Karangi Battery Energy Storage System

Scoping Report

Avenis Energy Pty Ltd

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Abbreviations

Abbreviations	Description
ABS	Australian Bureau of Statistics
AC	Alternating Current
ACHA	Aboriginal Cultural Heritage Assessment
AEMO	Australian Market Energy Operator
AHIMS	Aboriginal Heritage Information Management System
ARTC	Australian Rail and Track Corporation
Avenis Energy	Avenis Energy Pty Ltd
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
Biodiversity and Conservation SEPP	*State Environmental Planning Policy (Biodiversity and Conservation) 2021*
Biosecurity Act	*Biosecurity Act 2015*
Biosis	Biosis Pty Ltd
BOS	Biodiversity Offset Scheme
BVM	Biodiversity Values Map
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
CHL	Commonwealth Heritage List
CIV	Capital Investment Value
CPHR	Conservation Programs, Heritage and Regulation
CTMP	Construction Traffic Management Plan
dB	Decibel
DC	Direct Current
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DPHI	Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries
DSI	Detailed Site Investigation
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
ELA	Eco Logical Australia Pty Ltd
EMF	Electromagnetic Field
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FCAS	Frequency Controlled Ancillary Services
FIRA	Flood Impact and Risk Assessment
FM Act	*Fisheries Management Act 1994*
GDE	Groundwater Dependent Ecosystem
ha	hectares
Heritage Act	*Heritage Act 1977*

Abbreviations	Description
IBRA	Interim Biographic Regionalisation for Australia
ICNG	*Interim Construction Noise Guideline*
ISP	Integrated System Plan
KFH	Key Fish Habitat
km	kilometres
LALC	Local Aboriginal Land Council
LCA	Land Category Assessment
LCVIA	Landscape Character and Visual Impact Assessment
LEP	Local Environmental Plan
LFP	Lithium Iron Phosphate
LGA	Local Government Area
LLS Act	Local Land Services Act 2013
LSC	Land and Soil Capability
LSPS	Local Strategic Planning Statement
LUCRA	Land Use Conflict Risk Assessment
Mining Act	*Mining Act 1992*
MNES	Matters of National Environmental Significance
MW	Megawatts
MWh	Megawatt hours
NEM	National Electricity Market
NHL	National Heritage List
NPfI	Noise Policy for Industry
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
NVR Map	Native Vegetation Regulatory Map
O&M	Operation and Maintenance
OSOM	Over Size, Over Mass
PCT	Plant Community Type
PHA	Preliminary Hazard Analysis
Planning Systems SEPP	*State Environmental Planning Policy (Planning Systems) 2021*
PMST	Protected Matters Search Tool
PNTL	Project Noise Trigger Levels
PNVIA	Preliminary Noise and Vibration Impact Assessment
POEO Act	*Protection of the Environment Operations Act 1997*
Primary Production SEPP	*State Environmental Planning Policy (Primary Production) 2021*
PRS	Preliminary Risk Screening
PSI	Preliminary Site Investigation
RAP	Registered Aboriginal Party
RBLs	Rating Background Levels
RE Act	*Renewable Energy Act 2000*
REBS	Renewable Energy Biodiversity Support
Resilience and Hazards SEPP	*State Environmental Planning Policy (Resilience and Hazards) 2021*
REZ	Renewable Energy Zones
RF Act	*Rural Fires Act 1997*

Abbreviations	Description
RFS	Rural Fire Service
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SHI	NSW State Heritage Inventory
SHR	State Heritage Register
SSD	State Significant Development
TECs	Threatened Ecological Communities
Transport and Infrastructure SEPP	*State Environmental Planning Policy (Transport & Infrastructure) 2021*
TTIA	Traffic and Transport Impact Assessment
VIC	Victoria
VRE	Variable Renewable Energy
WARR Act	*Waste Avoidance and Resource Recovery Act 2001*
WHL	World Heritage List
WM Act	*Water Management Act 2000*

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1. Introduction

1.1. Overview

Avenis Energy Pty Ltd on behalf of AE BESS 12 Pty Ltd as Trustee for AE BESS 12 Unit Trust ('the Applicant') proposes to construct, operate and decommission the Karangi Battery Energy Storage System (BESS) ('the Project') which will have an indicative capacity of 240 Megawatts (MW) / 960 Megawatt hours (MWh) (4 hours storage duration). The Project would connect to the existing Coffs Harbour Transgrid 330 kilovolts (kV) substation via a new cable route connection. The Project is located within the locality of Karangi approximately 11 kilometres (km) west of Coffs Harbour, within the Coffs Harbour Local Government Area (LGA), New South Wales (NSW) (the 'Project Site'). The Project Site covers an area of approximately 39.40 hectares (ha).

Figure 1-1 shows the Project Site in a regional context featuring the major roads and watercourses, key landscape features and LGA boundary.

Figure 1-2 presents the preliminary Project Layout and includes:

- **Battery and Inverter Containers** – batteries with a capacity of up to 240 MW / 960MWh (4 hours storage duration) and inverters to convert the electricity between Direct Current (DC) to Alternating Current (AC) for grid use
- **Project Substation** - 330/33kV Project Substation including the Project Transformer(s) to step up the voltage prior to being exported to the grid
- **Grid Connection Works** – including a new cable route which will connect the Project Substation to the existing Coffs Harbour Transgrid 330kV Substation. A new 330kV bay within the existing Coffs Harbour Transgrid 330kV Substation will be required. The alignment and design of the new 330kV bay and the cable route connection will be determined in consultation with Transgrid, and through further environmental assessment as part of the Environmental Impact Statement (EIS)
- **Project Site Access** – The Project will likely use the existing private landowners access and the existing Coffs Harbour Transgrid 330kV Substation access points. Internal access roads will be required to access Project infrastructure. The final location and configuration of the access points will be determined through further environmental assessment and consultation.
- **Ancillary Infrastructure** – including (but not limited to) Operation and Maintenance (O&M) buildings and compounds, utilities and communications infrastructure, hardstands, and laydown areas (temporary and permanent).

Eco Logical Australia Pty Ltd (ELA) has prepared this Scoping Report on behalf of the Applicant, in accordance with the *State Significant Development Guidelines – Preparing a Scoping Report* (Appendix A) (DPIE, 2022). The purpose of this Scoping Report is to request and inform the content of the Secretary's Environmental Assessment Requirements (SEARs) in preparation for the EIS for the Project. The Project's regulatory approval pathway will be the State Significant Development (SSD) process under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) based on the Project's value as defined under the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP).

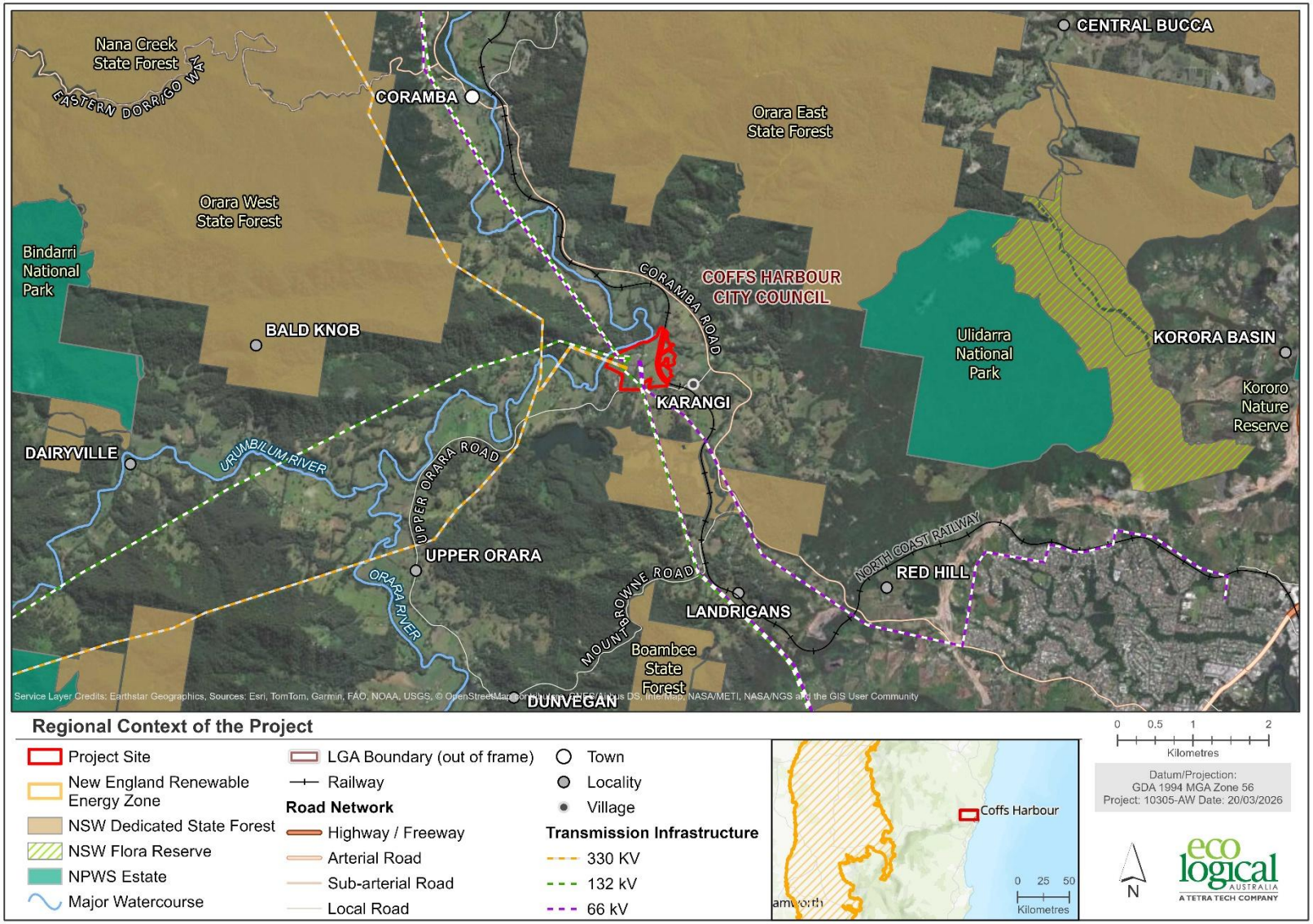

Figure 1-1: Regional Context

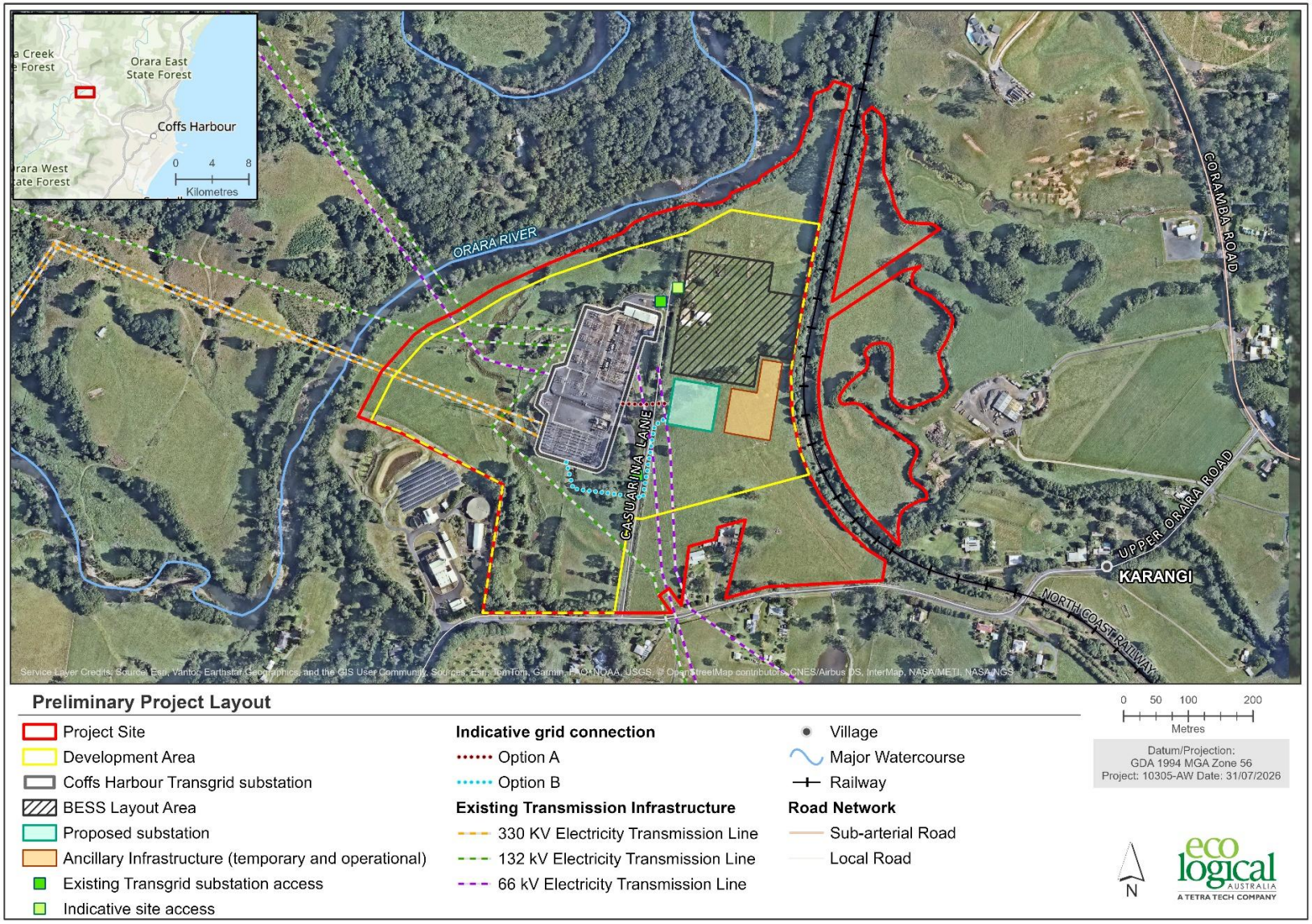

Figure 1-2: Preliminary Project Layout

1.2. Project Objectives

The Project includes the following objectives:

- Deliver a utility-scale BESS that provides stability, reliability, and capacity to the National Electricity Market (NEM)
- Ability to store excess renewable energy generation during low-demand periods and discharge during peak demand to reduce network constraints
- Support the transition to renewable energy generation by providing firming, load-shifting, and essential grid-forming services
- Improve grid resilience through the provision of ancillary services such as frequency control, voltage support and system strength
- Minimise environmental, visual, safety, and community impacts through sensitive design and responsible construction and operational practices
- Deliver local economic and social benefits, including procurement opportunities, and community benefit sharing
- Support NSW and Australia's long-term emissions reduction goals, including progress toward net-zero by 2050 (DCCEEW, 2025).

1.3. Project Background

The Project Site is located within the Coffs Harbour LGA and spans approximately 39.40 ha. The land within the Project Site is zoned RU2 (Rural Landscape), C2 (Environmental Conservation) and W1 Natural Waterways under the *Coffs Harbour Local Environmental Plan 2013* (Coffs Harbour LEP). The Development Area is wholly zoned RU2 and has been designed to avoid any direct impact on C2 or W1 zoned land.

The Project will include a new underground/overhead cable system traversing the Project Site to connect to the existing Coffs Harbour Transgrid 330 kV substation, enabling efficient integration into the broader transmission network.

The Project serves as critical infrastructure that addresses the bottlenecks currently limiting renewable energy expansion in NSW. By providing firming capacity, the Project will smooth the generation profile of regional Variable Renewable Energy (VRE) by absorbing surplus solar and wind energy during periods of high generation and low demand. This time-shifting of energy mitigates wholesale price volatility and reduces the forced curtailment of renewable energy generation.

In doing so, the Project will assist in meeting NSW and Australia's long-term emissions reduction objectives, including progress toward achieving net-zero emissions by 2050.

Furthermore, the Project bridges the gap between the decommissioning of the State's thermal coal fleet. As baseload coal plants retire, the grid loses the physical inertia and inherent system strength that has kept the network stable. The Project can provide synthetic inertia to the network and deliver critical stability support.

1.4. Summary of Project Description

Table 1-1 provides a description of the key Project features and Project Site details. Further details regarding the Project description are provided in Section 3 and an indicative layout is presented in Figure 1-2.

