
Andropogon virginicus	Whisky Grass	Poaceae	-	-	Yes
Angophora subvelutina	Broad-leaved Apple	Myrtaceae	-	-	
Baumea rubiginosa		Cyperaceae	-	-	
Breynia oblongifolia	Coffee Bush	Phyllanthaceae	-	-	
Callistemon salignus	Willow Bottlebrush	Myrtaceae	-	-	
Carex appressa	Tall Sedge	Cyperaceae	-	-	
Casuarina glauca	Swamp Oak	Casuarinaceae	-	-	
Cenchrus clandestinus	Kikuyu Grass	Poaceae	-	-	Yes
Centella asiatica	Indian Pennywort	Apiaceae	-	-	
Chloris gayana	Rhodes Grass	Poaceae	-	-	Yes
Chorizandra cymbaria		Cyperaceae	-	-	
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	-	-	
Cinnamomum camphora	Camphor Laurel	Lauraceae	-	-	Yes
Cirsium vulgare	Spear Thistle	Asteraceae	-	-	Yes
Conyza bilbaoana		Asteraceae	-	-	Yes
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	-	-	Yes
Corymbia gummifera	Red Bloodwood	Myrtaceae	-	-	
Corymbia henryi	Large-leaved Spotted Gum	Myrtaceae	-	-	
Corymbia intermedia	Pink Bloodwood	Myrtaceae	-	-	
Corymbia maculata	Spotted Gum	Myrtaceae	-	-	
Cuphea carthagenensis		Lythraceae	-	-	Yes
Cymbopogon refractus	Barbed Wire Grass	Poaceae	-	-	
Cynodon dactylon	Common Couch	Poaceae	-	-	
Cyperus spp.		Cyperaceae	-	-	
Dianella caerulea	Blue Flax-lily	Asphodelaceae	-	-	
Dianella longifolia	Blueberry Lily	Asphodelaceae	-	-	
Einadia trigonos	Fishweed	Chenopodiaceae	-	-	
Eleocharis acuta		Cyperaceae	-	-	
Entolasia marginata	Bordered Panic	Poaceae	-	-	
Entolasia stricta	Wiry Panic	Poaceae	-	-	
Eragrostis curvula	African Lovegrass	Poaceae	-	-	Yes

Scientific Name	Common Name	Family	BC Act	EPBC Act	Exotic
Eucalyptus bancroftii	Orange Gum	Myrtaceae	-	-	
Eucalyptus grandis	Flooded Gum	Myrtaceae	-	-	
Eucalyptus moluccana	Grey Box	Myrtaceae	-	-	
Eucalyptus propinqua	Small-fruited Grey Gum	Myrtaceae	-	-	
Eucalyptus racemosa subsp. *racemosa*	Narrow-leaved Scribbly Gum	Myrtaceae	-	-	
Eucalyptus resinifera	Red Mahogany	Myrtaceae	-	-	
Eucalyptus robusta	Swamp Mahogany	Myrtaceae	-	-	
Eucalyptus siderophloia	Grey Ironbark	Myrtaceae	-	-	
Eucalyptus spp.		Myrtaceae	-	-	
Eucalyptus tereticornis	Forest Red Gum	Myrtaceae	-	-	
Glochidion ferdinandi	Cheese Tree	Phyllanthaceae	-	-	
Glycine tabacina	Variable Glycine	Fabaceae (Faboideae)	-	-	
Gomphocarpus physocarpus	Balloon Cotton Bush	Apocynaceae	-	-	Yes
Hypericum gramineum	Small St John's Wort	Clusiaceae	-	-	
Hypochaeris radicata	Catsear	Asteraceae	-	-	Yes
Imperata cylindrica	Blady Grass	Poaceae	-	-	
Juncus continuus		Juncaceae	-	-	
Juncus usitatus		Juncaceae	-	-	
Lantana camara	Lantana	Verbenaceae	-	-	Yes
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae	-	-	
Lomandra multiflora subsp. *multiflora*	Many-flowered Mat-rush	Lomandraceae	-	-	
Lophostemon suaveolens	Swamp Mahogany, Swamp Turpentine	Myrtaceae	-	-	
Maclura cochinchinensis	Cockspur Thorn	Moraceae	-	-	
Maundia triglochinoides		Juncaginaceae	-	-	
Melaleuca alternifolia		Myrtaceae	-	-	
Melaleuca nodosa		Myrtaceae	-	-	
Melaleuca quinquenervia	Broad-leaved Paperbark	Myrtaceae	-	-	
Microlaena stipoides	Weeping Grass	Poaceae	-	-	
Oplismenus aemulus		Poaceae	-	-	
Oplismenus imbecillis		Poaceae	-	-	
Ottochloa gracillima		Poaceae	-	-	
Parsonsia straminea	Common Silkpod	Apocynaceae	-	-	
Paspalum spp.		Poaceae	-	-	
Persicaria hydropiper	Water Pepper	Polygonaceae	-	-	
Persicaria praetermissa		Polygonaceae	-	-	
Phytolacca octandra	Inkweed	Phytolaccaceae	-	-	Yes
Pittosporum revolutum	Rough Fruit Pittosporum	Pittosporaceae	-	-	
Senecio madagascariensis	Fireweed	Asteraceae	-	-	Yes
Setaria parviflora		Poaceae	-	-	Yes
Sida rhombifolia	Paddy's Lucerne	Malvaceae	-	-	Yes
Solanum mauritianum	Wild Tobacco Bush	Solanaceae	-	-	Yes
Solanum viarum	Tropical Soda Apple	Solanaceae	-	-	Yes

Scientific Name	Common Name	Family	BC Act	EPBC Act	Exotic
Sporobolus creber	Slender Rat's Tail Grass	Poaceae	-	-	
Syncarpia glomulifera	Turpentine	Myrtaceae	-	-	
Themeda triandra		Poaceae	-	-	
Trema tomentosa var. *aspera*	Native Peach	Ulmaceae	-	-	
Trifolium repens	White Clover	Fabaceae (Faboideae)	-	-	Yes
Urtica urens	Small Nettle	Urticaceae	-	-	Yes
Verbena bonariensis	Purpletop	Verbenaceae	-	-	Yes

- = Not Listed.

Apx Table 3: Fauna species

Scientific Name	Common Name	BC Act	EPBC Act	Invasive species
Alisterus scapularis	Australian King Parrot	P	-	
Caligavis chrysops	Yellow faced Honeyeater	P	-	
Climacteris picumnus victoriae	Brown Treecreeper eastern subspecies	V	V	
Colluricincla megarhyncha	Little Shrike thrush	P	-	
Coracina novaehollandiae	Black faced Cuckoo shrike	P	-	
Corvus coronoides	Australian Raven	P	-	
Dacelo novaeguineae	Laughing Kookaburra	P	-	
Dicrurus bracteatus	Spangled Drongo	P	-	
Egretta novaehollandiae	White faced Heron	P	-	
Eopsaltria australis	Eastern Yellow Robin	P	-	
Eurostopodus mystacalis	White throated Nightjar	P	-	
Falco longipennis	Australian Hobby	P	-	
Felis catus	Cat	-	-	YES
Geopelia striata	Peaceful Dove	P	-	
Gerygone mouki	Brown Gerygone	P	-	
Grallina cyanoleuca	Magpie lark	P	-	
Gymnorhina tibicen	Australian Magpie	P	-	
Haliastur sphenurus	Whistling Kite	P	-	
Hirundo neoxena	Welcome Swallow	P	-	
Leucosarcia melanoleuca	Wonga Pigeon	P	-	
Lorikeet Hybrid	Musk Scaly Lorikeet	P	-	
Macropygia phasianella	Brown Cuckoo Dove	P	-	
Malurus cyaneus	Superb Fairy wren	P	-	
Malurus melanocephalus	Red backed Fairy wren	P	-	
Meliphaga lewinii	Lewins Honeyeater	P	-	
Motacilla alba	White Wagtail	P	-	
Motacilla tschutschensis tschutschensis	Eastern Yellow Wagtail	P	-	
Myzomela sanguinolenta	Scarlet Honeyeater	P	-	
Notamacropus rufogriseus	Red necked Wallaby	P	-	
Philemon corniculatus	Noisy Friarbird	P	-	
Psophodes olivaceus	Eastern Whipbird	P	-	
Rhinella marina	Cane Toad	-	-	YES

Scientific Name	Common Name	BC Act	EPBC Act	Invasive species
Rhipidura leucophrys	Willie Wagtail	P	-	
Rhipidura rufifrons	Rufous Fantail	P	-	
Threskiornis moluccus	Australian White Ibis	P	-	
Todiramphus sanctus	Sacred Kingfisher	P	-	
Trichoglossus haematodus	Rainbow Lorikeet	P	-	
Vanellus miles	Masked Lapwing	P	-	

P = Protected, V = Vulnerable, - = Not Listed.

Appendix C
EPBC Act Protected Matters Search Tool

EPBC Act Protected Matters Report

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

Report created: 15-Jul-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	58
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	24
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	4
Regional Forest Agreements:	1
Nationally Important Wetlands:	1
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area	In feature area
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Critically Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In feature area
FISH			
Maccullochella ikei Clarence River Cod, Eastern Freshwater Cod [26170]	Endangered	Species or species habitat may occur within area	In buffer area only
FROG			
Litoria olongburensis Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area	In buffer area only
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	Vulnerable	Species or species habitat likely to occur within area	In feature area
INSECT			
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
MAMMAL			
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area
[Dasyurus maculatus maculatus (SE mainland population)](#) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
[Petauroides volans](#) Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
[Petaurus australis australis](#) Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Petrogale penicillata](#) Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In feature area
[Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)](#) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
[Potorous tridactylus tridactylus](#) Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Pseudomys novaehollandiae](#) New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In feature area
[Pteropus poliocephalus](#) Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
[Acronychia littoralis](#) Scented Acronychia [8582]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat may occur within area	In buffer area only
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gossia fragrantissima Sweet Myrtle, Small-leaved Myrtle [78867]	Endangered	Species or species habitat known to occur within area	In buffer area only
Hibbertia marginata [21970]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Leichhardtia longiloba listed as Marsdenia longiloba Clear Milkvine [91911]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In feature area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Myrsine richmondensis Purple-leaf Muttonwood, Lismore Muttonwood [83888]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Owenia cepiodora Onionwood, Bog Onion, Onion Cedar [11344]	Vulnerable	Species or species habitat may occur within area	In feature area
Paspalidium grandispiculatum a grass [10838]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedleya acanthoclada listed as Desmodium acanthocladum Thorny Pea [93275]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Syzygium hodgkinsoniae Smooth-bark Rose Apple, Red Lilly Pilly [3539]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
Vincetoxicum woollsii listed as Tylophora woollsii [40080]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Saltuarius moritzi			
New England Leaf-tailed Gecko, Moritz's Leaf-tailed Gecko [89490]	Endangered	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus			
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii			
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [11257]	NSW	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In feature area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area

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

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Bungawalbin	State Conservation Area	NSW	In feature area
Bungawalbin	National Park	NSW	In buffer area only
Yarringully	State Conservation Area	NSW	In buffer area only
Yarringully	Nature Reserve	NSW	In buffer area only

Regional Forest Agreements	[Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

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

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Lower Bungawalbin Catchment Wetland Complex	NSW	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Richmond Valley Solar Farm	2023/09641		Assessment	In buffer area only
Controlled action				
330 kV Transmission Line, 205km in Length	2010/5326	Controlled Action	Completed	In feature area
Casino Ipswich Pipeline	2007/3877	Controlled Action	Completed	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				

Bioregional Assessments

[Resource Information]

SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

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Appendix E
Community and Stakeholder Engagement Plan

COMMUNITY AND STAKEHOLDER ENGAGEMENT PLAN (CSEP)

EMU PARK ENERGY HUB



604-OEENVNTL-411355.106
August 2025

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
1	This CSEP outlines how community and stakeholder concerns will be addressed, impacts managed and relationships built to support the Scoping Report phase of the Emu Park Energy Hub.	Issy Langton Kendall	Marina Draper and Toby Dawson	Marina Draper	15 August 2025

Approval for issue

Marina Draper  August 2025

This report was prepared by RPS within the terms of RPS' engagement with its client and in direct response to a scope of services. This report is supplied for the sole and specific purpose for use by RPS' client. The report does not account for any changes relating the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report. RPS does not accept any responsibility or liability for loss whatsoever to any third party caused by, related to or arising out of any use or reliance on the report.