Table 1-1: Project description summary

Feature	Description
Site Address	50 Casuarina Lane, Karangi, NSW 2450
LGA	Coffs Harbour
Project Site Area	~39.40 ha
Development Area	~25 ha: containing all Project infrastructure including the BESS and inverters, Project Substation, Grid Connection Works, Site Access Points and Ancillary Infrastructure (Figure 1-2). All Project infrastructure will be contained within the Development Area
Development Footprint	Located within the Development Area and includes the direct footprint of all Project Infrastructure. The location of the Project infrastructure is indicative and will be determined through further environmental assessment and in consultation with Transgrid.
BESS & Inverters	A BESS with the capacity of 240 MW / 960MWh, equivalent to 4 hours storage duration, measured at the 330kV side of the onsite substation and inverters to convert the electricity between DC and AC for grid use.
Project Substation	A Project Substation for the BESS which will collect the electricity from the battery and inverter units and step it up to the voltage needed for the grid (Figure 1-2). The collector substation also provides the protection, switching and control systems needed to safely and reliably connect the Project to the network.
Grid Connection Works	The Project would connect into the existing Coffs Harbour Transgrid 330 kV Substation adjacent to the BESS (within the Development Area). A new cable connection (overhead or underground) would be required between the Project Substation and the existing Coffs Harbour Transgrid 330 kV Substation, crossing Casuarina Lane. The exact route for the cable connection will be determined following completion of all technical studies and in consultation with Transgrid. Within the existing Coffs Harbour Transgrid 330 kV Substation, the construction of a new 330 kV bay would be required. The exact location will be determined by Transgrid during the EIS process. Note, all Project infrastructure would be within the Development Area.
Project Site Access	Casuarina Lane provides the indicative site access to the BESS Layout Area and the existing Coffs Harbour Transgrid 330 kV Substation (Figure 1-2). The exact location of the Project Site Access point(s) will be determined through the EIS phase and will depend on the final location of the Grid Connection Works. Internal access roads will also be required to allow access to key Project infrastructure. Intersection upgrades may be required, subject to assessment during the EIS phase.
Ancillary Infrastructure (temporary and operational)	O&M buildings and compounds, utilities and communications infrastructure, hardstands, and laydown areas (temporary and permanent), fire water storage, equipment storage areas and construction compound.

1.5. The Applicant

The Applicant for the Project is Avenis Energy Pty Ltd (Avenis Energy) on behalf of AE BESS 12 Pty Ltd as Trustee for AE BESS 12 Unit Trust; key details are provided in Table 1-2. Avenis Energy is dedicated to developing utility-scale battery energy storage projects, and large-scale renewable energy projects that deliver clean, green energy into the transmission network, reducing reliance on fossil fuels and helping minimise the impacts of climate change. Avenis Energy prides itself on collaborating with landowners, near neighbours, key stakeholders and the wider communities where our projects are proposed.

The Avenis Energy team has significant experience in the industry across all elements of the development cycle, from site selection, planning and permitting to engineering, construction and operation. The team has been working together since 2018 and is solely dedicated to the Australian market, with a proven track record of developing high quality community sensitive projects.

Table 1-2: The Applicant details

Applicant Details	
Applicant Name	Avenis Energy Pty Ltd on behalf of AE BESS 12 Pty Ltd as Trustee for AE BESS 12 Unit Trust
Postal Address	Suite 2, Level 10, 52 Alfred St S, Milsons Point, NSW 2061
ABN	17 498 302 420
Report Author	Eco Logical Australia Pty Ltd

1.6. Related Development

There is no additional development related to the Project.

All works associated with construction, operation and decommissioning of the BESS, including transmission augmentation works to the existing Coffs Harbour Transgrid 330 kV Substation, will be assessed under this SSD Application.

1.7. Purpose of the Scoping Report

This Scoping Report has been prepared in accordance with the relevant NSW Government guidelines and frameworks that apply to SSD projects, including:

- *State Significant Development Guidelines – Preparing a Scoping Report* (Department of Planning, Infrastructure and Environment) (DPIE 2022a)
- *Undertaking Engagement Guidelines for State Significant Projects* (Department of Planning, Housing and Infrastructure) (DPHI 2026a)
- *Social Impact Assessment Guideline for State Significant Projects* (DPHI, 2026c)
- *The Renewable Energy Planning Framework* (DPHI 2024a).

Whilst this Project is not a Solar Energy development, elements of the guidelines below are considered relevant:

- *Large-Scale Solar Energy Guideline* (DPHI 2024b)
- *Large-Scale Solar Energy Guideline Technical Supplement for Landscape Character and Visual Impact Assessment* (DPHI 2024c).

1.8. Terminology

This Scoping Report uses the following terminology:

- **Project:** This refers to the proposed development comprising of BESS, Grid Connection works, Ancillary Infrastructure and the augmentation of the existing Coffs Harbour Transgrid 330 kV Substation detailed in Section 3
- **Project Site:** The surrounding land area currently being evaluated to identify an appropriate site for the Project, aligning with the Lot and Deposition Plan (DP) boundaries

- **Development Area:** This includes the indicative area that may be directly affected by the Project throughout its construction, operation, and eventual decommissioning.
- **Development Footprint:** The direct impact area of all Project Infrastructure located within the Development Area
- **Project Rated Capacity / BESS Useable Capacity:** means the Project's usable AC power and energy capacity measured at the 330 kV side of the Project 330/33 kV Substation. The Project Rated Capacity is 240 MW / 960 MWh, equivalent to 4 hours of storage duration.
- **Associated Receiver:** A landholder involved in the Project.
- **Non-associated Receiver:** A landholder that is not involved in the Project.
- **The Applicant:** Avenis Energy Pty Ltd on behalf of AE BESS 12 Pty Ltd as Trustee for AE BESS 12 Unit Trust.

2. Strategic Context

2.1. Overview

This section considers the key strategic issues including the Project justification, the relevant planning context, key site features and characteristics, and potential cumulative impacts.

2.2. Project Justification

The Project is proposed as a bidirectional energy resource in the National Electricity Market (NEM). Its primary function is to store and dispatch electricity to support grid stability, while acting as a critical enabler for the expansion of regional renewable energy infrastructure. The Project will provide highly responsive, flexible capacity, delivering numerous strategic and local benefits, including:

- **Enabling Renewable Energy Infrastructure:** By acting as a dynamic 'shock absorber' for the grid, the Project addresses localised network constraints that currently limit renewable energy output. It will absorb surplus Variable Renewable Energy (VRE) during periods of high generation (such as abundant daytime solar) and dispatch this firm capacity when demand peaks. This time-shifting capability directly mitigates the forced curtailment of surrounding wind and solar assets, unlocking greater renewable penetration within the grid
- **Providing Critical Network Support Services:** Beyond energy trading, the Project is capable of essential system services to the NEM, including Frequency Control Ancillary Services (FCAS) and rapid voltage support. As synchronous thermal generators retire, these fast-acting services are vital for maintaining grid frequency and overall network operability during unexpected physical disturbances
- **Firming Capacity and Reliability:** Delivering 240 MW / 960 MWh of deep storage (powering approximately 375,000 homes for a four-hour period[1])(Australian Energy Regulator, 2023), the Project can supply firm, dispatchable electricity for up to four hours at full capacity. This can cover the evening peak demand period, ensuring reliable power supply for residents, businesses, and critical infrastructure across the region as ageing coal-fired generators progressively exit the market
- **Supporting Decarbonisation:** Reducing greenhouse gas emissions by enabling greater utilisation of renewable energy and contributing to government decarbonisation goals. NSW Government modelling for the NSW Electricity Infrastructure Roadmap projects that around 90 million tonnes of emissions could be reduced by 2030 (DPIE, 2020)
- **Local Economic Investment:** Delivering significant local and regional economic benefits, including the creation of approximately 120–180 full-time equivalent (FTE) construction jobs and at least 4 FTE operational roles, alongside increased demand for local goods, services, and associated commercial opportunities. Supporting the local economy through increased diversification and revenue opportunities, acting as a catalyst for new investment in industrial, commercial, and ancillary services
- **Cost Savings:** Helping reduce electricity costs for end-users and shielding the market from wholesale price shocks. According to the NSW Electricity Infrastructure Roadmap benefit

[1] Assuming an average annual residential grid consumption of 5.5 MWh/year, a storage capacity of 960 MWh corresponds to 375,000 households over a 4-hour period.

modelling outcome report (NSW DCCEEW 2024) modelling, the accelerated delivery of renewable energy and firming infrastructure (such as the Karangi BESS) is forecast to save NSW consumers an estimated $25.5 billion (net present value) over the next 20 years, compared to a scenario where the Roadmap is not implemented (NSW DCCEEW 2024)

- **Community Benefit Sharing:** In alignment with Benefit-Sharing Guideline (DPHI 2024d), the Project will establish a long-term Community Benefit Program that will support local initiatives throughout the Project's expected operational life of up to 35 years, ensuring sustained social and economic benefits for the surrounding community.

2.3. Strategic Need for the Project

The NEM is currently navigating an unprecedented structural transition, shifting from centralised, thermal generation toward a decentralised, renewable-intensive grid architecture. The strategic need for the Project is driven by the urgent requirement to balance this new energy mix.

As the contribution of intermittent renewable energy increases, the market faces heightened wholesale price volatility and a growing disparity between when energy is generated and when it is consumed. Concurrently, the scheduled retirement of baseload coal plants removes physical inertia and inherent system strength from the grid.

The Project addresses both sides of this transition. Commercially, it shields the market from wholesale price shocks by increasing supply during peak pricing events. Technically, it replaces the system services once provided by fossil fuels, responding in milliseconds to stabilise the network. Ultimately, by enhancing system flexibility and providing deep, 4-hour storage capacity, the Project represents a critical missing link required to achieve a decarbonised, resilient, and secure energy system for NSW.

Table 2-1: provides a summary of the relevant national, state, regional and local planning policy context to the Project.

Table 2-1: Project alignment with strategic plans and policies

Strategy, Plan or Policy		Description	Project Relevance
National Policy Context	Australian Energy Market Operator (AEMO) Integrated System Plan (ISP) (AEMO 2024) and AEMO draft ISP (AEMO, 2026)	The current and draft AEMO ISP outlines Australia's long-term energy plan, showing what transmission, generation and storage are needed to deliver reliable, affordable, low-emissions electricity. It also highlights the increasing need for flexibility and security as more renewable energy enters the NEM.	A grid-scale BESS helps achieve the ISP's goals by providing fast response and flexibility to support growing renewable generation. The Project can shift energy over time, deliver fast frequency response, support system strength, and potentially improve transmission upgrades identified in the ISP and draft ISP.
	Australia's Long Term Emissions Reduction Plan (DCCEEW, 2025)	The national long-term plan sets pathways for reducing GHG emissions across sectors and enabling technologies that support deeper renewable uptake and decarbonisation of the electricity system.	The Project supports emissions reduction by enabling greater integration of renewables, reducing reliance on fossil-fuel peaking plants and enabling dispatch of low/no-emissions energy when required, contributing to national emissions targets.
	National Electricity Market (NEM) (AEMO, 1998)	The NEM is the cross-state wholesale electricity market and transmission framework that governs dispatch, market participation and ancillary services across connected states.	The Project will participate in the NEM wholesale and ancillary services markets. By strengthening energy security through fast, flexible response, the BESS improves market reliability and can generate income that supports the Project's viability.
State Policy Context	Climate Change (Net Zero Future) Act 2023 (NSW Government, 2023)	This Act legislates NSW emissions reduction targets (for example: 50% by 2030, 70% by 2035, and net zero by 2050) and establishes requirements such as climate statements and advisory functions.	The Project contributes to the State's legislated targets by enabling increased use of renewable generation and reducing overall electricity sector emissions, supporting NSW's pathways to net zero.
	The Net Zero Plan (DCCEEW, 2025)	The Net Zero Plan sets out NSW's strategy to grow the economy while reducing emissions, identifying priority actions, enabling technologies and investment to achieve decarbonisation.	The Project aligns with the Net Zero Plan by providing the flexible storage and grid services necessary to integrate renewables at scale, supporting the State's economic and emissions objectives and potentially delivering local jobs and supply chain opportunities.
	NSW electricity strategy (DPIE, 2019)	The NSW Electricity Strategy outlines government priorities for an electricity system that is reliable, affordable and sustainable to support growth and community needs.	The Project supports the Strategy by improving reliability (fast response and reserve), helping to moderate wholesale price volatility through time-shifting, and supporting a sustainable electricity system that enables greater renewable penetration.
	NSW Electricity Infrastructure Roadmap (DPIE, 2020)	The Roadmap sets out actions to transform the electricity system, including developing Renewable Energy Zones (REZ), transmission upgrades and investment frameworks to deliver cheap, clean and reliable power.	The Project can play an important role in REZs and along transmission corridors identified in the Roadmap by strengthening renewable output, reducing congestion and providing network stabilisation services. Strategic siting can maximise these benefits.
Regional and Local Policy Context	North Coast Regional Plan 2041 (DPIE 2022b)	The regional plan provides a 20-year vision for resilient communities and economies, supporting adaptation to climate change and enabling sustainable development in the Mid North Coast region.	The Project supports several regional planning objectives including objectives 3, 9, 11, 15, and 18. The Project contributes to these objectives by protecting biodiversity and water resources through careful siting and best-practice environmental management. It also strengthens regional growth, infrastructure

Strategy, Plan or Policy		Description	Project Relevance
			reliability and climate resilience by improving energy security across multiple communities and local government areas.
	Coffs Harbour Local Strategic Planning Statement (LSPS) 2020	The LSPS sets a 20-year land-use vision for the LGA, with planning priorities that emphasise protecting environmental values, strengthening climate resilience and supporting sustainable growth. Relevant priorities include implementing biodiversity actions (P6), protecting natural and rural landscapes (P7), delivering coastal management programs (P8), reducing climate-related risks (P15) and promoting best-practice environmental management (P16). These priorities recognise the importance of renewable energy and climate-ready infrastructure in supporting a sustainable and resilient future for the region.	The Project would align with LSPS priorities by enabling renewable energy integration, improving local energy resilience and supporting climate adaptation objectives.

2.4. Project Location Context

The Project Site is located within Karangi and sits on land zoned RU2 – Rural Landscape, C2 – Environmental Conservation and W1 – Natural Waterways under the Coffs Harbour LEP (Figure 2-1). The Development Area is contained within land zoned as RU2 – Rural Landscape only. The predominant on-site land use is agriculture with an area used for the Coffs Harbour Transgrid 330 kV Substation (Figure 2-2). As recorded in the 2021 ABS Census, Karangi had a small resident population of 515 people (ABS 2021a). The Project Site lies within the Coffs Harbour LGA, which covers approximately 1,174 km² and is the primary regional centre for the area (ABS 2021b).

The Project Site is located approximately 11 km west of the Coffs Harbour town centre, with local access provided from Upper Orara Road, Coramba Road and regional connections via the Pacific Highway (A1). The nearby Karangi Dam and associated water infrastructure are notable local features that form part of the surrounding rural/forest landscape. These transport and local-infrastructure linkages place the Project Site within a predominantly rural setting, however within driving distance of Coffs Harbour's services and facilities.

Table 2-2 provides a summary of the local context of the Project.

Table 2-2: Local Context of the Project

Project	Details
Local Government Area	Coffs Harbour
Land Zoning	• Project Site: RU2 – Rural Landscape, C2 – Environmental Conservation and W1 - Natural Waterways • Development Area: RU2 – Rural Landscape
Land Tenure	Freehold and Crown Land
Land Use	The following land uses are present within the Project Site: • Grazing modified pastures • Residential and farm infrastructure • Utilities (existing Coffs Harbour Transgrid 330 kV Substation) • Transport and Communication • Rivers
Water Catchment	Orara River sub-catchment of the Clarance Hydrological Catchment
Local Land Services Region	North Coast Local Land Services

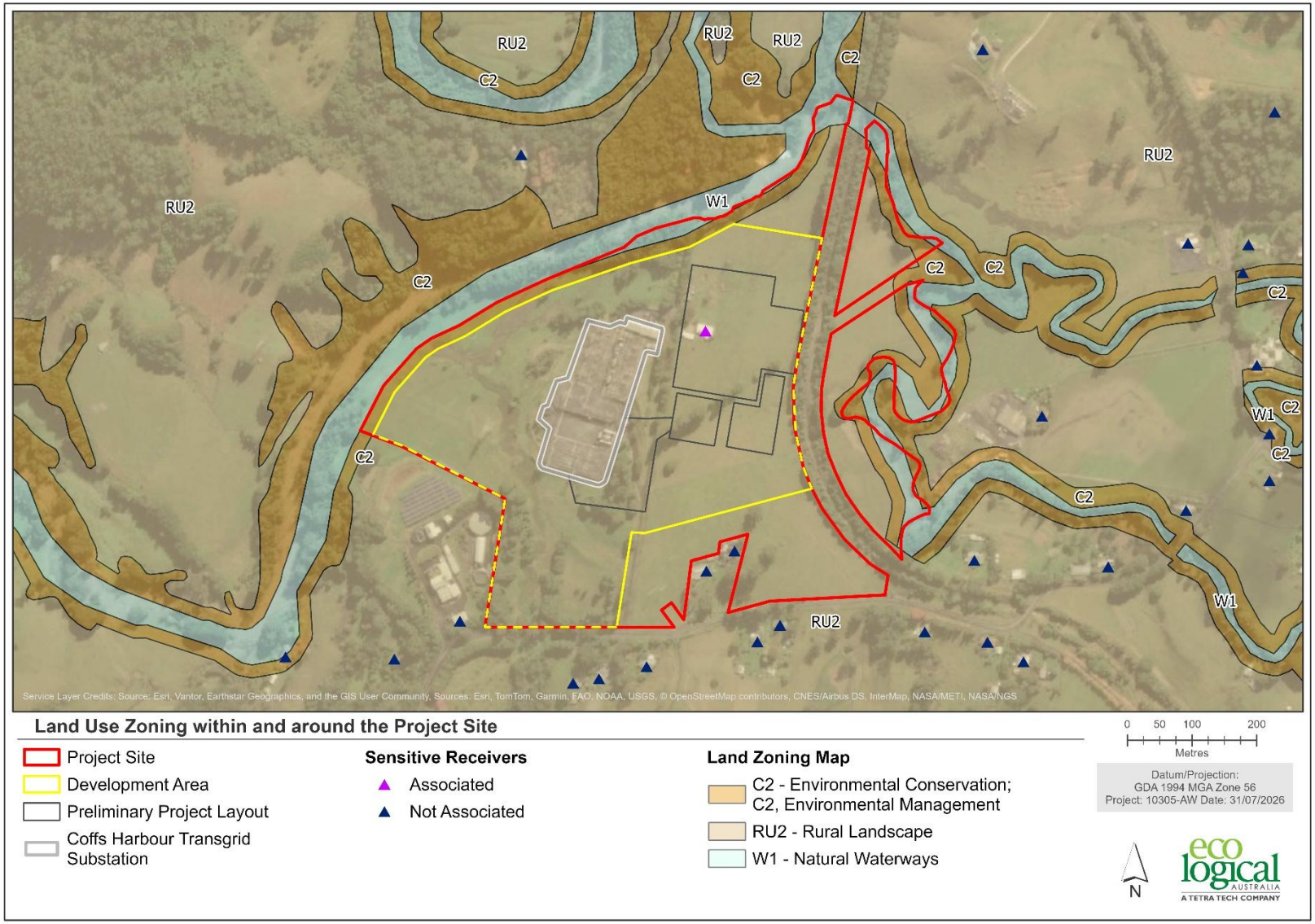

Figure 2-1: Land Use Zoning within and around the Project Site

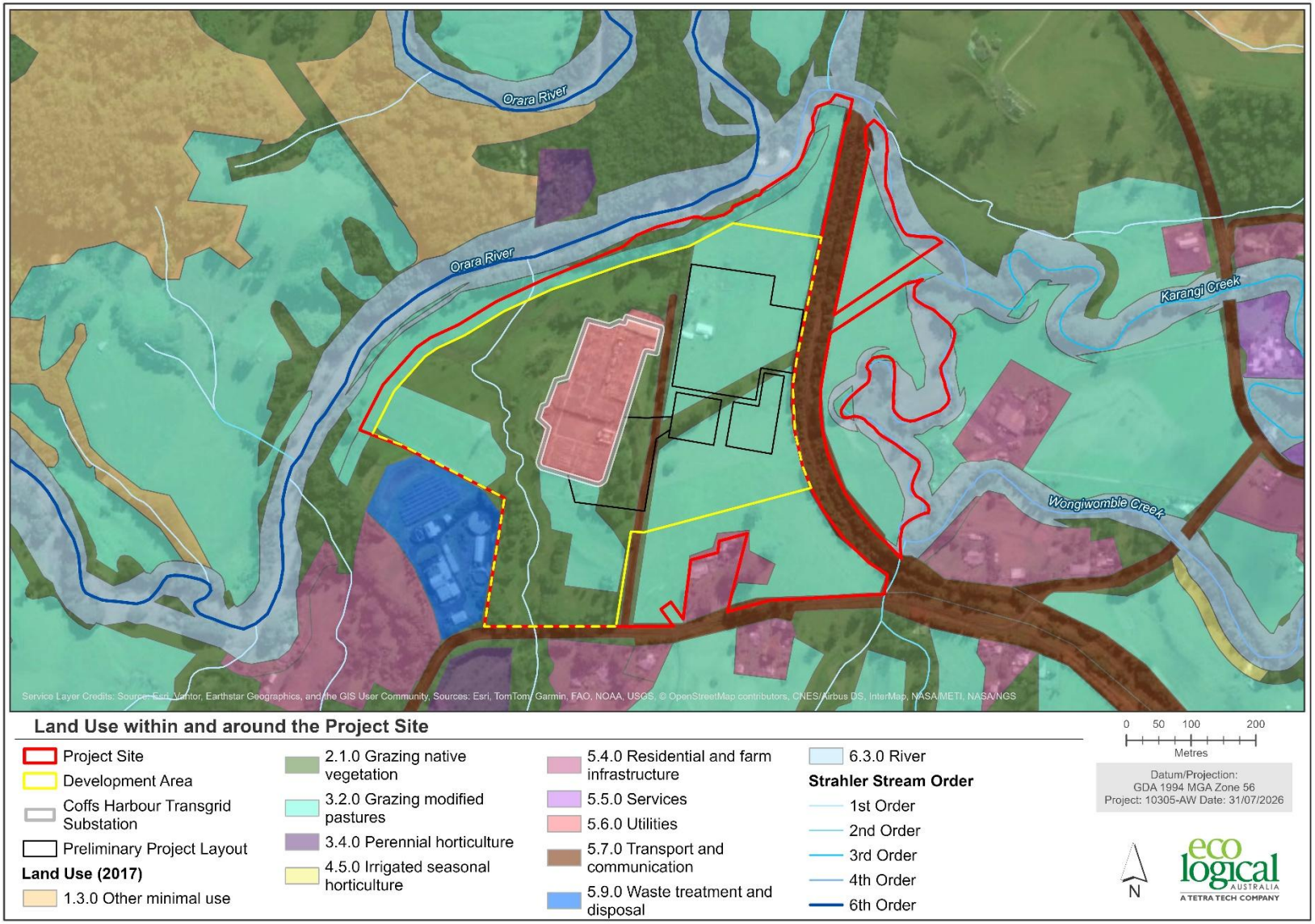

Figure 2-2: Land use within and around the Project Site

2.4.1. Key Landscape Features

Beyond agricultural land use, the regional setting encompasses a range of scenic, natural, and forestry values, with the following features situated in the vicinity of the Project Site (Figure 1-1):

- Nana Creek State Forest, 4.8 km
- Orara West State Forest, 2.2km
- Bindarri National Park, 6.1 km
- Orara East State Forest, 0.4 km
- Ulidarra National Park, 2.5 km
- Kororo Nature Reserve, 8.2 km
- Boambee State Forest, 2.6 km.

The Project Site is situated directly alongside the Orara River, forming part of the Orara River sub-catchment within the broader Clarence Hydrological Catchment. Its location places it in proximity to key regional water infrastructure and is approximately 2 km from Karangi Dam. Further, the topography of the Project Site is shown in Figure 2-3.

2.4.2. Key Transport and Infrastructure

The Project Site benefits from established local road connections, with Casuarina Lane providing direct vehicle access and linking to Upper Orara Road and Coramba Road, which support movement within the wider Coffs Harbour regional road network. Construction materials and BESS components will be delivered via these existing sealed roads by heavy vehicles, with freight potentially sourced domestically or imported through the major port-of-entry such as the Port of Newcastle or Brisbane Port. The North Coast railway line traverses the Project Site, forming a significant regional transport corridor within the Sydney–Brisbane network and requiring coordination of construction activities around this active rail line. Transmission works will include a new cable route connecting the BESS to the existing Coffs Harbour Transgrid 330 kV Substation along Casuarina Lane, with final underground or overhead configuration to be confirmed in the EIS.

2.4.3. Key Risks and Hazards

Consideration has been given to key risks or hazardous features that have the potential to impact the Project Site. As such, lithium-ion based batteries introduce a specific fire risk primarily from the potential for thermal runaway and pose a potential ignition source. The Project Site is located on bushfire-prone land (listed as category 1, 2 and 3). The Development Area for the Project is predominantly classed as Category 3. Category 3 land typically includes grasslands, freshwater wetlands, semi-arid woodlands, alpine complexes, and arid shrublands (NSW RFS, 2019), presenting a moderate bushfire risk. A detailed bushfire risk assessment will be prepared as part of the EIS.

The proximity of the Orara River means the Project Site is exposed to potential flood events, which has the potential to affect BESS infrastructure, electrical components, and access routes.

Additionally, the North Coast railway line runs through the Project Site, presenting safety considerations during both construction and operation, including potential vibration impacts on equipment, and the need to maintain safe distance from the tracks.

Bushfire, flooding and transport risks are discussed further in Section 6.10 and will be assessed in further detail throughout the EIS.

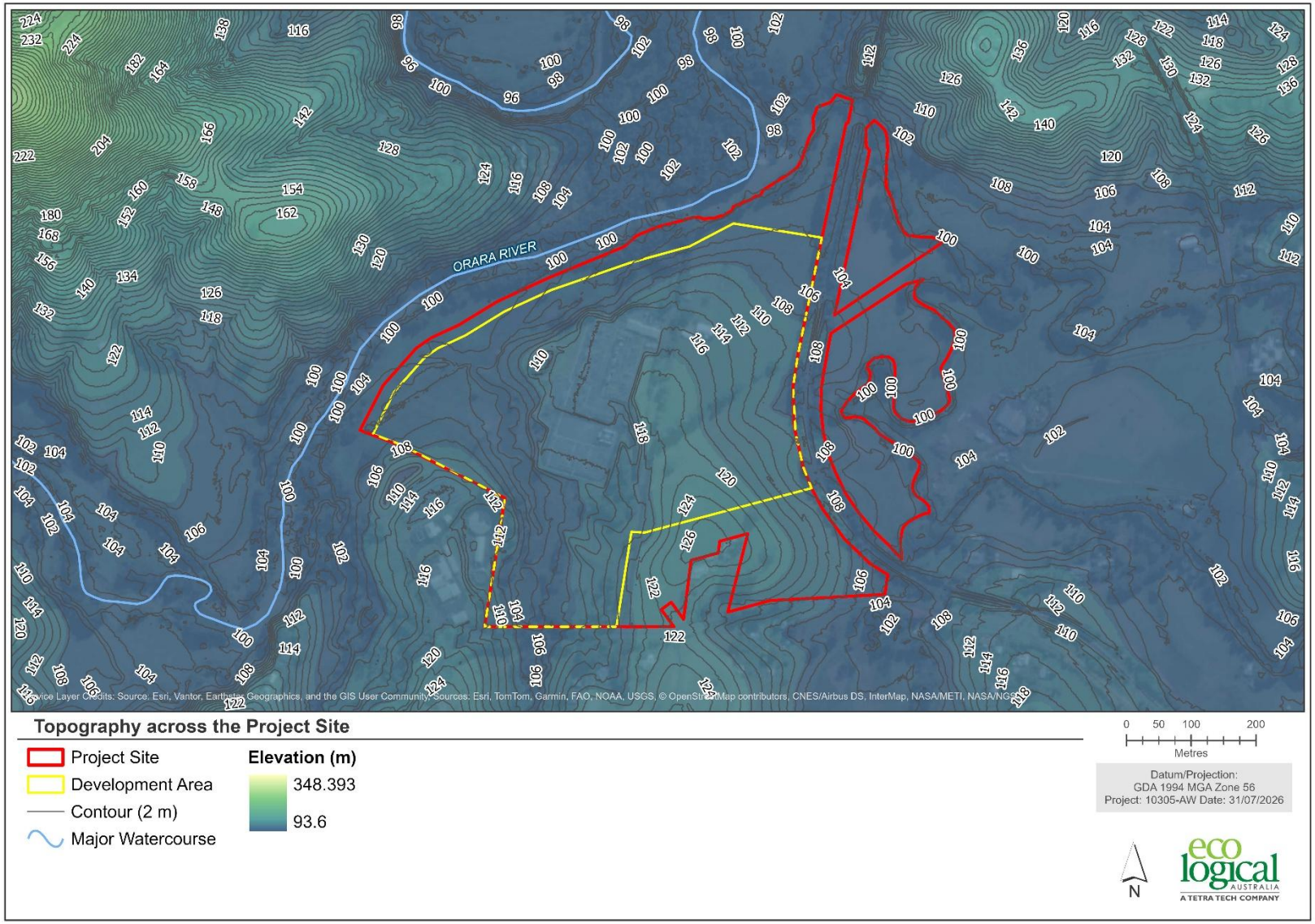

Figure 2-3 Topography of the Project Site

2.4.4. Other Major Projects

From a review of the Major Projects Planning Portal, there are no other SSD renewable energy projects within the Coffs Harbour LGA. Table 2-3 identifies the major SSD and SSI projects within the Coffs Harbour LGA and their status, as shown in Figure 2-4. This list of projects will continue to be monitored throughout the EIS process to ensure it remains current and accurate. In accordance with the *Cumulative Impact Assessment Guidelines for State Significant Project* (DPHI, 2026), the cumulative impact assessment will consider whether the Project is likely to generate cumulative impacts with other relevant existing, approved, under construction and future SSD and SSI projects in the LGA.

The Coffs Harbour Bypass project which is currently under construction is anticipated to be complete by late 2026 and fully operational in early 2027. As such, it is unlikely to overlap with the construction of the Project, and cumulative construction impacts are therefore considered unlikely.

Table 2-3: Major projects within the Coffs Harbour LGA

Name	Type	Status	Distance from Project Site (km)	Project reference
Coffs Harbour Transgrid 330 kV Substation	Infrastructure	Operational	0.0 km	N/A
Karangi Water Treatment Plan	Infrastructure	Operational	0.0 km	06_0285
North Coast Railway	Infrastructure	Operational	0.0 km	N/A
Coffs Harbour Bypass	Infrastructure	Construction	4.5 km northeast	SSI-7666
Uniting Coffs Harbour, Gordon Street	Housing Development	Planning	8.5 km southeast	SSD-91539707
The Pines Caravan Park	Sports and recreation facilities	Approved	11.7 km southeast	MP08_0005
Coffs Harbour Cultural and Civic Space	Infrastructure	Approved	12.4 km southeast	SSD-10300
Affordable Housing, Harbour Drive	Housing Development	Approved	12.9 km southeast	SSD-83294209
Coffs Harbour Mixed Use Development	Residential & Commercial	Approved	14.8 km northeast	MP06_0186
Coffs Harbour Hospital Expansion	Hospitals, medical centres and health research facilities	Approved	15.1 km southeast	SSD-8981
North Boambee Residential Subdivision	Residential & Commercial	Approved	15.2 km southeast	MP08_0080
Coffs Harbour Residential Flats	Residential & Commercial	Approved	15.4 km southeast	MP06_0150
RRF 55 Englands Road	Waste collection, treatment and disposal	Planning	16.3 km southeast	SSD-10377
North Bonville Residential Subdivision	Residential & Commercial	Approved	20.4 km south	MP08_0080
Pacific Highway Upgrade (Woolgoolga to Ballina)	Infrastructure	Operational	23.5 km northeast	SSI-4963-MOD-6
Sandy Beach Residential Subdivision	Residential & Commercial	Approved	31.2 km northeast	MP08_0148
Moonee Beach Residential Subdivision	Residential & Commercial	Approved	34.7 km northeast	SSD-7198
Tweed Residential Subdivision (43 lots)	Residential & Commercial	Approved	20.0 km northeast	MP07_0075
Glades Estate Residential Subdivision	Residential & Commercial	Approved	35.5 km northeast	MP06_0143