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We acknowledge the Bundjalung People and recognise their continuing connection to land, waters, and community. We pay our respect to them and their cultures and to Elders past and present.

ACKNOWLEDGEMENT OF COUNTRY

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1 DOCUMENT PURPOSE

This Community and Stakeholder Engagement Plan (CSEP) supports Emu Park Energy Pty Ltd (as Trustee of the Emu Park Energy Trust) (Emu Park Energy Hub) to deliver an up to 350MW solar farm and a 200 MW/800MWH Battery Energy Storage System (BESS) (Project) in Emu Park, near Casino, NSW.

This CSEP outlines a comprehensive engagement strategy aimed at involving the community and stakeholders throughout the project lifecycle. It identifies the interests and concerns for key stakeholders and how we will engage them throughout the preparation of our proposal. It also outlines the engagement and communications approach including a program of activities which will be updated and reviewed in alignment with project milestones.

The objectives of this CSEP are outlined below:

- Provide timely and relevant information about the Project and ensure the stakeholders with an interest in the Project have the opportunity to share feedback.
- Identify Project stakeholders and develop an approach to engagement that ensures accessible and inclusive consultation for all stakeholders.
- Ensure activities are clearly documented.
- Provide a clear point of contact for interested stakeholders to submit any enquiries, complaints or suggestions.
- Minimise disruption and negative impacts for neighbours and other potentially impacted stakeholders.
- Establish communications procedure and protocols for the Project and ensure they are followed.
- Ensure the Project meets planning approval requirements for community and stakeholder engagement and support efforts to secure approvals from decision-makers promptly.
- Gather data and feedback to inform the Social Impact Assessment (SIA).

This CSEP is a live document which will be reviewed and updated regularly and at key project milestones to ensure that it continues to meet the needs of the Project and the community.

1.1 Acronyms

Acronym	Description
BESS	Battery Energy Storage System
DPHI	Department of Planning, Housing and Infrastructure
LGA	Local Government Area
SEIFA	Socio-Economic Indexes of Areas

2 PROJECT OVERVIEW

2.1 Project objectives and scope

Emu Park Energy is planning to design, construct and operate a solar farm and grid scale Battery Energy Storage Systems (BESS), to be located within the Richmond Valley LGA.

The Project would have an estimated capacity of up to 350 MW solar farm and a 200 MW 800-MWh BESS. The Project would provide grid-scale storage which is critical for the energy transition. Increased grid-scale storage will ensure a reliable and stable electricity network while energy sources continue to grow.

The Project would be located on up to 580 hectares (ha) of land within the Project Area which is currently being used for agricultural purposes.

The Project will contribute to improving national resilience in energy supply, support affordable clean energy for Australians and provide benefits to the local community.

The Project would have an estimated development cost of more than $30 million, qualifying it as a State Significant Development (SSD), supporting the transition of the Australian electricity market for a more sustainable tomorrow.

Project objectives are outlined below:

- Assist in meeting the urgent and ongoing demand for additional generation capacity in the national and NSW electricity markets.
- Contribute to lowering carbon dioxide (CO2_ emissions and reducing overall environmental impact)
- Respect and adapt to the environmental limitations specific to the site
- Assist in meeting the urgent and ongoing demand for additional generation capacity in the national and NSW electricity markets.

This CSEP covers the Scoping Report phase, which is pre-Environmental Impact Statement (EIS) phase.

2.1.1 Project details

General information about the Project is presented in Table 1 below.

Table 1 Project information

Name	Emu Park Energy Hub
Address	The project is located off Emu Park Road and Coraki Ellangowan Road in Emu Park, NSW.
Applicant	Emu Park Energy Pty Ltd (as Trustee of the Emu Park Energy Trust) A subsidiary of Metlen Energy & Metals
Council	Richmond Valley LGA
Total indicative area	580 ha within the Project Area
Land use	Rural land used for agriculture
Owners	Private (two)

Capacity	Up to 350MW Solar Farm 200 MW 800 MWH BESS

2.2 Project maps

Figure 1 Map of project location in the context of the LGA

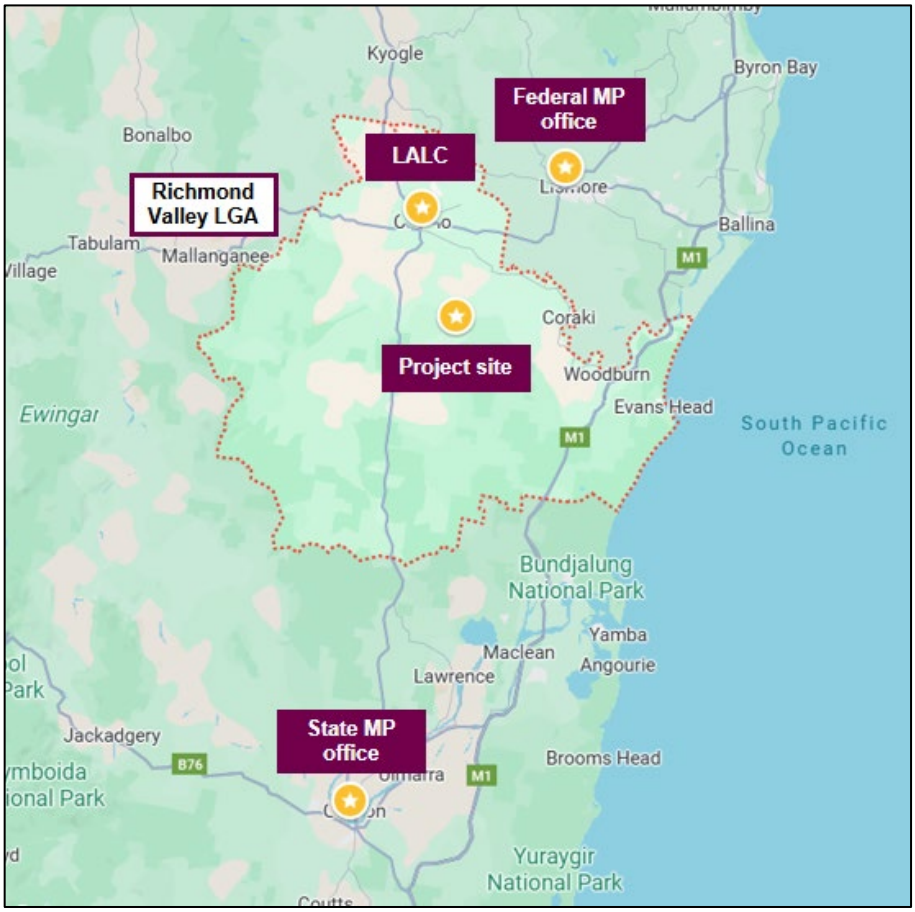


Figure 2 Map of the proposed project location

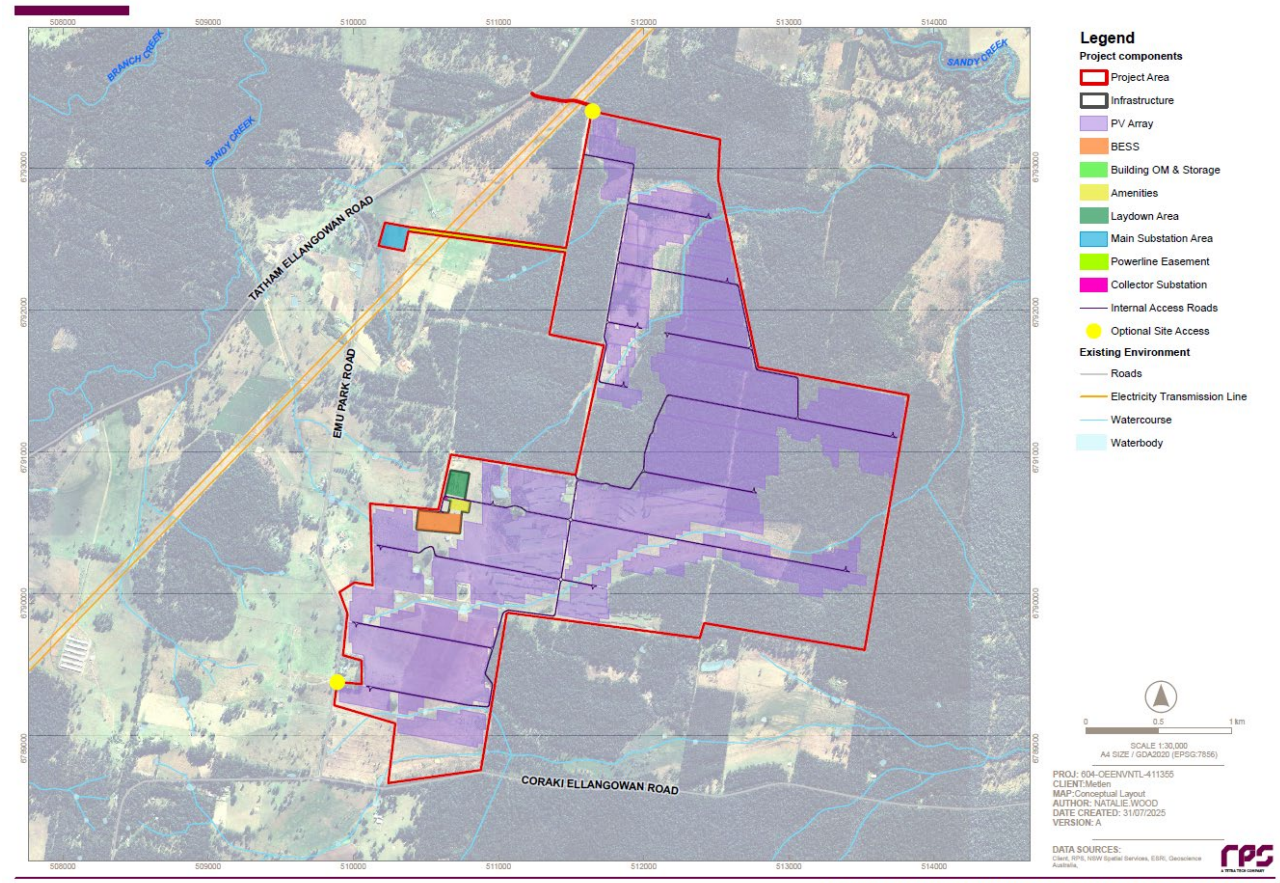


FIGURE 3-1: PRELIMINARY CONCEPTUAL PROJECT LAYOUT

2.3 Applicable legislation, policy and codes of practice

Federal and state government regulations require all major infrastructure projects to undergo environmental assessment before approval is considered.

The Project is State Significant Development (SSD) as defined under *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) and will seek a Development Consent under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The approach that Emu Park Energy will take to communications and engagement has been informed by the regulatory requirements and engagement guidelines outlined below.