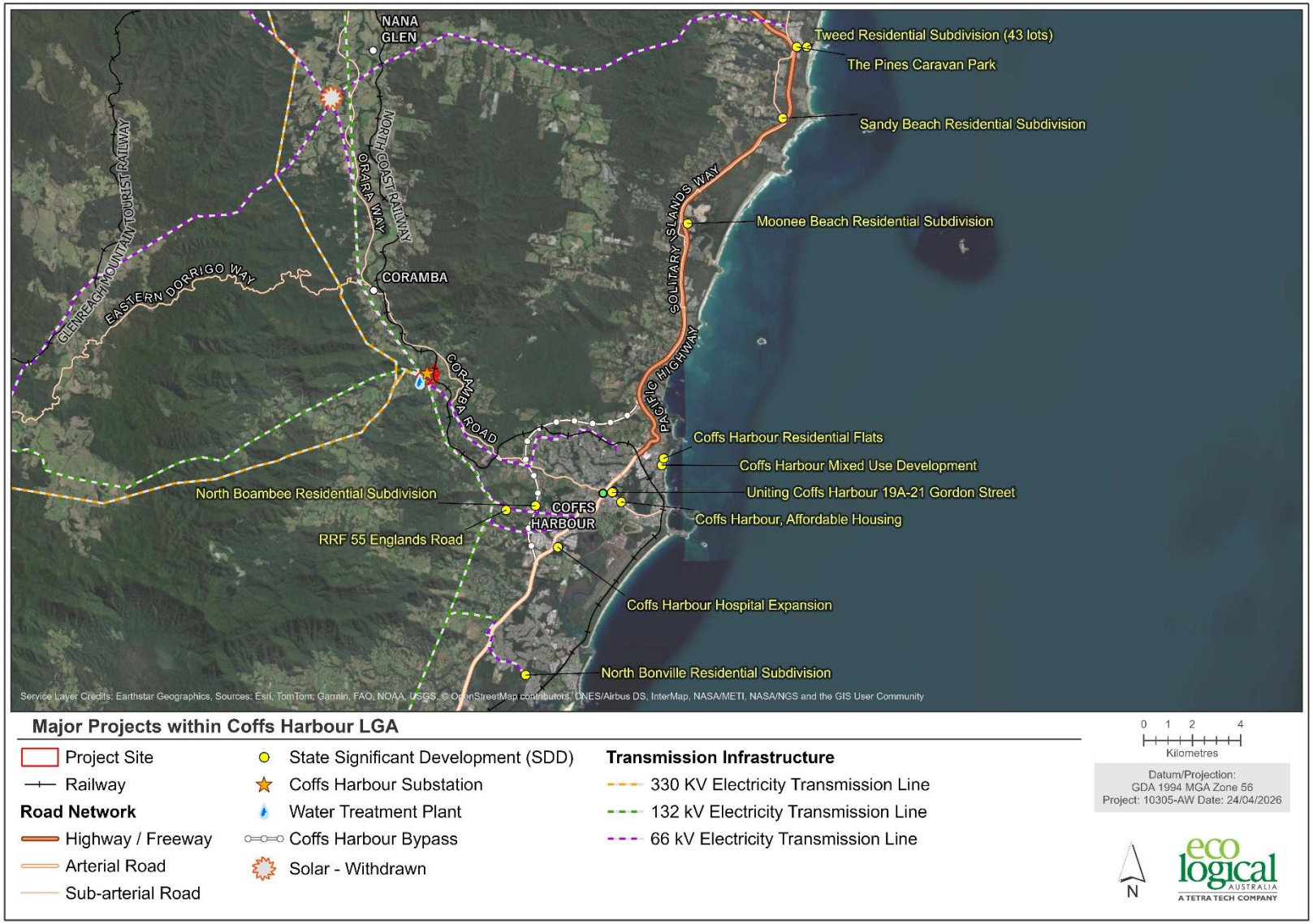

Figure 2-4 Major projects within the Coffs Harbour LGA

2.5. Project Agreements

2.5.1. Host Landowners

The Project Site is located across seven (7) lots comprising six (6) lots owned by Transgrid and one (1) lot owned by a private landowner (refer to Section 3.2). In addition, the Project Site includes a Crown Road which intersects the private landowner's lot and a road easement (Casuarina Lane) managed by City of Coffs Harbour. Table 2-4 summaries landowners relevant with the Project Site.

Table 2-4 Project Agreements

Landownership	Lot and Deposition Plan (DP)
Private Landowner	• 222/DP601871
Transgrid	• 4/DP560766 • 5/DP560766 • 6/DP560766 • 1/DP1083920 • 1/DP109727 • 101/603409
City of Coffs Harbour	Road Easement Casuarina Lane
Crown Land	Crown Road intersecting 222/DP601871

The majority of the proposed Project infrastructure will be located on the private landowner's lot and the Crown Land Reserve. Noting, the Applicant has commenced consultation with Crown Lands.

The proposed Grid Connection Works into the existing Coffs Harbour Transgrid 330 kV Substation will likely intersect Lots 6/DP560766, 5/DP560766 and 4/DP560766 owned by Transgrid, the exact lots intersected by the Grid Connection Works will be determined through consultation with Transgrid and the outcomes of the environmental assessments for the EIS. The existing dwelling (associated) located on the Project Site will be removed in accordance with the Landowners Agreement with the Applicant.

2.5.2. Benefit Sharing Scheme

The Applicant proposes a Community Benefit Fund or voluntary project activities in line with the NSW Community Benefit Sharing Guideline (DPHI 2024d).

The Applicant is currently engaging the community and Council to establish the most appropriate framework and structure for a benefit sharing scheme. The discussions will continue throughout the assessment process and during preparation of the EIS, with consideration of the Benefit-Sharing Guideline (DPHI 2024d). More details will be provided in the EIS.

3. Project Description

3.1. Project Overview

The Karangi BESS would involve the construction, operation and decommissioning of a BESS with an indicative capacity of 240 MW/960 MWh (4-hour storage).

The BESS would store electricity from the NEM during periods of low demand and would release electricity during periods of high demand or low generation. A summary of the BESS infrastructure is listed below, and a preliminary layout is shown in Figure 1-2:

- **Battery and Inverter Units:** batteries and electrical equipment, housed in containerised units with a capacity of up to 240 MW / 960 MWh (4 hours storage duration) and inverter units to convert the electricity from DC to AC for grid use.
- **Project Substation:** including main 330/33 kV transformer(s), harmonic filters and switchgear and switch room, to facilitate the power conversion required between the BESS and the Coffs Harbour Transgrid 330 kV Substation.
- **Grid Connection Works:** to connect the BESS to the existing Coffs Harbour Transgrid 330 kV Substation, a new cable connection (overhead or underground) would be required between the Project Substation and the existing Coffs Harbour Transgrid 330 kV Substation, crossing Casuarina Lane. The exact route for the cable connection would be determined following completion of all environmental assessments and in consultation with Transgrid. However, indicative cable routes are presented in Figure 1-2. Within the existing Coffs Harbour Transgrid 330 kV Substation, the construction of a new 330 kV bay would be required. The exact location will be determined by Transgrid during the EIS process. All Project infrastructure would be located within the Development Area.
- **Project Site Access: to be determined during the preparation of the EIS.**
    - BESS Site Access: proposed from Casuarina Lane into the area proposed for the BESS Layout Area (Figure 1-2).
    - Existing Coffs Harbour Transgrid 330 kV Substation Access: access points from Casuarina Lane are proposed to accommodate construction of the additional substation elements required to facilitate connection of the Project.
    - Internal access roads: internal access roads to be constructed to provide access to Project infrastructure.
    - Intersection upgrade (if required): upgrade works may be required at the Casuarina Lane and Upper Orara Road intersection and the Coramba Road and Upper Orara Road intersection.
- **Ancillary Infrastructure:** O&M buildings and compounds, utilities and communications infrastructure, hardstands, and laydown areas (temporary and permanent, fire water storage, equipment storage areas and construction compounds.

This Scoping Report presents a preliminary Project layout, noting that all Project infrastructure will be located within the Development Area. The Project layout and design will be an iterative process and will evolve as environmental assessments and community consultation are undertaken.

3.2. Project Site Area

3.2.1. Project Site Boundary

The Project Site boundary covers an area of approximately 39.40 ha over the following Lots:

- 222/DP601871
- 4/DP560766
- 5/DP560766
- 6/DP560766
- 1/DP1083920
- 1/DP109727
- 101/603409.

There are two main landowners for the Lots: one private landowner and Transgrid. Note, there will be no development on the eastern side of the North Coast Railway line; as such, there will be no requirement to cross the railway line.

As outlined in Section 2.5.1, Casuarina Lane is within the Project Site and is managed by City of Coffs Harbour Council. The Crown Land Reserve intersects the private landowner's lot. Consultation will continue with both Council and Crown Land throughout the EIS phase.

3.2.2. Development Area

The Development Area consists of approximately 25 ha and includes the Development Footprint where all Project infrastructure will be located (including the BESS and inverters, Project Substation, Grid Connection Works and Ancillary Infrastructure). The Development Area has been designed to allow flexibility, as the exact location of the Project infrastructure is yet to be determined and will be refined during the EIS process.

Table 3-1 outlines the location of the Project Infrastructure and a maximum impact area. It is important to note that the areas will be refined through the EIS phase.

Table 3-1: Development Area and associated lots

Infrastructure	Lot and DP	Development Area
BESS and Ancillary Infrastructure	222/DP601871	10 ha
Connection to the existing Coffs Harbour Transgrid 330 kV Substation	4/DP560766 5/DP560766 6/DP560766	15 ha

3.3. Key Project Elements

3.3.1. Battery Energy Storage System and Inverters

The Project proposes to construct a BESS, designed to store and dispatch electricity to the grid. The BESS is proposed to have an indicative usable AC power and energy capacity of 240 MW / 960 MWh, equivalent to 4 hours storage duration, measured at the 330 kV side of the Project 330/33 kV Substation. The BESS is expected to comprise approximately 200 containerised units. Each container would be approximately 3 m by 2.5 m by 6.1 m (height by depth by width) and placed on concrete footings. A double stacked container configuration is under consideration for the Project which would involve one container being placed on top of another with dimensions of approximately 4.5 m by 2.5 m by 6.1 m (height by depth by width). This scenario has been considered within the relevant preliminary assessments. The final container numbers, configuration and installed battery equipment will be

dependent upon the final geographic footprint and outcomes of the various engineering, environmental and social studies and is subject to change.

The electricity from the BESS is converted from DC to AC by inverters prior to being exported to the wider electricity network via the Project Substation. The layout will include approximately 70 to 80 inverters.

3.3.2. Project Substation

A collector substation for the Project will collect the electricity from the BESS for supply to the transmission network. The Project Substation will include transformer(s), harmonic filters, switchgear and a switch room to facilitate the power conversion required between the Project and the Coffs Harbour Transgrid 330 kV Substation. The Project Substation also provides the protection, switching and control systems needed to safely and reliably connect the Project to the network.

3.3.3. Grid Connection Works

The electricity stored by the Project will be exported to the transmission network via a new cable connection between the Project Substation and the existing Coffs Harbour Transgrid 330kV Substation situated within the Development Area. The Project will also require a new 330kV bay within the Coffs Harbour Transgrid 330kV Substation, the location and final design are yet to be determined. The cable connection design, including whether the connection will be underground or overground and the alignment, will depend on the location of the new 330 kV bay. Both will be determined in consultation with Transgrid and informed by field surveys and environmental assessments, during the EIS phase. All connection works will be contained within the Development Area.

3.3.4. Ancillary Infrastructure

Ancillary infrastructure includes all permanent and temporary and necessary supporting BESS infrastructure, including:

- Operations and maintenance compounds (including offices and car park)
- Fire water storage
- Security fencing
- Equipment storage areas
- Temporary and permanent laydown pads
- Construction compounds.

Separate to the Ancillary Infrastructure area presented in Figure 1-2, landscaping and vegetation screening, and security fencing will be included as part of the development.

3.3.5. Project Site Access

The Project Site access would be from Casuarina Lane, likely utilising the existing access points to the Coffs Harbour Transgrid 330 kV Substation and the Private lot (accommodating the BESS) to facilitate the construction of the Project infrastructure and maintain access during the operation and maintenance phase. Internal access roads would be constructed to provide access to key Project infrastructure. Further assessment will be undertaken during the preparation of the EIS to determine the exact location and configuration of the Project Site access points.

The Project Site would be accessed from local roads including Casuarina Lane, Upper Orara Road and Coramba Road into Coffs Harbour before joining the Pacific Highway. Minor road upgrades may be required on local roads to allow safe access to the Project Site. Both the Port of Newcastle and Brisbane Port will be considered within the Traffic and Transport Impact Assessment (TTIA) during the EIS phase.

Traffic associated with the construction phase of the Project will consist of both light vehicles for transporting workers and heavy and Over-Sized, Over Mass (OSOM) vehicles for delivery of plant and Project infrastructure. It is noted that there will be at least two (2) OSOM vehicle movements for the main transformers.

Once the Project is operational there will be minimal light vehicle traffic movements to the Project Site for maintenance purposes.

3.4. Project Design Development

3.4.1. Design Principles

The Project is still in the early stages of design and will be subject to an iterative design process. The Project Site was selected due to its proximity to transmission infrastructure. In designing the preliminary Project layout and assessing the potential impacts of the Project, the design hierarchy outlined in Figure 3-1 will be adopted.

Figure 3-1: Design hierarchy for the Project

3.4.2. Preliminary Design Constraints

The preliminary Project design and associated Development Area has been developed based on high-level desktop information. The Project design and placement of infrastructure will consider the following constraints from the outset:

- Proximity of the nearest sensitive receptors to minimise potential visual and noise impacts
- Flood Prone Land encroachment, watercourses and riparian land within the Project Site and Development Area to be avoided by all Project infrastructure
- Existing vegetation to be retained where possible to minimise the biodiversity impacts

- Known Aboriginal sites will be avoided to avoid heritage impacts.

3.5. Project Timings

3.5.1. Construction

It is anticipated that construction works will commence in early 2028, subject to development approval and is expected to be undertaken in one (1) stage over a period of approximately 18 months. The timing of construction will principally be driven by additional permits and authorisations, post-development consent tender, contractor selection, obtaining a connection agreement from the Australian Energy Market Operator (AEMO), optimisation, detailed design and procurement processes and a final investment decision.

During the peak construction period, the Project would likely require up to 180 construction workers. The construction of the Project would include the following activities:

- Earthworks, internal access road and hardstand for BESS container unit construction
- Delivery of the key Project infrastructure
- Installation of the key Project infrastructure
- Augmentation works to the existing Coffs Harbour Transgrid 330kV Substation
- Construction/Installation of overhead or underground transmission connection
- Construction of ancillary buildings
- Testing and commissioning
- Removal of temporary construction infrastructure.

Further details will be provided in the EIS regarding the construction works, hours and program and will be subject to a detailed design phase. The construction phase is where most impacts have the potential to occur, as such a Construction Environmental Management Plan (CEMP) will be prepared post approval to assist with monitoring potential impacts.

3.5.2. Operational

It is anticipated that the Project will be constructed and energised to the electricity grid in 2029 and will operate continuously 24 hours per day and 7 days per week. The Project has a likely lifespan of 35 years. During this time, regular maintenance will occur to ensure the infrastructure is operating efficiently.

3.5.3. Decommissioning

Following the 35-year operational period, the Project will either be decommissioned and land restored to its previous use or repowered subject to planning approval. A Decommissioning and Rehabilitation Management Plan (DRMP) will be developed to ensure infrastructure is removed from the Project Site at the end of operational life. Where possible infrastructure will be reused or recycled.

An indicative Project timeline is outlined in Figure 3-2.

Figure 3-2: Indicative Project timeline

3.6. Consideration of Alternatives

The key consideration when developing a BESS project is the proximity of the transmission infrastructure and the capacity to connect to the network infrastructure. The greater the distance between a project and the transmission infrastructure would result in the requirement for transmission easements and in turn greater environmental and social impacts. The following alternatives were considered prior to progressing with the Project at this location (Section 3.6.1 to Section 3.6.3).

3.6.1. Do Nothing Approach

The 'do nothing' approach would mean the Project Site would remain in its current state and no development would occur. As such, the Project benefits outlined in Section 2.2 would not be achieved.

3.6.2. Alternate Location

As part of the site selection process undertaken by the Applicant the following criteria were applied to identify a suitable site for the Project:

- Appropriate land use zoning for a BESS to ensure suitable environmental protection and infrastructure needs are balanced
- Available land outside of 1% Annual Exceedance Probability (AEP) inundation area (refer to Figure 6-9)
- Suitable site access route to minimise the requirement for road upgrades
- Proximity to the existing Transgrid transmission network to reduce the requirements for additional transmission infrastructure and easements and the associated additional environmental impacts
- Cleared and disturbed land to avoid extensive removal of native vegetation

- Suitable topography and area to construct a viable project.

As such, the Project Site was identified as a suitable location for a BESS project.

3.6.3. Alternative Technology

Battery technology is rapidly changing. Therefore, during the EIS and prior to construction the exact BESS will be selected based on the latest technology and cost-effective systems on the market.

However, in preparation of the EIS, the Applicant will consider a technology envelope that assumes the use of Lithium Iron Phosphate (LFP) batteries.

LFP has been identified as the highly probable technological solution due to its exceptional safety (specifically its inherent thermal stability and reduced fire risk) alongside a lower supply-chain environmental impact. Key consideration will be given to the configuration requirements, safety, and environmental aspects.

4. Statutory Context

4.1. Overview

The relevant statutory requirements for the Project are summarised in Table 4-1.

Table 4-1: Statutory context of the Project

Matter	Relevance to the Project
Power to Grant Approvals	Under Part 2, Clause 6 of the Planning Systems SEPP, a development is classified as SSD for the purposes of the EP&A Act when both of the following conditions are met: • The development requires development consent under Part 4 of the EP&A Act because it is not otherwise permissible without consent under an environmental planning instrument; and • The development type is listed in Schedule 1 or Schedule 2 of the Planning Systems SEPP. Clause 20 of Schedule 1 further specifies that electricity generation or co-generation facilities using any energy source (e.g., gas, coal, biofuel, distillate, waste, hydro, wave, solar, or wind) with an Estimated Development Cost (EDC) exceeding $30 million are automatically categorised as SSD under Division 4.7 of the EP&A Act. The EDC of the Project is estimated to be greater than $30 million and is deemed SSD. The Minister for Planning and Public Spaces is the consent authority for SSD, with applications assessed by DPHI and, where appropriate, delegated to Department staff. The Independent Planning Commission (IPC) becomes the consent authority when specific statutory triggers are met.
Permissibility	The Project Site is the cadastre boundary which is located within the Coffs Harbour LGA and is subject to the Coffs Harbour LEP (LEP). The Project Site follows the cadastre boundary and is zoned as RU2 (Rural Landscape), C2 (Environmental Conservation) and W1 (Natural Waterways) under the Coffs LEP. Under the Coffs Harbour LEP, development for the purpose of a BESS is prohibited on land zoned as C2 and W1. As such, the Development Area has been designed to be wholly contained within land zoned as RU2, with no Project infrastructure in C2 or W1 zoned land. Clause 2.35 of the *State Environmental Planning Policy (Transport & Infrastructure) 2021* (Transport and Infrastructure SEPP) defines 'electricity generating works' to include electricity storage. Clause 2.36 (1)(b) provides that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial, or special use zone, including RU2 (Rural Landscape) where the works will take place. Therefore, although the BESS would be prohibited on the C2 and W1 portions of the Project Site, it is permissible with development consent on the RU2 land, provided the final Development Area remains entirely within that zone.
Oher Approvals	***Environment Protection and Biodiversity Conservation Act 1999*** **(EPBC Act)** The Project has the potential to significantly affect Commonwealth-listed threatened species and ecological communities. As a result, a referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) may be required. If the DCCEEW determines that the Project is likely to have a significant impact on Matters of National Environmental Significance (MNES), it will be declared a 'Controlled Action' and assessed under the NSW Bilateral Agreement with the Commonwealth. A referral seeking either a 'Non-controlled Action' or 'Controlled Action' decision will be submitted once the Project's potential impacts on MNES have been identified. **Consistent Approvals** In accordance with Section 4.42 of the EP&A Act, certain approvals cannot be refused if they are required to carry out SSD that has been granted development consent under this Division and the approval sought is substantially consistent with that consent. This includes consent under Section 138 of the *Roads Act 1993* (Roads Act) for works such as upgrades to the public road network. **Other Approvals** A range of approvals and licences may be required for the Project prior to construction or before specific Project components commence. These requirements will be detailed in the Project's Regulatory Approvals Management Plan. **Approvals Not Required**

Matter	Relevance to the Project
	Although all relevant environmental impacts will be assessed in the EIS, several approvals and licences listed under Section 4.41 of the EP&A Act are not required for the Project due to its nature as SSD. These include: • Permits under Sections 201, 205 or 219 of the *Fisheries Management Act 1994* (FM Act), noting that the fisheries offset policy still applies. • Approvals under Sections 89, 90 and 91 (excluding aquifer interference provisions) of *the Water Management Act 2000* (WM Act). • An Excavation Permit under Section 139 of the *Heritage Act 1977* (Heritage Act). • An Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the *National Parks and Wildlife Act 1974* (NPW Act).
Pre-Condition to Exercising the Power to Grant Approval	The Applicant will provide written evidence to DPHI of landowner consent for the Project Site under Section 23(1)(b) EP&A Regulations (NSW Government, 2025).
Mandatory Matters for Consideration	The following Acts, Regulations and Environmental Planning Instruments (EPIs) are applicable to the Project: Commonwealth Legislation • EPBC Act • *Native Title Act 1993* • *Renewable Energy Act 2000* (RE Act) • *Crowns Land Management Act 2016* State Legislation • *Biodiversity Conservation Act 2016 (BC Act)* • *Biosecurity Act 2015* (Biosecurity Act) • EP&A Act • FM Act • Heritage Act • *Mining Act 1992* (Mining Act) • *Native Title (New South Wales) Act 1994* • NPW Act • *Protection of the Environment Operations Act 1997* (POEO Act) • Roads Act • *Rural Fires Act 1997* (RF Act) • *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) • WM Act. State Environmental Planning Policies • *State Environmental Planning Policy (Biodiversity and Conservation) 2021* (Biodiversity and Conservation SEPP) • *State Environmental Planning Policy (Primary Production) 2021* (Primary Production SEPP) • *State Environmental Planning Policy (Resilience and Hazards) 2021* (Resilience and Hazards SEPP) • Transport and Infrastructure SEPP • Planning Systems SEPP. Planning Instruments • Coffs Harbour LEP 2013

5. Community and Stakeholder Engagement

5.1. Overview

The Applicant is committed to ensuring local community and other stakeholder concerns and interests are considered throughout the development of the Project. Engagement has been and will continue to be undertaken with a range of stakeholders throughout the Project's development, including government agencies, service providers, the local community, First Nations organisations and people, special interest groups, and neighbouring and adjacent landowners.

This chapter summarises the following:

- Engagement activities undertaken to support the preparation of this Scoping Report for the Project
- Sentiment, issues, and views raised by the community and other stakeholders during this engagement period
- Plans for future engagement.

5.1.1. Engagement Objectives

The engagement objectives for this Project are to:

- Consult proactively with the local community and stakeholders using clear, consistent and up-to date Project information, raising awareness of the Project and bridging the knowledge gap of renewables projects
- Continue to engage with the local community and stakeholders to identify potential issues, opportunities, mitigation measures and misconceptions
- Communicate the progress of the Project, being transparent and building trust between the Project team and the community
- Enable the local community and stakeholders to have input into the preparation of the EIS and future stages
- Implement response and feedback strategies to address stakeholder questions and concerns, and where possible, use these to inform the development and refinement of the Project.

There are two phases of engagement, outlined below and in more detail within the Community and Stakeholder Engagement Plan (CSEP), provided in Appendix B.

5.1.2. Phase One – Scoping Phase Engagement (engagement to date)

Phase One engagement has included the following elements:

- Project introduction letters – near neighbours located within approximately 600 metres of the Project Site
- Near neighbour one-to-one meetings with the Applicant
- Government agency, Council, First Nations and Service provider initial Project briefings and consultation
- Community survey
- Community information sessions in Coffs Harbour and Upper Orara

- Establishment of dedicated Project email and enquiry line, as well as a Project website
- Community newsletter – distributed to residents and businesses within an approximate 6–7 km radius of the Project Site
- Local media advertisements to introduce and promote the Project to the broader community.

5.1.3. Phase Two – Continued Communications and Engagement to Inform the Preparation of the EIS

Phase Two engagement will be agreed as part of the CSEP and be informed by the SEARs and early engagement, but is likely to include the following:

- Project update newsletters
- Regular website updates, including updates to general Project FAQs
- Community and stakeholder correspondence at key Project milestones
- Project fact sheets available at key Project milestones
- Community drop-in information session/s
- Adjacent landowner briefings
- Stakeholder meetings and briefings
- Continued Project enquiry phone line and email
- Government agency, Council, First Nations and Service provider consultation.

5.2. Community and Stakeholder Engagement Plan

A CSEP has been prepared for the Project by RPS and is provided in Appendix B of this Scoping Report (RPS, 2026). The CSEP was developed to align with the following guidelines and principles:

- DPHI's Large-Scale Solar Energy Guideline (DPHI 2024b)
- DPHI's Undertaking Engagement Guidelines for State Significant Projects (DPHI 2026a)
- DPHI's Social Impact Assessment Guideline (DPHI, 2026c)
- DPHI's Benefit-Sharing Guideline (DPHI 2024d)
- International Association of Public Participation (IAP2) Core Values and Public Participation Spectrum
- Clean Energy Council and KPMG's Leading Practice Principles: First Nations and Renewable Energy Projects (Clean Energy Council and KPMG 2024)
- NSW Premier's Regional Communities Consultation Guide For community engagement practitioners engaging on behalf of the NSW Government (Premier's, 2025).

The purpose of the CSEP is to guide engagement and communication activities associated with the future planning stages, development and delivery of the Project. Through engagement, the Applicant seeks to identify issues of interest or concern identified by the community and other stakeholders for consideration during the preparation of future stages of the Project.

The CSEP is a living document and will be updated as the Project evolves and in response to community and stakeholder feedback.

5.3. Stakeholder Identification and Analysis

Table 5-1 provides an overview of stakeholders identified, considers their interests, and impacts in the Project, and their likely engagement needs or expectations. Stakeholder groups likely to be interested in this Project include:

- Government departments and agencies
- Elected Representatives (Federal and State)
- Local Council – City of Coffs Harbour
- Service providers
- First nations
- Community
- Industry associations
- Educational and healthcare institutions
- Media.

Please note that this is an iterative process and communication tools and stakeholders will evolve over time based on stakeholder needs and Project requirements as per IAP2's Core Values.

Table 5-1 outlines a preliminary list of stakeholders and their potential interests based on initial feedback and desktop research. This process will be iterative and amended as our interactions with stakeholders and knowledge increase.

Table 5-1: Stakeholder Identification and Issues Mapping

Type	Stakeholder	Potential interests	Level of interest	Phase 1 - Scoping Proposed engagement tools	Phase 2 - EIS Proposed engagement tools
Community	Host landowner (own land within the development boundary)	• Project timeline • Local planning compliance • Neighbour and host landowner impacts, e.g. views, shadowing, amenity impacts • Landscape character • Construction impacts • Biodiversity and ecology • Heritage impacts • Fire safety/hazard reduction • Benefit sharing • Cumulative impact.	High interest	• Initial Project notification letter • Direct liaison, meetings and correspondence as required • Community hotline and email • Project website • Community survey.	• Direct liaison, meetings and correspondence as required • Project newsletters (voluntary subscription required) • Community hotline and email Project website.
	Adjacent landowners (lots bordering the proposed Project Site) and Near Neighbours which directly border the Project Site	• Visual amenity • Site selection and grid capacity • Property value impacts • Traffic and roads • Decommissioning process • Bush fire risks • Noise • Lighting • Biodiversity impacts and vegetation loss • Pest and biosecurity management • Construction • Impacts to insurance premiums • Land access and easements • First Nations cultural heritage • Effects on agricultural use • Cumulative impacts • Hazardous materials and contamination	High interest	• Initial Project notification letter • Initial Project briefing (face to face, online or via phone) • Community hotline and email • Project website • Community survey.	• Direct liaison, meetings and correspondence as required • Project newsletters (voluntary subscription required) • Community hotline and email • Project website Community drop-in sessions.

Type	Stakeholder	Potential interests	Level of interest	Phase 1 - Scoping Proposed engagement tools	Phase 2 - EIS Proposed engagement tools
		• Community cohesion • Mental health and wellbeing • Employment and local economic benefits • Water use and management • Consultation and engagement process • Planning process.			
	• Communities and businesses within 6 – 7 km radius of Project Site. Including members of the Karangi and Upper Orara communities.	• As above	High Interest	• As above	• Project newsletters (voluntary subscription required) • Community hotline and email • Project website Community drop-in sessions.
	• Townships (local communities) Karangi and Coramba	• As above	High Interest	• As above	As above
Government departments and agencies	Department of Planning, Housing and Infrastructure	• Alignment with policies and priorities • Adherence to planning and design legislation • Consultation and engagement with relevant stakeholders • Assessment of the Project.	High interest	• Direct liaison, meetings and correspondence as required • Formal role as the planning assessment body.	
	• Department of Climate Change, Energy, the Environment and Water • Conservation Programs and Heritage Regulatory Group • Water Group • Environment Protection Authority • Heritage NSW	• Biodiversity impacts • Ecologically sustainable design • Stormwater, water quality, flooding • Heritage impacts.	High interest	• Direct liaison, meetings, feedback and correspondence as required.	

Type	Stakeholder	Potential interests	Level of interest	Phase 1 - Scoping Proposed engagement tools	Phase 2 - EIS Proposed engagement tools
	Department of Primary Industries and Regional Development: • Agriculture Group	• Impacts to biosecurity, food safety and animal welfare • Regional economic development • Alignment with policies and priorities.	High interest	• Direct liaison, meetings, feedback and correspondence as required.	
	Transport for NSW	• Traffic, access and parking – in particular heavy vehicle trips to and from the Project Site • Capacity of the state road networks in the vicinity of the site and the ability of the surrounding roads to cater for the Project • Project timeline.	Medium interest	• Direct liaison, meetings, feedback and correspondence as required.	
	NSW Rural Fire Service	• Alignment of Project with relevant government priorities, projections, strategies, and plans • Compliance with standards, policy and regulatory requirements – in particular, demonstrated compliance with Planning for Bush Fire Protection if required • First Responder access to the site (construction and post-delivery).	Medium interest	• Direct liaison, meetings and correspondence as required.	
	Australian Energy Infrastructure Commissioner	• Reports directly to the Minister for Climate Change and Energy. • Handles complaints from the community regarding: - Wind farms - Large-scale solar farms - Energy storage facilities - New major transmission projects • Promotes best practice in planning and operations for industry and government	Medium interest	• Direct liaison, meetings and correspondence as required.	