Table 2 Application, legislation, policies and guidelines

Title	Description
Legislation/policy	
Environmental Planning and Assessment Act (NSW) 1979	• Division 2.6 of the act sets out the community participation requirements that planning authorities are subject to. Clause 2.21 identifies the planning authorities and functions subject to community participation requirements. Clause 2.22 lays out the mandatory community participation requirements and clauses 2.23 and 2.24 identify the requirements of community participation plans.
National Energy Customer Framework (NECF) legislation	• The company must notify customers and retailers at least four clear business days before all planned interruptions unless the customer signs a waiver agreeing for the work to proceed with less notice. The previous notification requirement for this activity was two business days. Breaches of the legislation may attract civil penalties or result in enforceable undertakings being issued against the company.

Title	Description
Guidelines	
The Rapid Assessment Framework (RAF) 2022/*State Significant Development Guidelines 2024* *(developed under the RAF)* DPHI 2024	• Community participation is integral to assessing the merits of SSD projects, leading to the improved design of projects, reduced environmental impacts and ecologically sustainable development. • The approval authority for any SSD application will take into consideration all relevant issues raised in submissions before deciding on the application.
Undertaking Engagement Guidelines for State Significant Projects, DPHI 2024	• The Department and the proponent are both required to engage with the community, councils and government agencies on State significant projects. • The scoping report must give an early indication of community views on the project and identify what engagement will be carried out during the preparation of the EIS. • Proponents will be expected to: ○ Engage as early as possible. ○ Ensure engagement is proportionate to the scale and impact of the project. ○ Implement the community participation objectives. ○ Provide clear and concise information about the project and its impacts. ○ Implement activities that encourage and facilitate participation. ○ Report back on what was heard, what has or hasn't changed, and why.
Social Impact Assessment Guideline 2023 DPHI 2023	• This guideline assists proponents in identifying, assessing and managing the social. impact of SSD projects. • Focuses on understanding how a project may affect people's way of life, community, health and well-being. • Encourages collaboration with local communities to co-design mitigation measures. • Promotes the use of baseline studies and ongoing monitoring of social impacts.
Cumulative Impact Assessment Guidelines for State Significant Projects DPHI 2022	• This guideline ensures that the cumulative impacts of multiple projects are considered during the planning process. • Requires proponents to assess how their project interacts with other nearby developments and existing conditions. • Guides the identification of cumulative environmental, social and economic impacts. • Stresses the importance of community input in identifying concerns about cumulative impacts.
Community participation plan, DPHI 2024	• Outlines how and when the community can participate when the Minister for Planning and Public Spaces and the Secretary of the Department of Planning, Housing and Infrastructure (Planning Secretary) undertake their planning functions. • Includes the departments community participation objectives, approaches to community engagement and including minimum and typical public exhibition timeframes, which should be considered in planning proponent engagement.
Large-Scale Solar Energy Guideline, Department of Planning and Environment 2022	• States that effective community and stakeholder engagement is essential for the development of the large-scale solar energy industry and the environmental assessment process. • Applicants must undertake meaningful engagement with stakeholders throughout the environmental impact assessment process and during the construction and operation phases of a project. • This consultation must be undertaken in accordance with the Undertaking Engagement Guidelines for State Significant Projects.

Title	Description
Electricity Supply Act 1995	• Section 45 requires that written notice of the proposal to carry out works (other than routine repairs or maintenance works) is given to the local council. The relevant local council must be given a reasonable opportunity (40 days from the date on which the notice was given) to make submissions on the proposal. All submissions must be considered prior to the start of the works. A second notification providing at least 21 days' notice to both council and nearby residents (requires that councils be notified and provided with 40 days to comment on certain projects
State Environmental Planning Policy (Transport and Infrastructure) 2021	• Clauses 2.10-2.12 and 2.14 of the SEPP require that consultation is undertaken with the relevant local council if the development has impacts on council-related infrastructure or services, local heritage, flood liable land or certain land within the coastal zone. • Clause 2.15 of the SEPP requires that consultation is undertaken with relevant public authorities other than council, in certain circumstances. • Clause 2.45 of the SEPP provides that written notification must be given to the relevant local council and the occupiers of adjoining land for development for the purpose of a new or existing electricity substation. Any responses received within 21 days after the notice is given must be taken into consideration; and • The written notification required under the SEPP and the 40-day notification required under the Electricity Supply Act 1994 are usually issued concurrently.

2.4 Assessment process

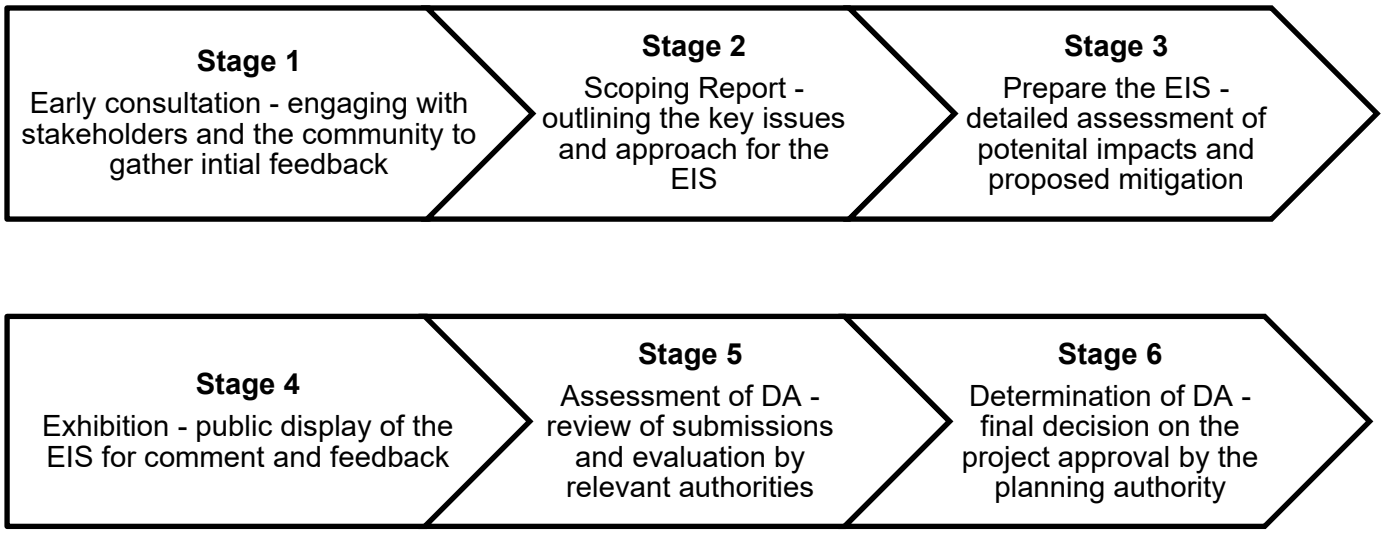
The development costs of this Project are expected to exceed $30 million, qualifying it as a SSD.

Under the EP&A Act, SSD projects are required to carry out a comprehensive assessment process that involves extensive community engagement. This includes the preparation of a Scoping Report.

Community participation includes informing, consulting and involving those who are interested in, or affected by, the proposed changes to an area because of a project. Community participation also includes obtaining expert advice from relevant public authorities including local, state and federal government agencies.

While the CSEP focuses on the scoping phase, the full SSDA assessment process by the NSW Government is outlined in Figure 3 to provide clear visibility and understanding of each stage involved.

Figure 3 NSW Government SSDA assessment



2.5 Project timeline

This section outlies key milestones in the assessment process for the Project, including indicative timing for preparation of the Scoping Report, request for SEARs, EIS submission and exhibition, submissions report and project determination.

Table 3 Project indicative timings

Phase	Proposed dates/timings
Preparation of Scoping Report	August/September 2025
Submit Scoping Report and Request SEARS[1]	October2025
Prepare EIS and completion of technical assessments	2025-2026
Submit EIS and Public Exhibition of DA	2026
Respond to submissions	2026
Project determination	2026 / 2027
If approved:	
Pre-Construction	2028
Construction and commissioning	2029
Solar Farm and BESS operational	2029

[1] Secretary's environmental assessment requirements (SEARs)

3 COMMUNICATIONS AND ENGAGEMENT APPROACH

Emu Park Energy is committed to providing access to clear information and seeking community input throughout the development process. Our approach is focused on fostering respectful, transparent, and lasting relationships with stakeholders, particularly near neighbours, Council and the local community.

The approach is aligned to the Engagement Institute International Association of Public Participation Spectrum ('the Spectrum'). The Spectrum is widely used and well recognised as a guideline for formulating a best-practice approach to stakeholder and community engagement.

3.1 Engagement objectives

Table 4 below outlines the engagement objectives, corresponding approach and key measures for each consultation for the Project. It provides a structured guide to ensure that the engagement activities are effectively planned, executed and evaluated to meet the overall aims of stakeholder involvement throughout the Project.

Table 4 Engagement Objectives

Objective	How	Measure
Ensure engagement is purposeful with clear objectives that promote meaningful participation from a diverse range of voices, including underrepresented groups, so that all stakeholders can effectively contribute to and influence the Project.	• Clearly define the goals of each engagement activity to align with decision-making needs. • Demonstrated broad, diverse stakeholder participation and input.	• Evidence that stakeholder feedback influences project decisions and timely communication is provided on how input has been used.
Establish transparency and trust, providing access to clear information in a timely manner.	• Providing landholders, members of the community and other stakeholders with timely and relevant information about the delivery of the Project • Ensuring minimal disruption to landholders, other impacted stakeholders, and the wider community	• Regular cadence to Project updates, aligned to Project milestones and timeline • Consistency in spokespeople and project team interaction with community and stakeholders
Build strong, respectful and collaborative local relationships by ensuring stakeholders are meaningfully involved in the decision-making process.	• Identify key internal and external stakeholders and understand their interests in the Project. • Provide stakeholders with consistent messages about the Project and opportunities to be heard • Ensure engagement activities are accessible to all relevant stakeholders	• Recognition from stakeholders about engagement efforts, information clarity and proactiveness of responses • Engagement uses multiple communications tools to enable diverse stakeholder groups to contribute, including providing options which are accessible and inclusive (ie written correspondence, in-person meetings and community sessions). • Community representatives and key stakeholders agree that their

Objective	How	Measure
		feedback is considered and has impacted project outcomes
Comply with all statutory and regulatory requirements for community engagement	• Following communications procedures and protocols. • Providing a responsive point of contact for any enquiries, complaints, or suggestions	• Compliance with procedures and protocols • Reactive responses turned around within 48 hours; issues fully resolved within 2 weeks; issues not reopened
Adopt a flexible engagement approach that is continuously adapted to effectively meet the evolving needs and preferences of the community throughout the Project lifecycle.	• Use a variety of engagement methods and channels to accommodate different stakeholder preferences and accessibility needs. • Adjust engagement strategies and tools as necessary based on ongoing evaluation and stakeholder input.	• Engagement plans and activities are reviewed and updated at key project milestones or in response to stakeholder feedback. • Demonstrated use of diverse engagement methods tailored to community preferences.

3.2 Engagement Principles

In line with the NSW guidance on engaging with regional communities[2], this CSEP is guided by Emu Park Energy 'commitment to the being:

- **Meaningful**: Engagement ensures clear objectives, meaningful participation and diverse voices.
- **Transparent**: Be transparent about the extent of public influence in the decision-making process, clarifying which decisions can be shaped and which cannot.
- **Localised**: Acknowledge the difference in community needs and ensure a place-based approach to customise engagement methods to meet the needs of each community.
- **Inclusive and respectful**: provide accurate information that is both accessible and easy to understand for all community members.
- **Flexible**: An adapted approach to ensure that the engagement is fit for purpose to meet the needs of the community.