Type	Stakeholder	Potential interests	Level of interest	Phase 1 - Scoping Proposed engagement tools	Phase 2 - EIS Proposed engagement tools
		• Aims to increase transparency around proposed and operating energy infrastructure projects.			
Elected Representatives (Federal and State)	Federal Member for Page • Hon. Kevin Hogan MP (Nationals) Federal Member for Cowper • Hon. Pat Conaghan MP (Nationals)	• Alignment with policies and priorities • Job creation • Regional economic development • Affordable energy • Community engagement	Medium interest	• Project notification via email/letter • Meeting to discuss Project with Project team • Community hotline and email • Project website.	• Direct liaison, meetings and correspondence as required • Project newsletters (voluntary subscription required) • Community hotline and email • Project website.
	State Member for Coffs Harbour • Hon. Gurmesh Singh, MP (Nationals)	• Alignment with policies and priorities • Job creation • Regional economic development • Affordable energy • Community engagement.	Medium interest	• Project notification via email/letter • Meeting to discuss Project with Project team • Community hotline and email • Project website.	• Direct liaison, meetings and correspondence as required • Project newsletters (voluntary subscription required) • Project website.
	NSW Minister for Energy, Minister for the Environment, and Minister for Heritage • Hon. Penny Sharpe, MLC (ALP)	• Alignment with policies and priorities • Job creation • Biodiversity • Heritage impacts.	Medium interest	• N/A	• Direct liaison, meetings and correspondence as required.
	Minister for Regional NSW, Minister for Agriculture • Hon. Tara Moriarty, MLC (ALP)	• Alignment with policies and priorities • Job creation • Impacts to biosecurity, food safety and animal welfare.	Medium interest	• N/A	• Direct liaison, meetings and correspondence as required.
	NSW Minister for Regional Transport and Roads • Hon. Jenny Aitchison, MP (ALP)	• Alignment with policies and priorities • Job creation • Regional economic development.	Medium interest	• N/A	• Direct liaison, meetings and correspondence as required.
Local Council – City of Coffs Harbour	Strategic Planning staff and other Council representatives (including	• Project timeline • Local planning compliance • Flooding and stormwater	High interest	• Project notification via email/letter	• Project notifications and updates via email/letter as appropriate

Type	Stakeholder	Potential interests	Level of interest	Phase 1 - Scoping Proposed engagement tools	Phase 2 - EIS Proposed engagement tools
	General Manager and Mayor)	• Biodiversity • Heritage impacts • Community engagement • Site suitability • Public interest • Visual impacts.		• Direct liaison, meetings, feedback and correspondence as required • Project website • Community survey.	• Direct liaison, meetings and correspondence as required • Project newsletters (voluntary subscription required) • Community hotline and email • Project website.
Service Providers	• Transgrid • Others to be confirmed by technical consultants as required during EIS development and as outlined in the SEARs	• Potential impacts of the development on existing utility infrastructure and service provider assets within and surrounding the Project Site.	Medium interest	• Direct liaison, meetings and correspondence as required	
First Nations	• -CHC LALC (Coffs Harbour LALC) • -Jagun elders • -Garby elders • Gumbaynggir Wenonah Head Aboriginal Corporation	• Input into the Aboriginal Cultural Heritage Assessment (ACHA) Report as a Registered Aboriginal Party (RAP) during EIS phase (if registered) • Considering support needs and improving outcomes for Aboriginal community (employment and training opportunities) • Impact on cultural heritage and potential disturbance of significant archaeological sites • Benefit sharing approach.	High interest	• Project notification via email/letter • Direct liaison, meetings, feedback and correspondence as required • Community hotline and email • Project website.	• As part of broader community consultation. • Interviews/meetings/feedback • Consultation as part of the Social Impact Assessment (SIA) • Project newsletters (voluntary subscription required) • Community hotline and email • Project website.
	• Registered Aboriginal Parties (RAPs)	• Input into the ACHA Report during EIS phase.	High interest	• N/A	• As part of ACHAR in accordance with the relevant guidelines.
Industry Associations / Peak Bodies	• -Coffs Harbour Chamber of Commerce	• Economic opportunities, local hiring, partnership potential. Wayfinding opportunities • Impact on local commerce, traffic disruptions during construction.	Medium interest	• Direct liaison, meetings and correspondence as required.	• Invitation to discuss Project further with Project team • Project notification via email/letter.
	• -Upper Orara Progress Association	• Environmental sustainability, conservation efforts, renewable energy benefits. Socio-benefits to	Medium interest	• Direct liaison, meetings and correspondence as required.	• Invitation to discuss Project further with Project team

Type	Stakeholder	Potential interests	Level of interest	Phase 1 - Scoping Proposed engagement tools	Phase 2 - EIS Proposed engagement tools
		community groups especially minority groups. • Potential ecological disruption, alignment with environmental policies or community impacts. Customer impacts including bill and access; excessive impacts of customer and/or community groups.			• Project notification via email/letter.
Educational and healthcare institutions	• Karangi Public School	• Visual amenity • Site selection and grid capacity • Traffic and roads • Bush fire risks • Noise • Cumulative impacts • Hazardous materials and contamination • Community cohesion • Mental health and wellbeing • Consultation and engagement process • Planning process.	High interest	• Direct liaison, meetings and correspondence as required.	
Media	• Local • Coffs Coast News • ABC Coffs Coast • NBN	• Issues in the public interest • Controversial or contested issues • Benefits for the local community and audiences • Renewable energy projects.	High-medium interest	• All media enquiries will be evaluated on a case-by-case basis. Where appropriate, the Applicant may provide written statements to ensure accurate and factual information about the Project is available - particularly where the subject matter of the media piece is shared.	

5.4. Consultation with Landholders and the Local Community

Table 5-2 summarises the early engagement activities undertaken with the local community and adjacent landowners to inform the scoping report.

Table 5-2: Summary of engagement with surrounding landowners and local community

Communication Method	Description / Purpose		Reach
Project introduction letters - community	Project letters were posted via Australia Post to adjacent landowners and near neighbours of the Project Site (within approximately 600 m). The purpose of the letter was to introduce the proposed Project, the Applicant, and outline the planning process at a high level.	•	• A total of 23 letters were mailed via Australia Post on 13 February 2026 • Letters were posted to those within an approximate 600 m radius of the Project Site.
Briefings with near neighbours	The Project introduction letters described above also included an offer to meet for a Project briefing and meet the Applicant's Project Director in person. These meetings provided neighbours with information on the proposal and offered an additional opportunity to ask questions and share feedback.	•	• 23 adjoining and near neighbour properties were contacted • Five (5) near-neighbour meetings have been held to date at the residences of these neighbours, allowing the Project Director to better understand the context of their feedback and any potential concerns.
Community survey	An online community survey was developed to gather insights on potential and perceived impacts from the perspective of local community members. It also aimed to gauge the overall level of support (or otherwise) for a BESS project in the area. Access to the survey was provided via a QR code included on the Project newsletter and direct correspondence with neighbouring landowners Feedback from the community survey has informed the Social chapter within this Scoping Report and this Engagement Chapter.	•	• An online community survey was developed and community members had from the date the newsletter was distributed (March 2026) to early May 2026 to complete the survey. This equates to approximately two (2) months • 85 responses have been received to date, and overall sentiment was predominantly concern or opposition, with a small number noting potential benefits such as improved local reliability power supply reliability and job opportunities.
Newsletter	A Project newsletter was distributed via Australia Post to the local community, providing key Project information, including a location map, planning and approvals process, contact details (phone, email and website), and details of the community information drop-in sessions held on Tuesday 24 March 2026.	•	• Distributed between 13 and 20 March 2026, with approximately 1,020 community newsletters distributed to residents and businesses within an approximate 6–7 km radius of the Project Site (Figure 5-1). • Although the broader area extends into national park and State forest, distribution was limited to properties and businesses with postal addresses. Some stakeholders reported not receiving a copy, and additional newsletters were made available at the community information sessions.
Local media	Advertising was undertaken within local media to introduce the Project and promote the community	•	• Advertising was placed in the Coffs Coast News of the Day on 13 and 20 March 2026 (Figure 5-2).

Communication Method	Description / Purpose		Reach
	information drop-in sessions to the broader community.		
Community information sessions	Two (2) community information sessions were held to introduce the Project to the local community and capture feedback. Sessions were scheduled at two (2) locations with attendance from six (6) members of the Project team at times to maximise accessibility for people living in town and those closer to the Project Site. Attendees were able to view maps, plans and technical material including about the planning assessment process, leave written comments or request follow-up meetings, and were provided with information on how to submit further feedback online or by phone.	•	• Held on Tuesday 24 March 2026, with two (2) sessions held, with the morning session hosted at the Cavanbah Centre in Coffs Harbour (10am to 1pm), and the afternoon session hosted at the Upper Orara Hall (4pm to 6pm) • Morning session - approximately 20 members of the community attended and engaged in discussions regarding the Project. A member from Council also attended the morning session • Evening session - approximately 45 members of the community attended and engaged in this session.
Establishment of dedicated Project email and enquiry line	A dedicated Project email (karangi@avenisenergy.com.au) and phone enquiry line (1800 number) has been set up for the Project to capture feedback and respond to queries from members of the community.	•	• To date, two (2) inquiries have been received on the 1800 number; one from ABC Coffs Harbour on 13 March 2026 and another received on 19 March from a resident in Coffs Harbour who asked about the precise location of the Project.
Project website	A dedicated Project webpage was created to provide information on the purpose and location of the proposed Project. The website features an overview of the Project, frequently asked questions, factsheets and contact details including a dedicated phone number, an online contact form and a survey. The website will be updated as the Project progresses.	•	• To date, the Project website has received more than 1,000 views.

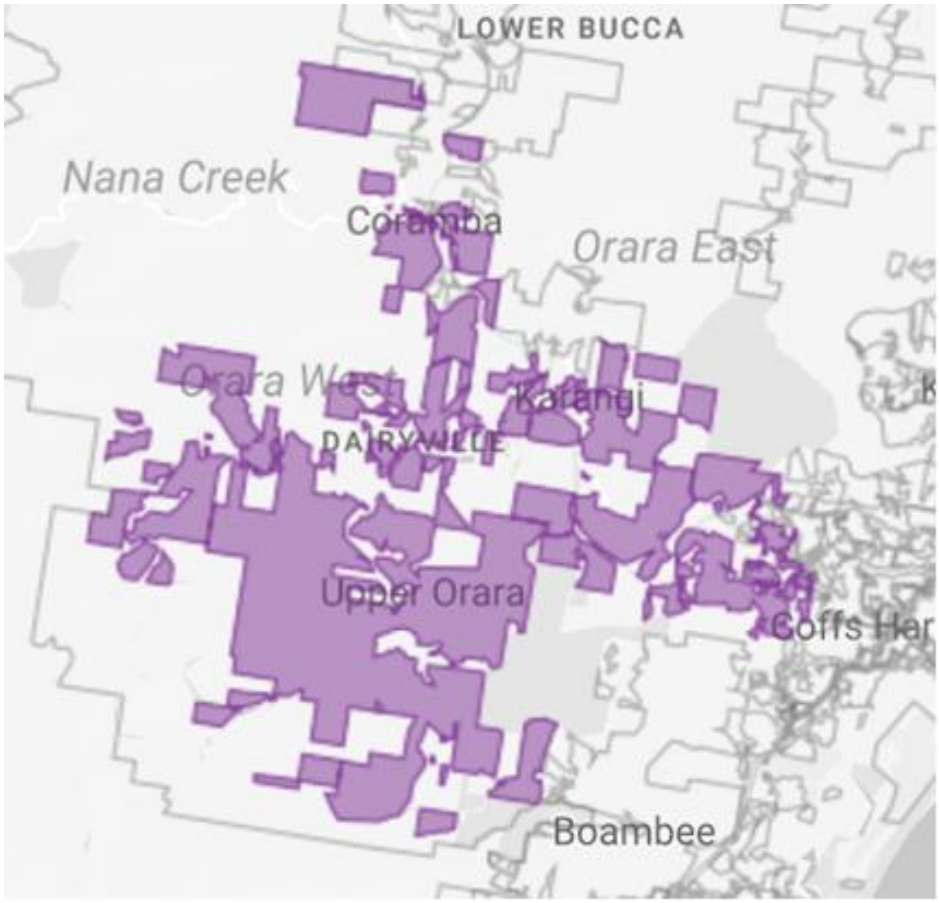

Figure 5-1: Newsletter distribution area

COFFS COAST News Of The Area

media@newsofthearea.com.au

Vale Elizabeth Webb

By Andrea FERRARI and Honi REIFLER

GLENREAGH treasure Elizabeth 'Bessie' Webb has passed away at the age of 103.

The rural community is well-known for its active volunteering and common purpose, and Bessie epitomised that selfless ethic.

Local Honi Reifler has shared the story of Mrs Webb's life with News Of The Area.

She said Bessie recalled being a three-year-old, sitting on her mother's knee and listening to her father recite a poignant Banjo Patterson poem in the Glenreagh Hall.

Her father was Tom Holder, a wise man whose life was built around his two favourite adages: 'You have to care for your neighbour,' and 'The world has to be just a tiny bit better because you've been here'.

Bessie was born in 1922 and lived at Tallarookh Creek, west of Glenreagh, until she was 16.

Her primary schooling was two days one week and three days the next as the teacher was shared between another small school.

She did not have any high schooling but went on to research local history, write many books, compose poetry, remind politicians of their duty, and ensure that all the organisations that she belonged to remained true to their purpose.

Love of her life

The Holders moved to a small farm at Southgate, near Grafton, in 1938.

Bessie met Les Webb in 1942 and they were married in 1944.

Over 100 of Bessie's family filled the Grafton Cathedral for the wedding ceremony but Les was the only representative from the Webb side.

He was from a very small family and it was during the Second World War when travel was difficult.

The indomitable Bessie then left her family behind and headed for the south coast of NSW with the love of her life.

They turned their hand to farming, mainly dairying in Umudera, Kangaroo Valley, Penrith and Llandilo.

Les was a fitter-and-turner so he worked on-and-off the farm until his retirement when they were running two school buses.

The four Webb children, Robyn (1945), Lyn (1949), Peter (1953) and Ian (1962) were born during this time, and Bessie was actively involved in all their schooling and recreation.

She was also a founding member of the Nepean Family History and an active member of the Anglican Church.

In 1981, Les and Bessie moved to Glenreagh where they were active in their retirement.

Bessie was involved in numerous projects.

That very long list includes: the establishment of the Glenreagh Memorial Museum; the beautification of Shannon Park; Glenreagh Bush Fire Brigade; the local Anglican Church; the Glenreagh Public School and P&C; the tennis club; the annual Charity Picnic Race Day; scripture teaching; Glenreagh Tidy Towns; the Progress Association and Hall Committee; Australia Day celebrations; Glenreagh Mountain Railway; The Creative Group; and she was a charter member of the Orara Valley Lions Club.

Bessie always held out the Digger's hat at the breakfast in the hall after the Anzac Day Dawn Service, and nobody sidled past to ignore her intentions.

Trousseau treasures

A few years ago, at Glenreagh's annual Cedar and Steam Art and Photography Exhibition, the organisers chose the humble but all-important apron to feature in their special section.

Bessie had some beautiful aprons from her trousseau that her mother had made in 1944.

"When I went around to photograph the aprons I was surprised... but not really... to find Bessie wearing one of the aprons while cooking a batch of jam drops," Honi said.

"While the biscuits baked, Bessie modelled many of her aprons.

"Afterwards we enjoyed a cuppa and then Bessie packed away the remaining biscuits so she could take them up to the school canteen for the students."

In the last few years of Bessie's life, she was slowed down by minor strokes.

Although her speech was affected, she still enjoyed the museum maintained the integrity of her research.

Bessie remained in her own home, almost to the end, thanks to the caring rotational visits from her children.

Bessie and Les, who died in 1998, shared four children.

Honi said: "On the last day of her earthly life of Elizabeth 'Bessie' Webb at 11am on Tuesday 19 March in the Glenreagh Hall.

Bessie read out the mindfulness card for the day: 'I am loved for being uniquely me.'

"And truly, our unique Bessie was loved by all.

"We are all the better for having known a lady who left this world, not just a tiny bit better, but a lot better because she had been here."

There will be a community celebration of

Bessie proudly wearing her well-deserved OAM.

Bessie and Les

Bessie working with other Lions members at the Glenreagh Return and Earn.

avenis energy

Proposed Karangi Battery Energy Storage System (BESS)

We're in early planning for a battery in Karangi, 10km northwest of Coffs Harbour Town Centre. Come along to an information session to meet our team and find out more.

Drop-in Session 1
Date: Tuesday, 24 March 2026
Time: 10am-1pm
Location: Room 8, Cavanbah Centre, 191 Harbour Drive, Coffs Harbour

Drop-in Session 2
Date: Tuesday, 24 March 2026
Time: 4-6pm
Location: Upper Orara Hall, 610 Upper Orara Road, Upper Orara

Feedback Survey
We're providing multiple opportunities for you to have your say and invite you to complete the Karangi Community Feedback Survey at www.avenisenergy.com.au/projects/karangi

For more information visit www.avenisenergy.com.au/projects/karangi or call 1800 827 221

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media@newsofthearea.com.au

COFFS COAST News Of The Area

Junior doctors arrive in Coffs Harbour

By Andrea FERRARI

TWO medical interns have joined the Coffs Harbour Health Campus.

Dr Phoebe Parodi and Dr Tammy Middleton are among 25 medical interns to join hospitals across the Mid North Coast Local Health District (MNCLHD).

They will work alongside the District's highly skilled and experienced medical staff.

Having completed their orientation, the junior doctors are already providing care to local patients.

Interns are medical graduates who have completed their medical degree and are required to complete a supervised year of practice to gain general registration.

They will be starting their internship through a training program with networked hospitals throughout the state, providing formal and on-the-job training.

For Dr Parodi, being based in Coffs Harbour for her study with Charles Sturt University, and now coming in as a Junior Medical Officer, has given her a chance to get to know all the sites and facilities, all the doctors, nursing staff and allied health services.

"It's given me a huge understanding of how this network works," she told News Of The Area.

"We have been very lucky in that our last three years of training and study has been extremely clinical based.

"We were very well supported in our training, talking to other doctors and simulations we were involved with.

"I feel like this has had a real impact on the emergency situations we are presented with."

Dr Tammy Middleton grew up in Coffs Harbour and says she has always been a country girl, having studied in Orange and on the Mid North Coast.

"I'm looking forward to starting my career back home, close to my family and my community.

"I got into medicine because I just wanted to make a difference somewhere and to someone.

"I've gone through personal experiences with my family having to travel for healthcare, and I wanted to be part of the solution.