[2] Regional Communities Consultation Guide

3.3 Engagement Institute Public Participation Spectrum

During the Project, different levels of participation will be required depending on the stakeholder group and the activity. This engagement approach is aligned to the Spectrum, in accordance with best practice.

The Engagement Institute is a global organisation that promotes best practices in public participation and stakeholder engagement for large scale infrastructure projects. It provides frameworks and methodologies for involving the public in decision-making processes, ensuring that community input is meaningfully integrated into project planning and development.

The Engagement Institute's principles are highly relevant to State Significant Development projects because these projects often have significant environmental, social and economic impacts on communities. Adhering to this framework can ensure that engagement efforts are transparent, inclusive, collaborative and accessible, addressing the concerns of stakeholders and fostering a sense of trust and ultimately, a social licence to operate. This approach is essential for managing complex stakeholder relationships and ensuring that projects are developed in a way that is responsive to community needs and expectations.

Table 5 below presents the Engagement Institute's Spectrum of Public Participation, which outlines the different levels of engagement and the corresponding goals for each stage of stakeholder involvement. It provides a framework for understanding how stakeholders will be involved in the decision-making process, from information sharing to active collaboration, ensuring that engagement efforts are aligned with the project's objectives and levels of influence stakeholders have. The examples outlined for each level of the IAP2 Spectrum are suggested approaches and are provided to demonstrate how engagement could be applied in practice.

Table 5 Engagement Institute Spectrum

Inform	Consult	Involve	Collaborate	Empower
Provide balanced and objective information to assist understanding of the opportunities, problems and solutions,	Obtain feedback on analysis, alternatives and decisions.	Work directly with stakeholders to ensure their aspirations are understood and considered.	Partner with stakeholders in each aspect of the decision including development of alternatives and identification of the preferred solution.	Place final decision-making in the hands of stakeholder.
Engagement approach for the project				
Provide clear, accessible information via the project website, newsletters, and public notices.	Gather feedback through community meetings, 1-1 meetings, public exhibitions, and online comment portals.	Engage stakeholders in focus groups, workshops, and community reference panels to ensure their input is considered in Project decisions.	Work closely with key stakeholders, including the local council and Aboriginal communities, to develop Project aspects collaboratively.	During delivery of the project, establish a community forum to gather input, and use online surveys to gather feedback to ensure diverse voices are heard,

3.4 Stakeholder mapping and categories

The likely stakeholders with an interest in this Project have been grouped into categories based on their stakeholder type or role. They have then been further categorised based on their predicted level of **interest**, **influence**, and the potential **impact** of the Project on them.

Interest refers to how much a stakeholder cares about the issue; *influence* refers to how much power they have to shape the issue; and *impact* refers to how much they are affected by the outcomes of the issue.

Table 6 below demonstrates an analysis of stakeholder categories, highlighting their respective levels of interest, influence and potential impacts on the Project. It provides an overview of which stakeholders require more focused engagement, and the varying degrees of attention needed based on their role and significance to Project success. Insights have been drawn from previous and comparable projects in the region, helping to shape an applicable engagement approach.

Table 6 Stakeholder categories

Stakeholder	Interest/influence/impact	Potential interests	Potential concerns
Property Owners, Land host	High interest Moderate impact High influence	Noise, visual impact, perceived potential property devaluation, local job opportunities, workforce accommodation.	Disruption during construction, long-term environmental impacts.
Near neighbours (within 5km radius of the site)	High interest Moderate impact High influence	Noise, visual impact, perceived potential property devaluation, local job opportunities, workforce accommodation.	Disruption during construction, long-term environmental impacts.
Local residents (outside 5km radius of the site)	Moderate interest Moderate impact High influence	Noise, visual impact, perceived potential property devaluation, local job opportunities, workforce accommodation.	Disruption during construction, long-term environmental impacts.
Local Aboriginal Communities and Agencies	High interest Moderate impact High influence	Preservation of cultural heritage, protection of significant sites, community benefits.	Potential disturbance of culturally significant sites, lack of consultation. Work with the Bogal LALC.
Council and Associated Bodies	High interest Moderate impact High influence	Compliance with local planning regulations, economic development, community satisfaction.	Project alignment with town planning objectives.
State and Federal Government Agencies	High interest High impact High influence	Regulatory compliance, project alignment with state and federal objectives.	Adherence to statutory requirements, potential public backlash. Potential impacts to their own operations or assets.
Elected Officials (Local Government and State MPs)	High interest Moderate impact High influence	Project milestones, community benefits, opportunities and concerns.	Adherence to statutory requirements, potential public backlash. Potential impacts to their own operations or assets.
Business Owners and Operators	Moderate interest Moderate impact Moderate influence	Economic opportunities, local hiring, partnership potential. Wayfinding opportunities.	Impact on local commerce, traffic disruptions during construction.

COMMUNITY AND STAKEHOLDER ENGAGEMENT PLAN

Stakeholder	Interest/influence/impact	Potential interests	Potential concerns
Environmental Groups	High interest Moderate impact Moderate influence	Environmental sustainability, conservation efforts, renewable energy benefits. Socio-benefits to community groups especially minority groups.	Potential ecological disruption, alignment with environmental policies or community impacts.
Community Organisation	High interest Moderate impact Moderate influence	Socio-benefits to community groups especially minority groups.	Customer impacts including bill and access; excessive impacts of customer and/or community groups.
Educational and Healthcare Institutions	Low interest Low impact Low influence	Educational partnerships, research opportunities, community engagement.	Likely limited direct impact but interested in educational and environmental initiatives.
Local Media	Moderate interest Moderate impact Moderate influence	Public consultation opportunities; project timeline, funding and negotiables, cumulative impacts.	Impacts to service and access, cumulative impacts, accommodation, traffic.
Internal Stakeholders	Moderate interest Moderate impact Moderate influence	Business case approval including financials; coordination across business unit; strategic alignment. Workforce planning.	Lack of access to information in public interest.
Utilities, Emergency Services, Transport	Low interest Low impact Low influence	Coordination of project delivery, sharing of resources	Lack of alignment to strategy, project delivery delays. Impacts to existing assets or other projects.

4 COMMUNITY PROFILE

The Project is located close to Casino, New South Wales, at the junction of Emu Park Road and Coraki Ellangowan Road. The Project Area falls within the Richmond Valley Local Government Area (LGA), situated in the Northern Rivers region of NSW, approximately 700 kilometres north of Sydney.

Known for its rich agricultural heritage, Casino serves as an important centre for beef cattle production and farming in the area. The town supports a diverse local economy, with agriculture remaining a key industry alongside growing interests in tourism and community services. The Project site's proximity to Casino and its location within the Richmond Valley LGA position it well within a region valued for its rural character and economic activities connected to land use and agriculture.

4.1 Community overview

Table 7 High level community overview

	Richmond Valley LGA	NSW
Population	23,565	8,342,285
Median age	46	39
Aboriginal and Torres Strait Islander people	7.9%	4.1%
Country of birth		
Australia	83.6%	65.4%
Overseas	16.4%	34.6%
Language		
Households where a non-English language is used	4.1%	29.5%
Population that speaks only English at home	87.9%	67.6%
Languages other than English spoken at home (Top five)	Bandjalang Tagalog Italian German Filipino	Mandarin Arabic Cantonese Vietnamese Hindi
Housing tenure		
Owned outright	40.5%	31.5%
Owned with mortgage	29.8%	32.5%
Private renting	25.5%	32.6%
Highest education level attained		
Years 10 to Year 12	33.7%	28.3%
Bachelor's degree and above	9.6%	27.8%
Certificate III and IV	21.3%	15.0%
Employment status		
Full time	52.2%	55.2%
Part time	35.8%	29.7%
Unemployment rate	4.7%	4.9%
Workforce participation rate		
Employment by industry (Top five)	Meat Processing Aged Care Residential Services Hospitals (except Psychiatric Hospitals) Other Social Assistance Services	Hospitals (except Psychiatric Hospitals) Supermarket and Grocery Stores Other Social Assistance Services

	Richmond Valley LGA	NSW
	Supermarket and Grocery Stores	Computer System Design and Related Services Aged Care Residential Services
Median weekly income		
Personal	$609	$813
Family	$1,431	$2,185
Household	$1,137	$1,829

4.2 Cumulative impacts and considerations for community engagement

The Project Area is located within the Richmond Valley LGA, which is beginning to see early signs of renewable energy development, although relatively few projects have been established to date. The local economy is strongly supported by agriculture, with beef production being a key industry alongside other farming activities. This agricultural focus is a vital part of the community's identity and economic stability. While renewable energy offers potential benefits for economic diversification and environmental sustainability, it is important to carefully consider the cumulative impacts of new developments.

Exploring nearby renewable energy projects and the community feedback is useful for understanding the concerns raised so far and emerging stakeholder issues locally. This knowledge can help guide the implementation of effective measures to balance renewable energy growth with the preservation of the region's agricultural heritage, rural character as well as other potential impacts that may be identified. Please refer to Table 8 for a list of nearby renewable energy projects (within 80 km of the Project Area).

Table 8 Projects within 80km of the proposed site

Name	Details	Distance	Developer / operator	Notes	Issues
Richmond Valley Solar Farm and BESS	The Richmond Valley Solar Farm and Battery Energy Storage System (BESS), located approximately 15 kilometres away, has a capacity of 500 MW, an energy storage capability of 2,200 MWh, and a development footprint covering 803 hectares.	15km away	Ark Energy Projects	Approved	Stakeholder concerns highlighted in the EIS include issues related to visual amenity, noise and vibration, fire risk and safety, alterations to the landscape environment, potential impacts on property values, environmental sustainability, and possible health implications.
Myrtle Creek Solar Farm	The Myrtle Creek Solar Farm (MCSF) is a renewable energy project located in the Richmond Valley Council area. The project will include a solar farm with a capacity of 100 megawatts (MW)	16km away	Terrain Solar Pty Ltd	Withdrawn	Key community concerns captured in the Scoping Report include noise, vibration, dust, and visual impacts affecting nearby residents' wellbeing during construction and operation; traffic delays and road damage from construction vehicles; changes to the rural landscape and local environment, which may

Name	Details	Distance	Developer / operator	Notes	Issues
	using solar panels spread over roughly 325 hectares. Additionally, the project features a battery energy storage system (BESS) with up to 100 MW capacity and can store energy for up to 2 hours.				affect community character and property values; worries about water quality; and increased risks of fire, flooding, or other hazards impacting resident safety.
Summerville Solar Farm and BESS	The Summerville Solar Farm is designed to generate up to 90 megawatts (MW) of alternating current (AC) electricity. The Battery Energy Storage System (BESS) will also have a 90 MW capacity and can store enough energy to provide power for up to four hours (360 MWh). The project will directly impact about 196 hectares of land within a total site area of 244 hectares.	22km away	ESCO Pacific, ESCO Solar Farm 5 Pty Ltd	Approved	Stakeholder concerns for the Summerville Solar and BESS project include visual impacts, loss of agricultural land, noise and vibration affecting sensitive receivers, hazards related to lithium-ion batteries, and bushfire risk.
The Clarence Valley Solar Farm (located in Clarence Valley Council LGA)	The Project will include the installation of ground-mounted photovoltaic (PV) solar panels with an estimated generating capacity of 85 megawatts along with a Battery Energy Storage System (BESS) of approximately 85 MW (85 megawatt hours, MWh). The initial development footprint for the Project is about 280 hectares, situated within a larger Project	77km away	Pelican Solar Farm Pty Ltd	Withdrawn	Stakeholder concerns focused on the impact on prime agricultural land, loss of vegetation and effects on local wildlife, changes to visual amenity including glare, and questions about the site's suitability and potential land use conflicts.

Name	Details	Distance	Developer / operator	Notes	Issues
	Site of around 340 hectares.				

4.3 Stakeholder Identification

Table 9 identifies key stakeholder groups, engagement aims, methods and who would be leading engagement.

For the full breakdown of stakeholder groups, please see Appendix 1 stakeholder matrix.

Table 9 Stakeholder engagement aims, methods and responsibilities

Stakeholder	Engagement aims	Engagement methods	Responsibility
Neighbours, Local Residents and Property Owners	• To proactively identify any potential impacts • To identify and manage any community concern early in the process • To proactively communicate about the benefits	• Community information session, landowner meetings, newsletters, information boards and web updates.	• Hosts: Emu Park Energy • Near Neighbours: Emu Park Energy, assisted by RPS as requried • Wider neighbours: RPS
Local Aboriginal Communities and Agencies	• To actively show respect and acknowledge their role as custodians of the land • To proactively identify any potential impacts to culture, country and community • To identify and manage any issues of concern early in the process	• Face-to-face meetings, involvement in heritage assessments, collaboration on community benefits.	• RPS and Emu Park Energy
Council and Associated Bodies	• To proactively identify any potential impacts • To identify and manage any issues of concern early in the process	• Regular briefings, formal submissions.	• RPS and Emu Park Energy
State and Federal Government Agencies	• To build advocates for the Project at State and Federal levels • To proactively identify any potential impacts • To identify and manage any issues of concern early in the process	• Formal submissions, regular briefings.	• As per separate Regulatory Engagement Plan • RPS planning with Emu Park Energy
Elected Officials (Local Government and State MPs)	• To build advocates for the Project within Council	• Regular briefings	• RPS and Emu Park Energy

Stakeholder	Engagement aims	Engagement methods	Responsibility
	• To manage risk of opposition from within council staff or councillors • To enable their staff to direct questions to us if received		
Business Owners and Operators	• To proactively identify any potential impacts • To identify employment or supplier opportunities • To identify and support any wayfinding concerns	• Community information session, landowner meetings, newsletters, information boards and web updates.	• RPS and Emu Park Energy
Environmental Groups and Community Organisations	• To identify and manage any community concern early in the process • To provide an opportunity to build trust and brand recognition, potentially through partnerships	• Community information session, landowner meetings, newsletters, information boards and web updates.	• RPS and Emu Park Energy
Educational and Healthcare Institutions	• To proactively identify any potential impacts • To identify and manage any community concern early in the process • To provide an opportunity to build trust and brand recognition	• Community information session, landowner meetings, newsletters, information boards and web updates.	• RPS and Emu Park Energy
Local Media	• To proactively provide relevant and timely information • To provide a clear point of contact and spokesperson for queries about the Project and responding to media	• Regular updates through newsletters and website.	• Emu Park Energy
Internal Stakeholders	• To facilitate coordination of business case, financial approvals, strategy execution • To build advocates for the Project within the business and the community	• Regular updates through governance structures.	• Emu Park Energy

Stakeholder	Engagement aims	Engagement methods	Responsibility
Utilities, Emergency Services, Transport	• To proactively identify any potential impacts on their operation or assets • To identify opportunities to coordinate work delivery or share resources	• Regular briefings and project updates	• Emu Park Energy

4.4 First Nations Engagement

The project will openly and transparently engage with First Nations stakeholders. Emu Park Energy will form meaningful and ongoing relationships with First Nations communities whose Country the project impacts, with a focus on partnership and where possible, supplier and employment opportunities.

The Richmond Valley LGA has an Aboriginal population of 7.9%, which exceeds the average proportion of Indigenous residents in New South Wales (4.1%%). The Bundjalung people are acknowledged as the traditional custodians of the land surrounding Casino, which is traditionally known as Djanangmum. Casino lies within the Bundjalung Nation's territory, and the local Aboriginal community, including the Gullibal people, maintain a strong and ongoing connection to the land. The Bundjalung people possess a rich cultural heritage encompassing traditional hunting and gathering practices, language, and social systems that continue to be integral to their community.

Our approach will build on our existing relationships with Local Aboriginal Land Councils and establishing new relationships with other community groups.

Table 10 below captures key First Nations stakeholders, their potential interest, and they key drivers and approach to engagement.

Table 10 First Nations Stakeholders and Broader Aboriginal and Torres Strait Islander community

Stakeholder	Potential Interest	Reason for engaging	Engagement approach	Current relationship
Bogal Aboriginal Land Council	• LALCs that cover areas impacted by the project and will want to ensure the project achieves outcomes for their communities.	• Aboriginal LALCs have the right to be consulted about developments on their traditional lands.	• Face-to-face meetings, involvement in heritage assessments in accordance with the Consultation Guidelines for RAPs, collaboration on community benefits.	• Need to engage
Traditional Owners and Aboriginal Groups (Bundjalung people)	• Traditional Owners may want input on how development on their traditional lands is designed and constructed.	• Traditional Owners need to be consulted on how they want development on their traditional lands to be designed and constructed.	• Face-to-face meetings, involvement in heritage assessments in accordance with the Consultation Guidelines for RAPs, collaboration on community benefits.	• Need to engage
Registered Aboriginal Parties (RAPs)	• Smaller community groups throughout the areas.	• Some smaller community groups do not feel represented through LALCs and the larger corporations. Need to ensure we engage with a broad group of	• Face-to-face meetings, involvement in heritage assessments in accordance with the Consultation Guidelines for RAPs, collaboration on	• Need to engage

Stakeholder	Potential Interest	Reason for engaging	Engagement approach	Current relationship
		First Nations stakeholders.	community benefits.	

4.5 Previous engagement activities and outcomes

Emu Park Energy has had initial discussions with the landowner about the Project. There have also been initial conversations with Richmond Valley LGA and DPHI.

Table 11 captures the previous engagement activities and outcomes action and documented by Emu Park Energy.

Table 11 History of engagement

Stakeholder	Engagement channel	Date	Outcome
Impacted property owners	Face-to-face meetings	From 09/05/2024	Emu Park Energy acknowledged as landowner of solar farm site. Spoke with the landowner to have from a full introduction to signed option. Several meetings have taken place from 09/05/2024.
	Face-to-face meetings	27/08/2024	Full discussion from intro to option negotiation.
Near neighbours	Phone call and face-to face meeting	June 2024	Explained the Project, impact on site, construction effects on tree screening.
	Text, phone calls and face-to face meeting	August 2024	Landowner supportive if site 2 progresses
Richmond Valley LGA	Email	16/06/2025	Organising council meeting
	Face-to face meeting in Council chambers	03/07/2025	Discussed the project and potential community impacts / benefits
	Email	07/07/2025	Emailed Emu Park briefing presentation
DPHI	Microsoft Teams	06/11/2025	Discussed the project and potential impacts
TfNSW	Microsoft Teams	06/11/2025	Discussed the project and potential impacts

4.6 Engaging hard-to-reach stakeholders

In 2023, Casino, located within the Richmond Valley LGA, was identified as having a significant proportion of community in lower socioeconomic groups and older populations. The weekly median equivalised total household income in Richmond Valley LGA is $609, markedly lower than the NSW average of $813, indicating economic disadvantage in the area, further highlighted by the SEIFA Disadvantage score of 923.6 being below the NSW average of 1,000. Additionally, Casino and its surrounding communities have a higher percentage of residents aged 65 and over compared to the state average, which contributes to challenges in digital access and engagement. These factors are reflected in a lower digital inclusion index for the region,

underscoring the need for tailored engagement approaches. Recognising these barriers, Emu Park Energy prioritises inclusive engagement strategies by combining both digital and face-to-face approaches and offering multiple communication channels to ensure that hard-to-reach stakeholders in Casino can effectively participate in consultation and decision-making processes.

4.7 Engaging regulatory stakeholders

Engaging regulatory stakeholders is a critical component for consultation to ensure compliance and alignment with relevant legislation, policies and guidelines. Proactive engagement with regulatory stakeholders will support compliance and build trust.

This involves establishing clear and consistent communication channels with agencies such as the NSW Department of Planning, Housing and Infrastructure, local government and other relevant authorities.

Regular updates on Project progress, potential impacts, and proposed mitigation strategies will be provided to maintain transparency and accountability and foster collaboration. Key activities include formal submissions, participation in regulatory consultations, and addressing feedback promptly to demonstrate accountability. By proactively engaging regulatory stakeholders, the Project will ensure- adherence to statutory requirements while building a foundation of trust and cooperation.

4.8 Negotiables and non-negotiables

In order to achieve trust and transparency with the community and key stakeholder groups, it's important to be clear about which aspects of the Project can and cannot be influenced by the groups we consult with. The negotiable and non-negotiable aspects for the SR phase of this Project, as they are currently understood have been outlined below.

Table 12 Negotiables and non-negotiables

Project phase	Negotiables	Non-negotiables
All project phases	• Safeguards to mitigate environmental and community impacts, as required including: Ecological offsets, noise and visual treatments at receivers, traffic – access and parking mitigation • Opportunities to provide feedback and influence planning, design and operations, where possible • How stakeholders will be engaged	• Technical design aspects including the capacity, layout or configuration within the site • Size suitability assessment • Planning pathways • Construction and delivery timeframes • Viability of the project

4.9 Engagement schedule

The table outlines the engagement methods planned specifically for the Scoping Report phase of the Project. Engagement will be conducted in stages to meet the requirements of the Project as an SSD. Table 13 presents a range of recommended engagement approaches and tools designed to support the Project's goals and respond to stakeholder interests. These recommendations serve as an initial framework for review, discussion, and adjustment in partnership with Emu Park Energy in preparation for the Scoping Report submission.

To ensure transparency in the process, the phases following the Scoping Report are outlined in Table 13; however, they have been greyed out as they are not relevant to the current stage. Each stage is broken down into phases, with this report focusing exclusively on Phase 1 of the Scoping Report.

Table 13 High level engagement schedule by phase

Project phase	Engagement phase	Statutory requirements	Stakeholder groups	Engagement methods
Phase 1: Preliminary Engagement (Scoping Report, pre EIS)				
Preparation of scoping report, and Submit Scoping Report and Request SEARS	• Build relationships with key stakeholders and community to obtain support • Deliver early engagement with key stakeholders and community to raise awareness, gather initial feedback, identify key concerns • Establish a reputation for transparent communication and build trust with the community • Provide an early avenue for feedback to be considered by project team	• Applicant to undertake early consultation with DPHI to clarify approvals required, the information to be included in EIS and the community engagement requirements • Applicant to submit Scoping Report to obtain SEARs • Scoping Report to summarise results of early engagement and outline proposed engagement approach to support EIS / SSDA • DPHI to publish Scoping Report online and seek advice from Council and Government Agencies • SEARs published online within 28 days	• Local Residents and Property Owners (immediately impacted) • Local Aboriginal Communities and Agencies • Council • State and Federal Government Agencies (DPHI and other agencies) • Business Owners and Operators (immediately impacted) • Environmental Groups and Community Organisations (targeted) • Internal Stakeholders • Utilities, Emergency Services, Transport (immediately impacted)	• Briefings (formal and informal) for Government Authorities, and other key local landowners • Interactive online tools including website update, 1800 number and project email address • Letters to key stakeholders • Meetings with landowners