"If you already have your roots in the country then I think you are more inclined to continue going back to those communities to provide healthcare."

Dr Tammy Middleton and Dr Phoebe Parodi have joined the Coffs Clinical Network.

Community Of The Heart
Meditations • Healing • Teachings
Sharing the Wisdom of all great Paths For Getting Real and Living Well

A WARM INVITATION

This Sunday let your heart heal, your spirit refresh and your life move forward in loving optimism!

Join other beautiful soul-seekers Sunday morning every fortnight for song, meditation, singing bowls, healing and spiritual One-ness.

Nothing to join. Nothing to pay.

Trudi and Les (now living locally) have lovingly shared spiritual truths from all faiths for over 40 years now.

Next Get-Together starts 8.30am this Sunday 15th March,

Toormina Community Centre.

Toormina Community Centre
171 Toormina Road, Toormina.
Next Service 9.30am Sunday 15th March.
Advent Healing, Help and Info: 0414 524 601

Australian Government

Smaller deposits for more first home buyers

With no income caps and a wider range of eligible properties, the expanded Australian Government 5% Deposit Scheme is helping put home ownership back in reach for first home buyers.

To learn more visit firsthomebuyers.gov.au

Authorised by the Australian Government, Canberra

Figure 5-2: Advert in the Coffs Coast News

5.5. Government and other stakeholder engagement

Early consultation has been undertaken with relevant local, state or government authorities, agencies, First Nations and infrastructure and service providers.

Table 5-3 summarises key consultation undertaken with government agencies, First Nations, service providers and utilities to help guide the Project during the preparation of this Scoping Report.

Table 5-3: Summary of Government and Other Stakeholder Engagement

Stakeholder	Engagement Method	Date	Overview / Outcomes
City of Coffs Harbour	Project Introduction letter via email	16 February 2026	A Project introduction letter was sent via email by the Applicant. The email provided an overview of the proposed Project and introduction to the Applicant, along with an invitation to discuss the Project further.
	Initial Project briefing (in person)	11 March 2026	An initial Project briefing was held with the City of Coffs Harbour. The briefing included a presentation of the proposed Project, including an indicative Development Area, timeframes, issues to be assessed in the EIS, community engagement, and next steps. Key outcomes from this meeting with included: • Council highlighted priorities such as minimising construction and operational impacts on neighbours, supporting local employment, and encouraging business participation. • Council emphasised the need for vegetation and visual screening, communication about the screening maintenance plan, and the importance of transparent, ongoing engagement.
Coffs Harbour Chamber of Commerce	Project Introduction letter via email	16 February 2026 – letter via email	A Project introduction letter was sent via email by the Applicant. The email provided an overview of the proposed Project and introduction to the Applicant, along with an invitation to discuss the Project further.
	Project briefing (in person)	11 March 2026 (in-person meeting)	An initial Project briefing was held the Executive Officer of the Coffs Harbour Chamber of Commerce. The briefing included a discussion of the proposed Project, including indicative Development Area, timeframes, issues to be assessed in the EIS, community engagement summary, and next steps. Discussions also explored local procurement and workforce opportunities.
Upper Orara River Land Care Group	Project introduction email	17 March 2026	A Project introduction letter was sent via email by the Applicant. The email provided an overview of the proposed Project and introduction to the Applicant, along with an invitation to discuss the Project further.
	Attendance at community information sessions	24 March 2026	The Applicant met with a representative from the Upper Orara Valley Landcare Group at the community information drop-in session and discussed their rejuvenation activities in the Orara River riparian corridor. They also provided feedback on the river's behaviour during flooding events. • Discussions provided the project team with information on rejuvenation activities in the Orara River riparian corridor and insights into river conditions during previous flooding events.

Stakeholder	Engagement Method	Date	Overview / Outcomes
			• The group invited the Applicant to attend an upcoming meeting to further discuss the Project.
Coffs Harbour and District LALC	Project introduction email	16 February 2026	A Project introduction letter was sent via email by the Applicant. The email provided an overview of the proposed Project and introduction to the Applicant, along with an invitation to discuss the Project further.
	Project briefing (in person) with CEO Chris Spencer	11 March 2026	• First Nations stakeholders expressed interest in opportunities for Indigenous businesses and emphasised the importance of protecting Country and cultural heritage. • The Applicant has committed to ongoing engagement with First Nations peoples to better understand local indigenous businesses, capabilities, and opportunities for participation.
Jagun elders	Project introduction email	16 February 2026	A Project introduction letter was sent via email by the Applicant. The email provided an overview of the proposed Project and introduction to the Applicant, along with an invitation to discuss the Project further.
	Project briefing (in person) with Uncle Tony Perkins	12 March 2026	• First Nations stakeholders expressed interest in opportunities for Indigenous businesses and emphasised the importance of protecting Country and cultural heritage. • The Applicant has committed to ongoing engagement with First Nations peoples to better understand local indigenous businesses, capabilities, and opportunities for participation.
Garby elders	Project introduction email	16 February 2026	A Project introduction letter was sent via email by the Applicant. The email provided an overview of the proposed Project and introduction to the Applicant, along with an invitation to discuss the Project further.
Federal Member for Page Hon. Kevin Hogan MP	Project introduction letter via email	26 February 2026	A Project introduction letter was sent by the Applicant to the Federal Member for Page. The letter provided an overview of the proposed Project and introduction to the Applicant, and an invitation to discuss the Project further.
	Project briefing via Teams meeting	17 March 2026	An initial Project briefing was held with the office manager for the Federal Member for Page. The briefing included a discussion of the proposed Project, including indicative Development Area, timeframes, issues to be assessed in the EIS, community engagement summary, and next steps. Key points from the meeting included: • MPs representative expressed interest in potential community investment outcomes, employment, training, and broader economic opportunities associated with the Project. • They noted the Minister's office role in representing community interests and sought further information on how the Project could support regional jobs, local business participation, and renewable energy sector growth.
State Member for Coffs Harbour –	Initial email correspondence	3-30 September 2025	Initial email from the State Member to the Applicant requesting regarding the Project. The Applicant responded via email to the State Member advising the Applicant was

Stakeholder	Engagement Method	Date	Overview / Outcomes
Hon. Gurmesh Singh MP			conducting early-stage feasibility assessments and that an invitation to the State Member for a briefing would be made once the Applicant commenced planning for the Project.
	Project introduction letter via email	16 February 2026	A Project introduction letter was sent by the Applicant to the State Member for Coffs Harbour. The letter provided an overview of the proposed Project and introduction to the Applicant, and an invitation to discuss the Project further.
	In person Project briefing.	11 March 2026	An initial Project briefing was held with the State Member for Coffs Harbour. The briefing included a discussion of the proposed Project, including indicative Development Area, timeframes, issues to be assessed in the EIS, community engagement summary, and next steps. Key points from the meeting included: • MP expressed interest in potential community investment outcomes, employment, training, and broader economic opportunities associated with the Project. • MP expressed concern that the Applicant had not commenced consultation with the community earlier. • They noted the Minister's office role in representing community interests and sought further information on how the Project could support regional jobs, local business participation, and renewable energy sector growth. • The Project may contribute to the regional economy through construction and operational employment and associated supply chain activity.
NSW DPHI	Initial Project briefing, via teleconferencing	2 April 2026	An initial Project briefing was held with the NSW DPHI. The briefing included a presentation of the proposed Project, including indicative Development Area, timeframes, issues to be assessed in the EIS, community engagement, and next steps.

5.6. Identified and Anticipated Community Views

Feedback received from the community during consultation activities undertaken during the preparation of this Scoping Report has demonstrated significant, localised concern about the Project. These localised concerns, both actual and perceived, have been collected through the various engagement channels outlined in the table above:

A summary of the identified and anticipated community views, issues and concerns has been provided in Table 5-4.

Table 5-4: Summary of Identified and Anticipated Community Views, Issues and Concerns

Issue / Theme	Relevant Project Stage	Description	Where Issue/Theme will be Addressed within EIS
Consultation, engagement process and communication fatigue	Planning	• Concern about the adequacy of consultation and transparency to date • Calls for clear, accessible information, regular updates, and more opportunities for ongoing engagement and feedback • Desire for targeted information for those living nearby and for the local school • Requests for summary of feedback and project updates to be made available through the website and direct communication • Some community members expressed confusion and frustration due to overlapping communications from unrelated property agencies about other renewable energy projects. This has led to mistaken identity between the Applicant's Project and other proposed projects, highlighting the need for clear, distinct, and consistent messaging from the Applicant.	Section 5 (Engagement) of the EIS and Community and Stakeholder Engagement Plan.
Planning Process	Planning	• Enquiries have focused on the planning process—specifically, when various types of Project information and levels of detail are required to be prepared and made available for public review.	Section 5 (Engagement) of the EIS.
Project need and Project Site selection	Planning	• Questions regarding the necessity of the Project, its purpose, and questioning the justification for selection of the Project Site.	Section 2 (Strategic Benefit) of the EIS.
Visual amenity	Construction Operations	• Concern for change of unique rural landscape character. • Loss of scenic landscape views generally, and from properties of neighbouring and adjacent landowners.	Landscape and Visual Impact Assessment, supporting appendix to the EIS.
Lighting	Construction Operations	• Concern regarding potential light from the Project impacting nearby residents and sensitive uses.	Landscape and Visual Impact Assessment, supporting appendix to the EIS.
Dust	Construction	• Concern regarding potential dust from the Project impacting nearby residents and sensitive uses.	Section 6 (Environmental Impacts) of the EIS.
Property value & insurance	Construction Operations	• General - Concern regarding potential reduction in land and property values within the area, particularly for adjacent landowners. - Concern for reduced appeal for rural lifestyle blocks. • Insurance - Concerns that neighbours may have higher insurance premiums due to presence of a BESS Project nearby.	Social Scoping Worksheet, supporting appendix to the EIS.
Decommissioning process	Decommissioning	• Interest in long -term site management, and decommissioning plans for the Project.	Section 3 (Project Description) of the EIS with a likely commitment to prepare a

Issue / Theme	Relevant Project Stage	Description	Where Issue/Theme will be Addressed within EIS
			Rehabilitation and Decommissioning Management Plan post-approval.
Fire risk	Operations	• BESS Fire Risk - Concerns about fire risk associated with the Project, including hazardous materials, thermal runaway, and toxic runoff.	Bushfire Risk Assessment and Preliminary Hazard Analysis, supporting appendices to the EIS.
Noise	Construction Operations	• Concerns were raised about potential noise and vibration levels generated from the BESS, particularly by representatives of the local school and nearby residents • Community members are interested in how noise impacts will be assessed and managed, especially during both construction and operation phases.	Noise and Vibration Impact Assessment, supporting appendix to the EIS.
Biodiversity impacts and vegetation loss	Planning Construction Operations	• Concerns that the Project may lead to habitat loss for native flora and fauna species and consequent impacts to native eco-systems.	Biodiversity Development Assessment Report, supporting appendix to the EIS.
Aboriginal cultural heritage	Planning Construction	• Requests to identify, respect, and protect Aboriginal cultural heritage and values, with calls for early and meaningful stakeholder engagement.	Aboriginal Cultural Heritage Assessment, supporting appendix to the EIS.
Health	Operation	• Potential health risks relating to electromagnetic fields (EMF) and the safety of solar panels and batteries.	Section 6 (Environmental Impacts) of the EIS, and Preliminary Hazard Analysis, supporting appendix to the EIS.
Mental health & well-being	Planning Construction Operations Decommissioning	• Potential effects on mental health and well-being, particularly related to uncertainty, amenity loss, and environmental changes.	Section 6 (Environmental Impacts) of the EIS, and Social Scoping Worksheet, supporting appendix to the EIS.
Employment and local economic impacts	Construction Operations Decommissioning	• Requests for greater clarity on project economics, including the rationale for the BESS, who benefits, site selection, expected lifespan, maintenance, and decommissioning/repowering arrangements. • Some First Nations stakeholders expressed interest in exploring opportunities for Indigenous businesses as part of the Project.	Section 3 (Project Description) of the EIS, Social Scoping Worksheet, supporting appendix to the EIS.
Water resources	Construction Operations	• Flooding concerns related to the proximity of batteries to the Orara River, with requests for robust flood modelling, mitigation, and siting above flood levels • Concern about potential pollution and runoff affecting the Orara River and local water quality.	Surface Water and Groundwater Impact Assessment, supporting appendix to the EIS.

5.7. Future Engagement to Support the EIS

The CSEP outlines the engagement approach for the Project across three phases (RPS, 2026):

- Preparation of the Scoping Report (request for SEARs)
- Preparation of the EIS
- 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 during the EIS phase.
    - The dedicated project website will be updated to summarise feedback received so far
    - Follow-up meetings will be held with key stakeholders, including near neighbours, adjoining landowners and local community groups, to address outstanding questions and provide further information as the project progresses
    - The City of Coffs Harbour Council will be offered additional briefings to ensure ongoing engagement and transparency
    - The community database will be updated and maintained, with all new feedback and contact details recorded as part of the scoping report process
    - A summary of community and stakeholder engagement activities, including key issues raised and how they have been addressed, will be included in the scoping report
    - Further opportunities for feedback will be promoted through the project website, direct correspondence, and community newsletters
    - An updated email and Frequently Asked Questions (FAQs) document will be distributed to the community to inform them of the scoping report submission and provide clear information on next steps and how to stay involved.
2. The Project 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
    - In-person information sessions will be held during EIS engagement.
3. 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

- 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 estimated engagement plan for the Project is outlined below in Table 5-5, timings to be finalised after the SEARs is released and EIS preparations begin, the engagement timings are subject to change depending on the Agency timings.

Table 5-5: Proposed Engagement Collateral and Activities – EIS Preparation

Item	Description / Purpose	Targeted Stakeholders
Project Newsletter Emailed or direct post as requested from Project contact database. Newsletters will then be added to the Project website and available for anyone to access.	Newsletter will likely include: • An update on Project progress, including specific technical reports, and anticipated next steps. • Invitation to stakeholders and the community to participate in upcoming engagement activities to inform the EIS.	• All stakeholders who have requested to be provided with regular Project updates via Project database (Community database) • Community (6 -7 km radius) • General public via the Project website.
Community and stakeholder correspondence at key Project milestones.	• Letters and/or emails at critical Project milestones to communicate latest information, for example when the Scoping Report is available to view online.	• Stakeholders identified in CSEP and SEARs • Community database • Host landowners • Adjacent landowners
Project Fact Sheets	• Highly graphic and engaging way to present more detailed Project information in an easy-to-read format. • May focus on specific issues if the need arises, i.e. technical reports as part of EIS. • Will be made available on the Project website and at community engagement activities as appropriate.	• All
Continued Project enquiry phone line and email	• Accessible platforms to enable the Project team to receive and respond to enquiries via the dedicated Project enquiry phone line and email.	• All
Project Website	• Updates to Project website, as required, to act as a single source of truth for the latest Project information and milestones. • Provides a platform to direct community enquiries. • Provides updates to general Project FAQs as and when the need arises to address common community questions or concerns, or at specific Project milestones.	• All
Community drop-in information session/s **In person event/s**	• Opportunity for the Project team, including key consultants to share Project information with members of the community and stakeholders for feedback. • Informal drop-in style event where Project information boards will help inform conversations with Project team and/or technical Project experts, provide opportunities for questions to be asked and feedback to be received. • Community information sessions will be held in an accessible local community venue. • The timing of this information session/s will be guided by the Project development progress to ensure that the consultation is meaningful. It is likely to occur when the Project team has results of draft technical reports to share for community input.	• Community (within approx. 6 - 7 km radius) • Host landowners • Adjacent landowners • Newsletter database

Item	Description / Purpose	Targeted Stakeholders
	• Session/s may focus on different aspects of the Project during different stages of the EIS preparation, to ensure that the consultation is meaningful.	
Engagement with community members **Face to face meetings, videoconference meetings/phone calls, briefing letters and email correspondence.**	• Briefings and meetings at key Project milestones and as required.	• Community, including adjacent and neighbouring landowners • Host landowners
Stakeholder Engagement **Face to face meetings, videoconference meetings/phone calls, briefing letters and email correspondence.**	• Briefings and meetings at key Project milestones and as required. • Correspondence to support this engagement. • Proactive outreach and consultation with relevant government agencies as part of any formal assessment requirement outlined in the SEARs and as required.	• Stakeholders identified in CSEP and SEARs, including government agencies as appropriate.
Service provider consultation **Face to face meetings, videoconference meetings/phone calls, briefing letters and email correspondence.**	• Ongoing consultation with relevant service providers to coordinate inputs and requirements to refine Project design.	• Service providers
First Nations Consultation **Face to face meetings, videoconference meetings/phone calls, briefing letters and email correspondence.**	• The EIS will be accompanied by and ACHA Report which will be prepared in consultation with RAPs under the NPW Act in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010). • The Project team will also engage with First Nations peoples who are impacted by or have an interest in the Project, in addition to the formal ACHA process. This consultation aims to foster a deeper understanding of specific concerns, provide an opportunity for feedback, and explore ways in which First Nations communities can benefit from the Project.	• First Nations Communities
Consultation during the public exhibition phase	• Engagement activities to be carried out by the Applicant will be confirmed closer to this milestone.	• All

6. Environmental Assessment

6.1. Preliminary Environmental Risk Assessment

A preliminary environmental risk assessment has been prepared to identify potential environmental impacts that may require consideration in the EIS for the Project. The preliminary risk ratings represent conditions prior to detailed assessment or the application of mitigation measures and are therefore precautionary and worst-case in nature for the purposes of this Scoping Report. The assessment draws on experience from other BESS approvals, a preliminary review of the Project Site, and a review of SEARs for comparable BESS projects to identify the key environmental issues requiring further assessment.