Project phase	Engagement phase	Statutory requirements	Stakeholder groups	Engagement methods
Phase 2: EIS Development				
Prepare EIS and completion of technical assessments	• Engage the community in the EIS process • Deliver public engagement, ensure outreach effective for each stakeholder group • Provide an avenue for feedback to be considered by project team • Provide engaging and informative content that promotes the project drivers and benefits	• Applicant to prepare EIS in accordance with SEARs requirements • Applicant to undertake engagement with community and government agencies • Applicant to integrate and report findings of engagement in EIS • Applicant lodges DA and EIS with DPHI (online)	• All stakeholders	• Briefings (formal and informal) for key Government Authorities, research and tertiary institutions and surrounding landholders • Community information session • Website update • Letterbox drop (Community newsletter, factsheet)
Phase 3: DA Submission				
Submit EIS and Public Exhibition of DA	Key objectives: • Prepare for DA submission, ensure community concerns are reflected in the final proposal • Publicly exhibit DA to obtain feedback from general public • Minimise objections during exhibition	• DPHI to publicly exhibit DA • DPHI to notify and advertise public exhibition (copies made available at Councils and Service NSW centres) • DPHI to hold information / briefing sessions with community (as required)	• All stakeholders	• Public Exhibition minimum 28 days - *DPHI to lead*
Phase 4: Submissions Report				

Project phase	Engagement phase	Statutory requirements	Stakeholder groups	Engagement methods
Respond to submissions Prepare and lodge Submissions Report	Key objectives: • Respond to and address feedback raised during exhibition process for inclusion in Submissions Report • Ensure clear summary and metrics are available on engagement activities	• DPHI to publish submissions online • Applicant to prepare Submissions Report – opportunity to address issues raised • Applicant to undertake further assessment, community engagement and refine design, if required • Submissions Report to summarise issues raised, actions to address issues, re-evaluation of project (if required)	• Government Authorities (DPHI, Council/s, other Government Agencies) • Other stakeholders as required	• Engagement as required to address outstanding community concerns and feedback (clarify, resolve and rectify issues raised)
Phase 5: DA Assessment				
Project determination of DA		• *Further community engagement may be undertaken if required*		
Phase 6: Determine DA				
		• *Independent Planning Commission becomes Consent Authority when Council objects or 50+ public objections*		

We propose that Emu Park Energy reviews these preliminary recommendations and provides input to ensure alignment with organisational priorities, available resources and project goals.

5 COMMUNICATIONS TOOLS AND PROTOCOLS

The following tools and protocols have been identified through the stakeholder analysis and current best practice. These tools will be reviewed regularly to ensure they are meeting the engagement objectives and targeted measures.

5.1 Communications tools

Table 14 Communication tools

Method	Purpose and frequency	Scoping phase
1800 number and project email	24 hour feedback lines to allow for communication with the project team.	☑
Briefings	Regular information exchanges on the project status and its potential impacts. Opportunities for feedback, information seeking and collaboration. Briefings should take place regularly.	☑
Calls, letters, emails	Targeted communications with landowners and stakeholders to provide direct impact information and sharing updates. As required.	☑
Doorknocks	In-person visits to targeted properties that have been identified near projects to provide personal information to residents.	☑
Employee communications channels	Internal communications to engage and update employees within the company about the project using channels such as Yammer, eNews etc. Regular updates.	☑
Media release	Pre-prepared information and holding statements on key issues / opportunities to promote project progress and support timely issues management. Managed by Media team.	☑
On-property meetings	Face to face meetings with impacted property owners or	☑

	tenants to inform and understand impacts. As required.	
Project factsheets	Regular summery of project progress and milestones. Plain English summary of technical information. Raise awareness of opportunities for further information or providing feedback.	☑
Property maps	Targeted mapping to identify and support conversations about property features and/or upcoming works.	☑
Surveys and feedback forms	Provide opportunity for stakeholders to offer their input on key questions, to collect qualitative and quantitative feedback about the project and engagement approach.	☑
Website	Project website page providing general information about the project and identify feedback mechanisms.	☑

5.2 Resource Allocation

- **Personnel**: A dedicated community engagement team, including a project manager, communication specialists, and support staff.
- **Budget**: Allocation for communication materials, events, public exhibitions, and digital platforms.
- **Technology**: Use of online engagement tools, including project websites and survey software. Privacy considerations should be documented.
- **Support Systems**: Partnerships with local organisations, use of existing community networks, and collaboration with local government bodies.

5.3 Enquiries and complaints management

Emu Park Energy is committed to effectively managing community enquiries and complaints by implementing a structured response process. Upon receiving an email, Emu Park Energy will acknowledge the enquiry/complaint within 48 hours and forward it to RPS, who monitors a dedicated 1800 line for community inquiries. RPS will investigate the issue and provide a detailed response within 5 business days, which will be reviewed and approved by the Stakeholder Engagement Manager before being communicated back to the community member. Each enquiry/complaint will be logged in Consultation Manager, documenting the date received, description of the issue, actions taken, response date, and status, allowing us to monitor trends and improve our engagement processes. This approach ensures transparency, accountability, and continuous improvement in our communication with the community.

Emu Park Energy will act as primary point of contact for all stakeholder enquiries and complaints, ensuring timely, accurate, and respectful communication.

Protocols for managing enquiries and complaints include the following:

1. Dedicated contact channels: Stakeholders can submit enquiries complaints via a dedicated 1800 number and project email address, which are monitored regularly to ensure prompt responses.
2. Acknowledgement: All enquiries and complaints will be acknowledged within 1 business day to reassure stakeholders that their concerns are being addressed.
3. Response coordination: Emu Park Energy will assess the enquiry or complaint and coordinate internally or with relevant project team members to develop a response.
4. Documentation and tracking: All enquiries and complaints will be recorded in a stakeholder database, including details of the issue, actions taken, and resolution status to enable thorough tracking and reporting.
5. Resolution and feedback: Efforts will be made to resolve all complaints promptly and transparently. Stakeholders will be informed of the outcome and given an opportunity to provide feedback on the process.
6. Escalation process: Complex or sensitive complaints may be escalated to senior project staff or external mediators for resolution, with stakeholders kept informed of the progress.

5.4 Protocols and procedures

RPS will operate in accordance with Emu Park Energy's processes by drafting all external communications, which Emu Park Energy will review, approve, and publish on their website in alignment with their privacy policy. Internal communications will be managed by Emu Park Energy according to their protocols. All handling of personal or sensitive information during engagement and communication activities must comply with Emu Park Energy's privacy policy, with RPS ensuring data is securely managed and any privacy concerns promptly reported.

Access to land and property will be coordinated through Emu Park Energy's guidelines, with RPS submitting access requests for approval, and Emu Park Energy responsible for liaising with landowners to obtain consents and set access conditions.

5.5 Summarised responsibility for communication protocols

RPS is responsible for drafting external communications and coordinating land and property access requests, while Emu Park Energy reviews and approves all communications, manages internal communications, implements communication protocols in line with their guidelines, oversees privacy compliance, and handles landowner liaison and access approvals.

Table 15 Protocol management roles and responsibilities

Activity	Role 1	Role 2
Enquiries and complaints management	• Metlen Community Engagement Team	• Marina Draper, Toby Dawson and Issy Langton Kendall
Internal communications	• Metlen Community Engagement Team	• N/A
Media management	• Metlen Community Engagement Team	• N/A
Government liaison	• Metlen Community Engagement Team with assistance from RPS Planning	• Marina Draper, Toby Dawson and Issy Langton Kendall
Privacy policy management	• Metlen Community Engagement Team	• N/A
Land and property access	• Metlen Community Engagement Team (RPS has a site access protocol)	• N/A
Drafting communications collateral	• Issy Langton Kendall RPS	Review Emu Park Energy

Attending stakeholder meetings (x5)	• Marina Draper, Toby Dawson and Issy Langton Kendall	Supported by Emu Park
Community events	• Marina Draper, Toby Dawson and Issy Langton Kendall	Supported by Emu Park
Near neighbour meetings (x10)	• Marina Draper, Toby Dawson and Issy Langton Kendall	Supported by Emu Park
Community letter box drop	• Marina Draper, Toby Dawson and Issy Langton Kendall	Supported by Emu Park
1800 number and project email	• Marina Draper, Toby Dawson and Issy Langton Kendall	Supported by Emu Park
Engagement outcomes summary report	• Marina Draper, Toby Dawson and Issy Langton Kendall	Supported by Emu Park

6 RISK ANALYSIS AND MITIGATION

6.1 Risk management approach

Table 16 presents a preliminary risk analysis and associated mitigation strategies based on our review of similar projects, industry experience, and initial assessments. These insights are intended to provide a foundation for discussion and refinement with Emu Park Energy. The risk likelihood and severity post-mitigation should be validated and adjusted in collaboration with Emu Park Energy to reflect project-specific circumstances, stakeholder insights and organisational priorities.

Table 16 Community and stakeholder engagement risks and mitigations

Risk	Detail	Likelihood	Severity post mitigation	Mitigation measure
Community opposition	Concerns about Project impacts leading to community opposition and the potential for: Negative public perception Complaints that may impact approvals Project delays Project halt	Likely	Moderate	Ensure early engagement with identified local stakeholders and sensitive receivers (groups/clubs/communities) through: Continuous and clear engagement Preparation of documentation Collateral Website information Community information sessions
Misinformation	Spread of inaccurate information leading to misunderstandings and resistance.	Possible	Minor	Proactively counter misinformation with factual, easily accessible content. Use multiple channels to reach diverse audiences.
Low engagement levels	Difficulty in engaging certain community groups, leading to gaps in feedback.	Unlikely	Minor	Offer a variety of engagement methods to cater to different preferences and remove barriers to participation.
Reputational damage	Negative public perception due to perceived lack of transparency or responsiveness.	Possible	Minor	Build trust by being responsive and transparent and ensure that all feedback is acknowledged and addressed.
Regulatory Non-Compliance	Failure to meet statutory engagement requirements.	Unlikely	Minor	Stay informed about all relevant legislation, work closely with planning team to ensure full compliance.
Engagement fatigue	Community disinterest or resentment due to cumulative impacts from other energy and/or infrastructure projects	Possible	Minor	Take a coordinated approach with other projects for engagement timing and frequency and deliver clear communications about scope and purpose of all engagement activities.
Changes in timing, plans, and impacts	Frustration due to changing Project details or unclear communication of Project details	Medium	Moderate	Regular updates and transparent communication with stakeholders.

Risk	Detail	Likelihood	Severity post mitigation	Mitigation measure
Miscommunication or unclear communications	Potential for stakeholders and community to misunderstand upcoming activity leading to frustration and loss of trust	Medium	Moderate	Regular updates, transparent communication with stakeholders and clear communication channels
Data breaches	Unauthorised access to sensitive information leading to loss of stakeholder trust	Low	High	Ensure team members with access to data are thoroughly trained and aware of safe data management and cybersecurity.
Disruption to local traffic	Increased traffic during construction and traffic for local residents leading to community opposition and frustration	Medium	Moderate	Traffic management plan, community notifications and early engagement.

7 REPORTING AND MEASUREMENT

The CSEP will be reviewed every six months and before each new phase of communications and engagement, with updates made as necessary. Engagement outcomes will be shared with the community and stakeholders to show how their input has been taken into account. Any feedback or issues identified during monitoring will result in adjustments to processes and communication methods as needed. Key performance indicators will include the responsiveness and effectiveness of stakeholder communications and the flow of information.

7.1 Evaluation Metrics

The effectiveness of the engagement strategy will be measured using the following metrics:

- **Participation rates**: Number of attendees at events, responses to surveys, and engagement on digital platforms.
- **Feedback quality**: Depth and relevance of feedback received, measured through qualitative analysis.
- **Community satisfaction**: Post-engagement surveys to assess community satisfaction with the engagement process.
- **Compliance**: Adherence to statutory requirements and successful integration of feedback into project planning.

Table 17 Evaluation metrics

Engagement objective	Evaluation approach
Ensure engagement is purposeful with clear objectives that promote meaningful participation from a diverse range of voices, including underrepresented groups, so that all stakeholders can effectively contribute to and influence the Project.	• Evidence that stakeholder feedback influences project decisions and timely communication is provided on how input has been used.
Establish transparency and trust, providing access to clear information in a timely manner.	• Regular cadence to Project updates, aligned to Project milestones and timeline. • Consistency in spokespeople and project team interaction with community and stakeholders.
Build strong, respectful and collaborative local relationships by ensuring stakeholders are meaningfully involved in the decision-making process.	• Engagement uses multiple communications tools to enable diverse stakeholder groups to contribute, including providing options which are accessible and inclusive (ie written correspondence, in-person meetings and community sessions).
Comply with all statutory and regulatory requirements for community engagement	• Compliance with procedures and protocols • Reactive responses turned around within 48 hours; issues fully resolved within 2 weeks; issues not reopened
Adopt a flexible engagement approach that is continuously adapted to effectively meet the evolving needs and preferences of the community throughout the Project lifecycle.	• Engagement plans and activities are reviewed and updated at key project milestones or in response to stakeholder feedback.

7.2 Continuous Improvement

Feedback from stakeholders will be regularly reviewed to refine the engagement strategy. This will occur at least at SR and EIS phases. Regular internal reviews will ensure the strategy remains aligned with Project goals and community expectations.

8 ENGAGEMENT ACTION PLAN – SCOPING REPORT PHASE

A phased approach will be taken to engagement for this Project, with additional detail provided for current and upcoming phases.

A high-level view of the actions and collateral that will support engagement at each phase of the Project to the submissions report stage is outlined below:

Table 18 High- level proposed engagement activities

Phase	Project Phase	Objectives	Collateral	Activities
Early consultations – scoping report				
Phase 1: Scoping Report	• Preparation of Scoping Report • Report and Request SEARS	• Build relationships with key stakeholders and community • Establish a reputation for transparent communication and build trust with the community • Deliver early engagement with key stakeholders and community to raise awareness, gather initial feedback, identify key concerns • Provide an early avenue for feedback to be considered by project team	• Letters to neighbours and key stakeholders (council etc.) • Newsletter / fact sheet • Web page • Online feedback survey (general) • 1800 number and project email address • Advertising • Scoping report	• Letterbox drop (newsletter) • Community information session (advertised via newsletter) • Meetings with neighbours (Emu Park Energy to lead) • Stakeholder briefings (key stakeholders and identified community groups)

8.1 Implementation plan

Table 19 below outlines a more specific community and stakeholder engagement action plan to support the Scoping Phase of the Project covering activities across August to October 2025.

Table 19 Community and stakeholder engagement action plan for Scoping Phase

Timing (Week commencing)	Activity	Engagement methods and tools	Purpose	Target Audience	Responsibility
18 August 2025	• Set up feedback channels such as 1800 number and dedicated email address (if required)	• Project phone line and email	• Inform about project • Understand concerns, risks and issues, and potential mitigations	• All stakeholders	• Emu Park Energy
25 August 2025	• Draft content for public facing collateral (newsletter, FAQ and information board)	• FAQs • Newsletter • Information boards	• Inform about project •	• Near neighbours • Community stakeholders within 4km	• Led by RPS (Issy Langton Kendall and Marina Draper) supported by Emu Park Energy
8 September 2025	• Key stakeholder meetings x 5	• Face-to-face meeting • Briefing pack	• Inform about project • Understand concerns, risks and issues, and potential mitigations	• Richmond Valley LGA • LALC • MPs • NSW Farmers • Chambers of Commerce	• Led by RPS (Issy Langton Kendall and Marina Draper) supported by Emu Park Energy

Timing (Week commencing)	Activity	Engagement methods and tools	Purpose	Target Audience	Responsibility
8 September 2025	• Distribution of near neighbour letters and invitations to meet in person in the w/c 13 October	• Face-to-face / online meeting • Briefing pack	• Inform about project • Understand concerns, risks and issues, and potential mitigations	• Landowners, neighbouring businesses	• Led by RPS (Issy Langton Kendall and Marina Draper) supported by Emu Park Energy (Catherine and Lluvia)
15 September 2025	• Distribution of newsletters to stakeholders within a 4km radius of the site	• Prepare updated community newsletter for issue via letterbox drop	• Letterbox drop	• Stakeholders within 4km of the site	• Led by RPS (Issy Langton Kendall and Marina Draper) supported by Emu Park Energy
6 October 2025	• DPHI briefing	• Face-to-face meeting • Briefing pack •	• Inform about project • Understand concerns, risks and issues, and potential mitigations	• DPHI	• Led by RPS (Jessica Clark and Dianne Munro) supported by Emu Park Energy
13 October 2025	• Near neighbour meetings	• Face-to-face / online meeting • Briefing pack	• Inform about project • Understand concerns, risks and issues, and potential mitigations	• Landowners, neighbouring businesses	• Led by RPS (Issy Langton Kendall and Marina Draper) supported by Emu Park Energy (Catherine Wong and Lluvia Murillo)
13 October 2025	• Community information session x 2 (same day am/pm)	• FAQs • Factsheets • Information boards • Feedback forms	• Inform about project, potential impacts and SSDA pathway	• All stakeholders	• Led by RPS (Issy Langton Kendall and Marina Draper) supported by Emu Park Energy

Timing (Week commencing)	Activity	Engagement methods and tools	Purpose	Target Audience	Responsibility
			• Understand community values and priorities, concerns, risks and issues, and potential mitigations, and capture feedback		(Catherine Wong and Lluvia Murillo)
13 October 2025	• Collate stakeholder feedback	• Stakeholder data • Consultation Manger	• Outline how feedback has been considered and next steps	• DPHI	• Led by RPS (Issy Langton Kendall and Marina Draper) supported by Emu Park Energy
20 October 2025	• Draft engagement outcomes report	• Stakeholder data • Consultation Manger	• Outline how feedback has been considered and next steps	• DPHI	• Led by RPS (Issy Langton Kendall and Marina Draper) supported by Emu Park Energy

A.1 Stakeholder Matrix

The following detailed matrix mapping stakeholder categories, interests, concerns, and preferred engagement methods is included for reference. This matrix will guide all engagement activities to ensure they are targeted and effective.

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method
Adjacent property / landowners					
Local Residents and Property Owners (Adjacent and near neighbours)	• Residents within 4km of site location	Emu Energy to share contact list	• Inform about project scope, potential impacts and next steps • Understand concerns and issues and mitigate where possible	• Construction impacts • Noise • Visual • Traffic • Accommodation	• Newsletter • Meeting
Local Residents and Property Owners (Business owners)	• Local businesses (within 4 km radius): • North Coast Autoclaves Services Pty Ltd • Berong Poultry Farms	Emu Energy to share contact list	• Inform about project scope, potential impacts and next steps • Understand concerns and issues and mitigate where possible	• Construction impacts • Noise • Traffic impacts • Accommodation	• Newsletter • Meeting
• **Elected officials**					
Elected Officials (Local Government)	• Richmond Valley LGA – Mayor Robert Mustow, General Manager Vaughan Macdonald and Ben Zeller Director of	Mayor Robert Mustow General Manager, Vaughan Macdonald	• Proactively manage Emu Energy's relationship and reputation in the region • Proactively manage risk of opposition to project • Inform about project scope, potential impacts and next steps • Understand concerns and issues and mitigate where possible	• Impacts to environment, assets and communities • Coordination with council works and other projects • Accommodation, traffic, VPA, NBP • Community engagement process and outcomes	• Letter • Meeting

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method
	Infrastructure Services and Projects				
Neighbouring Local Government Area	• Lismore City Council – LGA	Mr Eber Butron, General Manager	• Proactively manage Emu Energy's relationship and reputation in the region • Proactively manage risk of opposition to project • Inform about project scope, potential impacts and next steps • Understand concerns and issues and mitigate where possible	• Impacts to environment, assets and communities • Coordination with council works and other projects • Accommodation, traffic, VPA, NBP • Community engagement process and outcomes	• Letter • Meeting
Elected Officials (State MPs)	• Richard James Williamson (The Nationals) – State MP for Clarence	MP Richard James Williamson	• Proactively manage Emu Energy's relationship and reputation in the region • Inform about project scope, potential impacts and next steps, particularly community and stakeholder engagement • Understand concerns and issues and mitigate where possible	• Community concern • Alignment with State energy commitments	• Letter
Elected Officials (Federal MPs)	• Kevin Hogan (The Nationals) – Federal MP for the Division of Page	MP Kevin Hogan	• Proactively manage Emu Energy's relationship and reputation in the region • Seek endorsement of support for project	• Community concern • Alignment with State energy commitments	• Letter
• **First Nations stakeholders**					
Local Aboriginal Communities and Agencies	• Registered Aboriginal		• Actively show respect and acknowledge their role as	• Cultural heritage impacts	• As per guidelines

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method
	Parties (RAPs)		custodians of the land we work on • Proactively identify any potential impacts • Understand concerns and issues and mitigate where possible	• Aboriginal participation and community benefit opportunities	
Local Aboriginal Communities and Agencies	• Casinoo Boolangle LALC	Regional Councillor: Cr Diane Randall	• Actively show respect and acknowledge their role as custodians of the land we work on • Proactively identify any potential impacts • Understand concerns and issues and mitigate where possible	• Cultural heritage impacts • Aboriginal participation and community benefit opportunities	• Letter • Meeting
Local Aboriginal Communities and Agencies	• Bandjalang Aboriginal Corporation		• Actively show respect and acknowledge their role as custodians of the land we work on • Proactively identify any potential impacts • Understand concerns and issues and mitigate where possible	• Cultural heritage impacts • Aboriginal participation and community benefit opportunities	• Letter
Local Aboriginal Communities and Agencies	• Bogal Local Aboriginal Land Council		• Actively show respect and acknowledge their role as custodians of the land we work on • Proactively identify any potential impacts • Understand concerns and issues and mitigate where possible	• Cultural heritage impacts • Aboriginal participation and community benefit opportunities	• Letter
Local Aboriginal Communities and Agencies	• Boolangle Aboriginal Landcare Group		• Actively show respect and acknowledge their role as custodians of the land we work on	• Cultural heritage impacts	• Letter

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method
			• Proactively identify any potential impacts • Understand concerns and issues and mitigate where possible	• Aboriginal participation and community benefit opportunities	
• **Environmental Groups and Industry and Business**					
Environmental Groups and Community Organisations	• Rappville and Surrounds Landcare Group		• Inform about project scope, potential impacts and next steps • Understand concerns and issues and mitigate where possible	• Construction impacts • Noise • Power outages • Traffic impacts	• Reactive
Industry and Business	• Casino Chamber of Commerce		• Inform about project scope, potential impacts and next steps • Understand concerns and issues and mitigate where possible • Understand local economic concerns, communicate how the project might benefit the local economy through job creation	• Partnership opportunities • Job creation • Businesses activity	• Letter
• **Surrounding community (beyond 5km radius)**					
Childcare (to be refined upon completion of environmental assessments)	•		• To proactively identify any potential impacts • To identify and manage any community concern early on in the process	• Potential impacts of construction or operation on properties, customers or visitors • Opportunity to participate in community benefits • Education on renewable energy transition	• Reactive
• **Regulatory and Planning Agencies**					

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method
Regulatory and Planning Agencies	• DPHI		• Understand expectation for approvals • Proactively engage to ensure timely approval process	• Compliance with SEARs	• Letter • Meeting
• **State government agencies**					
State and Federal Government Agencies	• Crown Lands		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	Division of Resources and Energy (DRE)		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• Biodiversity Conservation Division (BCD)		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• DPIE Water		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• DPI Agriculture		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• Heritage NSW		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• NSW Farmers		• Inform about project scope, potential impacts and next steps	• Loss of agricultural land	• Letter
State and Federal Government Agencies	• Environment Protection Authority (EPA)		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• NSW Forestry Commission		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements • Loss of agriculture	• Letter

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method
State and Federal Government Agencies	• Emergency Services • Ambulance • NSW Fire Brigade • SES • NSW Police Force • Local Emergency Management Committees		• Inform about project scope, potential impacts and next steps	• Fire risk • Potential traffic impacts • Emergency management procedures	• Letter
State and Federal Government Agencies	• Biodiversity Conservation - Trust (BCS)		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements • Loss of agriculture	• Letter
State and Federal Government Agencies	• NSW Department of Primary Industries		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• Department of Climate Change, Energy, the Environment and Water of New South Wales (DCCEEW)		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• Department of Agriculture, Water and the Environment (DAWE)		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
State and Federal Government Agencies	• Local Land Service (LLS)		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter

COMMUNITY AND STAKEHOLDER ENGAGEMENT PLAN

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method
State and Federal Government Agencies	• Energy Corporation of NSW		• Inform about project scope, potential impacts and next steps	• Adherence to statutory requirements	• Letter
Local media	•				
Local media	• The Northern Rivers Times		• Inform about project scope and community events • Manage relationship	• Interest in community views	• Reactive
• **Community Interest groups**					
Interest groups	• Leeville Landcare Network		• Inform about project scope, potential impacts and next steps	• Potential impacts of construction or operation • Opportunity to leverage the energy transition to create community benefits	• Letter
Interest groups	• Casino Lions Club		• Inform about project scope, potential impacts and next steps	• Potential impacts of construction or operation • Opportunity to leverage the energy transition to create community benefits	• Letter
Interest groups	• Momentum Collective, Casino		• Inform about project scope, potential impacts and next steps	• Potential impacts of construction or operation • Opportunity to leverage the energy transition to create community benefits	• Letter
Interest groups	• Casino Community Men's Shed		• Inform about project scope, potential impacts and next steps	• Potential impacts of construction or operation • Opportunity to leverage the energy transition to create community benefits	• Letter

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method
Interest groups	• Rotary Club of Casino		• Inform about project scope, potential impacts and next steps	• Potential impacts of construction or operation • Opportunity to leverage the energy transition to create community benefits	• Letter
• **Utilities, Emergency Services, Transport**					
Utilities, Emergency Services, Transport	• Energy Corporation of NSW		• Inform about project scope, potential impacts and next steps • Build working relationship	• Building working relationship	• Letter
Utilities, Emergency Services, Transport	• Transgrid / Lumea		• Inform about project scope, potential impacts and next steps • Build working relationship	• Building working relationship	• Letter
Utilities, Emergency Services, Transport	• Transport for NSW (TfNSW)		• Inform about project scope, potential impacts and next steps • Build working relationship	• Building working relationship	• Letter
Utilities, Emergency Services, Transport	• Rural Fire Service (RFS)		• Inform about project scope, potential impacts and next steps • Collaborate to address risk mitigation and safeguards in local context	• Building working relationship	• Letter
Transport User Groups	•				
Transport User Groups	• Northern Rivers Bus Lines Group		• Inform about project scope, potential impacts and next steps • Understand concerns and issues and mitigate where possible	• Construction impacts • Traffic impacts	• • Reactive

COMMUNITY AND STAKEHOLDER ENGAGEMENT PLAN

Category	Stakeholder	Primary contact	Engagement aim	Interests/concerns	Preferred engagement method

A.2 Key messages

8.2 Who is Emu Park Energy

- Emu Park Energy is a full-service, utility scale solar and storage developer, with a portfolio of projects across Australia and Europe.
- Emu Park Energy is strategically positioned at the forefront of the energy transition, while already established as a reference point for competitive green metallurgy at the European and global level.
- Emu Park Energy combines deep expertise, cutting-edge technology, and sustainability leadership to drive innovation and growth in both energy and metals sectors, positioning itself as a key player in Europe and beyond.
- With an energy portfolio of more than 2 GW - which exceeds 13.5% of Greece's active and licensed installed thermal output.
- Sustainable development is the core principle guiding Emu Park Energy long-term competitiveness, enabling the company to address modern challenges and foster socially inclusive growth through strategic partnerships, in alignment with the United Nations Sustainable Development Goals.

8.3 Project description

- Emu Park Energy will construct, operate and decommission of the Emu Park Energy Hub, to be located within the Richmond Valley LGA.
- The main components include approximately 560,000 photovoltaic (PV) panels supported by infrastructure.
- The BESS utilises lithium-ion phosphate (LFP) battery containers with an approximate capacity of 200 MW / 800 MWh.
- The project footprint involves a maximum disturbance area of up to 520 hectares
- The Project represents a significant renewable energy development combining solar generation and energy storage, designed with comprehensive electrical infrastructure and operational facilities to support efficient and reliable energy delivery.

8.4 Project benefits

- The Project will help support the transition of the Australian electricity market for a more sustainable future.
- It will enhance national energy supply resilience, promote affordable clean energy for Australians, and improving energy storage capabilities in the region.

8.5 Impacts

- Detailed noise studies are undertaken by specialist consultants during the development process to ensure that any noise generated meets relevant environmental noise guidelines and that effective mitigation strategies are identified.
- Once operating, all facilities will continue to meet strict noise requirements which are set out in the planning process and other relevant noise protocols and/or guidelines.
- Solar panels are coated with an anti-glare layer which helps to reduce the level of glare from their surface. They are also designed to absorb as much light as possible, this being fundamental to the way they work.
- Glare and glint will be assessed and will determine any measures that will need to be undertaken to minimise glare to relevant roadways and houses.

8.6 What is a BESS?

- A Battery Energy Storage System (BESS) is a large-scale battery. It stores electricity generated from renewable sources such as solar and wind.
- Battery storage helps ensure stable and reliable power supply. It does this by balancing supply and demand. It can store excess energy during periods of high generation. It can then release the energy when it is needed.
- Renewable energy sources can only create energy when the conditions are right. Battery storage supports the National Electricity Market in maintaining a consistent energy flow.
- Battery storage supports the continued growth of renewable energy within Australia's energy system. It allows for greater integration of renewable sources by storing energy when production is high and using it during peak demand times.
- Battery storage is a vital part of supporting a cleaner and more sustainable energy future.

8.7 What is a solar farm?

- Solar farm developments provide clean renewable energy to the grid by harnessing the power of the sun. Solar energy is one of the most sustainable and environmentally friendly ways to produce electricity, contributing to our effort to combat climate change.
- Solar cells, also called photovoltaic cells, are devices that turn sunlight directly into electricity. When sunlight hits the solar cell, it excites tiny particles called electrons inside the material. This movement of electrons creates an electric current, which can be used to power homes, businesses, and other devices. The process is clean and renewable, meaning it doesn’t produce pollution and uses an endless energy source - the sun.

Appendix F
Cumulative Impact Scoping Assessment

Cumulative impact scoping summary

Level of assessment	Description
Detailed assessment	The project may result in significant impacts on the matter, including cumulative impacts. Detailed assessment is characterised by: • potential overlap in impacts between a future project and the proposed project • potential for significant cumulative impacts as a result of the overlap, requiring detailed technical studies to assess the impacts • sufficient data is available on the future project to allow a detailed assessment of cumulative impacts with the proposed project for the relevant matter • uncertainties exist with respect to data, mitigation, assessment methods and criteria.
Standard assessment	The project is unlikely to result in significant impacts on the matter, including cumulative impacts. Standard assessments are characterised by: • impacts are well understood • impacts are relatively easy to predict using standard methods • impacts are capable of being mitigated to comply with relevant standards or performance measures • the assessment is unlikely to involve any significant uncertainties or require any detailed cumulative impact assessment.
N/A	No potential overlap in impacts between a future project and the proposed project that would warrant any consideration in the cumulative impact assessment.

Future Projects	Approximate Distance to the Project Area	Project Status[1]	Potential Overlap Between Impacts of Project and Impact of Other Projects				
			Biodiversity	Landscape and Visual	Noise	Transport and Access	Social and Economic
Richmond Valley Solar Farm (SSD-41020244)	10 kilometres southwest	Approved – under development					
	Key features: • 500 MW solar farm and associated infrastructure		Cumulative impacts on biodiversity, in particular clearance of native vegetation, listed threatened species, and SAII are possible. Standard cumulative impact assessment required.	Low risk of cumulative visual impacts due to distance and topography change between proposed developments. No further assessment proposed.	Due to the distance between developments, cumulative impacts are not anticipated. No further assessment proposed.	Potential cumulative impacts due to possible overlap in construction timelines and project traffic, including OSOM vehicles from Port of Brisbane and the traffic route including Summerland Way. Detailed cumulative impact assessment required.	Cumulative social impacts anticipated in the surrounding community and region on the sentiment of renewable energy projects. Standard cumulative assessment required.
Summerville Solar Farm (SSD-46982232)	12 kilometres southwest	Approved – under development					
	Key features: • 90 MW solar farm and associated infrastructure, including battery storage and grid connection		Cumulative impacts on biodiversity, in particular clearance of native vegetation, listed threatened species, and SAII are possible. Standard cumulative impact assessment required.	Low risk of cumulative visual impacts due to distance and topography change between proposed developments. No further assessment proposed.	Due to the distance between developments, cumulative impacts are not anticipated. No further assessment proposed.	Potential cumulative impacts due to possible overlap in construction timelines and project traffic, including OSOM vehicles from Port of Brisbane and the traffic route including Summerland Way. Detailed cumulative impact assessment required.	Cumulative social impacts anticipated in the surrounding community and region on the sentiment of renewable energy projects. Standard cumulative assessment required.

Future Projects	Approximate Distance to the Project Area	Project Status[1]	Potential Overlap Between Impacts of Project and Impact of Other Projects				
Coraki Quarry (SSD-7036)	13 kilometres northeast	Approved – operational					
	Key features: • Hard rock quarry with an approved extraction limit of up to 1,000,000 tonnes per annum		Due to the operational status of the project, cumulative impacts are not anticipated. No further assessment proposed.	Low risk of cumulative visual impacts due to distance and topography change between proposed developments. No further assessment proposed.	Due to the distance between developments, cumulative impacts are not anticipated. No further assessment proposed.	Due to the operational status of the project, cumulative impacts are not anticipated. No further assessment proposed.	Low cumulative risk as the quarry has had a long operating period. Community sentiment towards either project would not be affected.
Champions Quarry (MP09_0080)	22 kilometres northeast	Approved – operational					
	Key features: • Sandstone quarry with an approved extraction limit of up to 250,000 tonnes per annum		Due to the operational status of the project, cumulative impacts are not anticipated. No further assessment proposed.	Low risk of cumulative visual impacts due to distance and topography change between proposed developments. No further assessment proposed.	Due to the distance between developments, cumulative impacts are not anticipated. No further assessment proposed.	Due to the operational status of the project, cumulative impacts are not anticipated. No further assessment proposed.	Low cumulative risk as the quarry has had a long operating period. Community sentiment towards either project would not be affected.
Lismore Hospital (SSD-8963)	25 kilometres northeast	Approved – operational					
	Key features: • Five level hospital including a mental health facility, integrated cancer centre		Due to the operational status of the project, cumulative impacts are not anticipated. No further assessment proposed.	Low risk of cumulative visual impacts due to distance and topography change between proposed developments. No further assessment proposed.	Due to the operational status of the project, cumulative impacts are not anticipated. No further assessment proposed.	Due to the operational status of the project, cumulative impacts are not anticipated. No further assessment proposed.	Low cumulative risk as the hospital has had a long operating period. Community sentiment towards either project would not be affected.