The Australia and New Zealand Risk Management Standard (AS/NZS ISO 31000:2018) defines risk management as "the coordinated activities to direct and control an organisation with regard to risk" (Standards Australia, 2018). Risk is present throughout all stages of the Project life cycle and may present both potential opportunities and threats; therefore, it must be managed appropriately.

This Scoping Report applies an environmental impact assessment methodology consistent with AS/NZS ISO 31000:2018, incorporating the following steps:

- Potential risks (environmental impacts) are identified through the Environmental Assessment process
- Mitigation strategies and actions are developed to avoid, minimise, or manage identified risks
- Each risk is assessed in terms of its likelihood of occurrence and the consequences should the risk eventuate.

Table 6-1 provides a risk matrix used to undertake the environmental risk assessment and determines a risk rating of low, medium, high or extreme for each potential impact.

Table 6-1 Environmental Risk Assessment Rating Risk Matrix

Risk Assessment Matrix		Consequence				
		Minor	Major	Severe	Critical	Catastrophic
		A	B	C	D	E
Very Unlikely	1	Low	Low	Medium	Medium	Medium
Unlikely	2	Low	Low	Medium	Medium	High
Possible	3	Low	Medium	High	High	High
Likely	4	Medium	Medium	High	High	Extreme
Almost Certain	5	Medium	High	High	Extreme	Extreme

Table 6-2 summarises the outcomes of the preliminary environmental risk assessment, including potential impacts and risks, and identifies the assessments that will be undertaken to evaluate and minimise environmental risk as part of the EIS. In addition, this section provides further detail on the environmental and social matters and associated receivers that may be affected by the Project, including a preliminary evaluation of impact scale, impact characteristics, and the sensitivity of the receiving environment. Cumulative impacts will also be assessed for each specialist study in accordance with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026).

Table 6-2: Preliminary risk assessment summary

Environmental Factor	Phase (Construction / Operation)	Potential Impact	Likelihood	Consequence	Risk	Further Studies Required/Potential Avoidance and/or Mitigation Measures
Visual Amenity	Construction and Operation	Reduction in visual amenity from visible containers	Almost certain	Major	High	Further studies required: • Undertake Landscape and Visual Impact Assessment as part of the EIS in accordance with the Technical Supplement for Landscape and Visual Impact Assessment (DPHI 2024c). Potential avoidance and mitigation measures: • Concept design to minimise visual impacts. • Establish vegetation planning to provide visual screening.
		Impact on scenic/landscape character	Likely	Minor	Medium	
Noise and Vibration	Construction and Operation	Noise impacts during the construction and operational phases.	Likely	Major	Medium	Further studies required: • Undertake a Noise and Vibration Impact Assessment as part of the EIS in accordance with the Large-Scale Solar Energy Guidelines (DPHI, 2024b). Potential mitigation measures: • Concept design to minimise noise and vibration impacts. • The construction work hours will be in accordance with the *Interim Construction Noise Guideline* (EPA, 2020)
		Increased traffic noise as a result of the construction and operation phases	Likely	Minor	Medium	
Biodiversity	Construction and Operation	Disturbance of terrestrial and aquatic vegetation	Almost Certain	Major	High	Further studies required: • Undertake Biodiversity Development Assessment Report (BDAR) as part of the EIS in accordance with the *Biodiversity Assessment Methodology* (BAM, 2020). Potential mitigation measures: • Concept design to adhere to avoid, minimise, mitigate, and offset principles. • Where impacts to biodiversity cannot be avoided, mitigate through the preparation of a Biodiversity Management Plan, including measures to undertake prior to construction such as pre-clearance surveys. • Where impacts cannot be mitigated, prepare an Offset Strategy to retire biodiversity credit obligations.
		Disturbance/loss of habitat	Almost Certain	Major	High	
		Indirect impact of the Project e.g., light, noise, spread of weeds/pests	Almost Certain	Major	High	
Traffic and Transport	Construction	Additional vehicles on local roads	Almost certain	Major	High	Further studies required: • Undertake a Traffic and Transport Impact Assessment as part of the EIS.

Environmental Factor	Phase (Construction / Operation)	Potential Impact	Likelihood	Consequence	Risk	Further Studies Required/Potential Avoidance and/or Mitigation Measures
						• Undertake an External Route Study as part of the EIS. Potential mitigation measures: • Prepare a Traffic Management Plan.
Aboriginal Heritage	Construction	Potential to impact on previously unrecorded Aboriginal objects, sites, or culturally modified trees	Possible	Major	Medium	Further studies required: • Undertake an ACHA as part of the EIS in accordance with the *Guide to investigating, assessing, and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011), the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a), and the *Aboriginal cultural heritage consultation requirements for Applicants* (DECCW 2010b). The ACHA will be conducted by a qualified archaeologist. Potential avoidance and mitigation measures: • Design a Cultural Heritage Management Plan and outline how ground disturbance will be undertaken to minimise impact to heritage items if identified within the Project Site • Develop an unexpected finds protocol for Aboriginal artefacts to be incorporated into the Construction Environmental Management Plan (CEMP) for the Project
Historic Heritage	Construction	Potential to impact on previously unknown historical archaeological relics	Unlikely	Minor	Low	Further studies required: • Undertake a Historic Heritage Assessment as part of the EIS to establish the potential impacts and likelihood of previously unidentified historical archaeological relics being present within the Project Site. This should include a review of historic aerial images, parish maps, and relevant reports of the area. Potential mitigation measures: • In the first instance impacts to identified Aboriginal items and objects will be avoided where possible. • Develop an unexpected finds protocol for historical heritage items that were not identified during the Historic Heritage Assessment to be incorporated into the CEMP for the Project.
Groundwater and Surface Water	Construction and Operation	Reduction in water quantity, flooding, and disturbance to waterways	Almost Certain	Major	High	Further studies required: • Undertake a Surface Water, Groundwater, and Flooding Impact Assessment as part of the EIS.

Environmental Factor	Phase (Construction / Operation)	Potential Impact	Likelihood	Consequence	Risk	Further Studies Required/Potential Avoidance and/or Mitigation Measures
		including impacts to aquatic biodiversity.				• Undertake an Aquatic Habitat and Riparian Land Impact Assessment as part of the EIS. Potential mitigation measures: • In the first instance, major watercourses will be avoided except where crossings are required for access roads and transmission lines. • If watercourses within the Project Site require crossing for infrastructure, Project design will consider the Controlled Activities – Guidelines for Riparian Corridors on Waterfront Land (DCCEEW, 2025) and Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (DPI, 2013). • Prepare a CEMP prior to any construction works to address measures to be adopted to minimise impacts on the environment because of the construction works, including the protection of water resources. • Acquire water access licence if necessary.
Social	Construction	Localised impacts on physical and mental health from air pollution, water pollution and noise during construction	Possible	Minor	Low	Further studies required: • Undertake a Social Impact Assessment in accordance with the Social Impact Assessment Guideline (DPHI, 2026c) as part of the EIS. Potential mitigation measures: • Ongoing community consultation throughout the preparation of the EIS, construction, and operation. • Continuous updating of the Community Engagement Strategy. • Prepare an Accommodation and Employment Strategy.
	Construction and Operation	Safety impacts through increased traffic on local roads during construction, and potential for bushfire during construction and operation	Almos certain	Major	High	
Economic	Construction	Use of local natural resources during construction	Unlikely	Minor	Low	Further studies required: • Undertake an Economic Impact Assessment as part of the EIS. Potential mitigation measures: • Implement a 'buy local' practice where goods and services can be purchased from local businesses. • Advertise construction jobs locally.
	Construction and Operation	Decreased land value because of the Project	Possible	Minor	Low	
Bushfire	Construction and Operation	Potential for bushfire starting from construction activities or potential for	Possible	Severe	High	Further studies required:

Environmental Factor	Phase (Construction / Operation)	Potential Impact	Likelihood	Consequence	Risk	Further Studies Required/Potential Avoidance and/or Mitigation Measures
		construction to be affected by an external bushfire. Potential for bushfire starting within the Site due to vegetation or electrical malfunction or to be affected by an external bushfire				• Undertake a Bushfire Risk Assessment as part of the EIS in accordance with *Planning for Bush Fire Protection (PBP), A Guide for Councils, Planners, Fire Authorities and Developers 2019* (NSW RFS, 2019). Potential mitigation measures: • Development of a Bushfire Management Plan and/or Emergency Response Plan. • Incorporate appropriate emergency vehicle access into the Project design. • Incorporate infrastructure setbacks from the Project Site boundary that will form Asset Protection Zones.
Soils and Agriculture	Construction and Operation	Soil erosion of the Project Site because of exposure of soils during the construction phase. Soil erosion of the Project Site as a result of exposure of soils due to poor vegetation management during the operational phase.	Possible	Minor	Low	Further studies required: • Undertake an Agriculture Impact assessment / Soil Assessment which includes land use conflicts in accordance with the *Land Use Conflict Risk Assessment Guide* (DPI, 2011), as part of the EIS Potential mitigation measures: • Prepare a CEMP prior to any construction works to establish measures to be adopted to minimise impacts on the environment because of the construction works, including soil erosion and compaction. • As part of the CEMP, prepare a Sediment and Erosion Control Plan • Prepare an Operational Environmental Management Plan (OEMP) prior to operations to be adopted to minimise impacts on the environment as a result the Project's operational activities including soil erosion and compaction. • If potential contamination is discovered stop work and inform the project manager • Any soils identified during construction work that are discoloured or odorous, including asbestos or other anthropogenic materials should be segregated for further assessment and characterisation by an appropriately experienced environmental consultant • Keep a functioning 'spill-kit' on site at all times for clean-up of accidental spills. • Include a spill response process within the CEMP and OEMP.
	Construction	Incidental discovery of soil contamination	Unlikely	Minor	Low	
	Construction and Operation	Accidental contamination of soil because of a chemical spill	Possible	Minor	Low	
	Construction and Operation	Land use capability – loss of productive soils during construction and use of and removal of rural land for the Project	Almost certain	Minor	Medium	

Environmental Factor	Phase (Construction / Operation)	Potential Impact	Likelihood	Consequence	Risk	Further Studies Required/Potential Avoidance and/or Mitigation Measures
						• If storage of chemicals and fuels are required, these should be stored within designated bunded areas, identified with appropriate signage. • Record all stored chemicals on a register with their MSDS's. • Ensure all tools and machinery are in good working order and without fuel, oil, or hydraulic leaks. Repair or remove equipment immediately. Develop a Decommissioning Management Plan that will have an objective of returning the land capability to its pre-existing agricultural capacity
Air Quality	Construction	Dust and exhaust emissions during the construction phase	Almost certain	Minor	Medium	Potential mitigation measures: • Prepare a CEMP prior to any construction works to establish measures to be adopted to minimise impacts on the environment because of the construction works, including dust and exhaust emissions. • Monitor work areas for dust generation and spray water to suppress dust if required. • Minimise use of machinery for required activity only. • Ensure all plant and equipment used for the Project are maintained regularly and operated in a proper and efficient manner

Likelihood – unlikely, possible, likely, almost certain; **Consequence** – negligible, minor, moderate, high, extreme; **Risk** – negligible, minor, moderate, extreme

6.2. Preliminary Environmental Assessment

A preliminary environmental assessment has been undertaken alongside the preliminary environmental risk assessment (Section 6.1) to identify the environmental and social matters requiring further investigation during the EIS. The anticipated level of assessment for each identified matter within the EIS has also been determined.

Consistent with the *State Significant Development Guidelines – Preparing a Scoping Report* (DPE, 2021), the identification of environmental and social matters requiring further assessment has considered:

- The scale and nature of potential project impacts and the sensitivity of the receiving environment, including likely receptors
- The potential for cumulative impacts with other relevant existing or proposed projects in the locality
- The extent to which project impacts can be avoided, minimised, mitigated and/or offset based on the findings of the preliminary assessment.

This section outlines the environmental and social matters identified for further assessment and the proposed approach to addressing these matters within the EIS. The matters have been categorised in accordance with the categories set out in the *State Significant Development Guidelines – Preparing a Scoping Report* (DPE, 2021). A scoping summary table is provided in Appendix A, summarising the need for cumulative impact assessment, consultation requirements, and the relevant government plans, policies and guidelines to be considered for each matter during the EIS.

The level of assessment required for each environmental and social matter, as defined in Appendix D of the *State Significant Development Guidelines – Preparing a Scoping Report* (DPE, 2021), is presented in Table 6-3.

Table 6-3: Level of assessment required for each environmental and/or social matter assessed

Level of Assessment	Definitions	Environmental / Social Matter
Detailed	The Project has the potential to result in significant impacts on the identified matter, including cumulative effects. Assessing these impacts will require comprehensive studies and investigations undertaken by suitably qualified technical specialists.	• Biodiversity (Native Vegetation, Fauna, and Aquatic Ecology) • Heritage (Aboriginal and Historic) • Water (Hydrological Flows, Surface and Groundwater Quality and Water Availability) • Amenity (Landscape and Visual and Noise and Vibration) • Traffic and Transport (Property Access and Road Network) • Hazards (Bushfire and Battery Storage) • Social (Health, Safety, Housing Availability and Community Benefits) • Economic (Natural Resource Use, Livelihood, Opportunity Cost and Economic Benefits)
Standard	The Project is unlikely to result in significant impacts on the identified matter, including cumulative effects. Although technical specialists will be involved in the impact assessment, the impacts are expected to be well understood, readily predicted using standard assessment methodologies, and capable of being mitigated to meet relevant standards or performance criteria.	• Air (Particulate Matter, Gases and Atmospheric Emissions) • Land (Stability, Topography, Geology and Land Capability) • Hazards (Climate Change and Public Health) • Waste (Resource Use and Waste Management)

6.3. Landscape and Visual

A Preliminary Visual Assessment was undertaken by Moir Studios (2026; C) to identify potential affected viewpoints and receivers of the Project.

6.3.1. Existing Environment

The Project is located within the Orara Valley, a rural landscape defined by pastoral landforms, vegetated ridgelines and major regional waterways. A 2 km Study Area from the Development Area has been identified for the assessment and contains a mix of cleared valley floors and densely vegetated slopes typical of the Orara River sub-catchment. Within the Project Site, land uses include grazing areas, remnant vegetation and the existing Coffs Harbour Transgrid 330kV Substation, with scattered rural dwellings in the surrounding locality of Karangi.

The landscape is shaped by undulating valley landforms rising to steep forested ridges that frame the Orara Valley. Key hydrological features include the Orara River along the northern boundary and smaller tributaries and drainage lines across the area. Karangi Dam, southwest of the Project, provides regional water supply and public viewing areas. Vegetation ranges from fragmented patches across cleared land to continuous riparian and slope-based stands dominated by Wet Sclerophyll Forests and Rainforest communities.

Man-made elements include rural dwellings, agricultural infrastructure and utilities such as high-voltage transmission lines connected to the existing Coffs Harbour Transgrid 330kV Substation. Local sealed roads form the main transport network, with Coramba Road linking Coffs Harbour and the Orara Valley. The North Coast Railway Line traverses the Study Area, and although part of the Orara East State Forest is present, no formal recreational assets occur nearby.

The preliminary viewshed represents the geographic area from which the Project may be visible, based on viewshed mapping undertaken to identify lines of sight between the Project and the surrounding landscape. Viewshed mapping is used as an initial screening tool to exclude areas within the Study Area where the Project would not be visible, thereby focusing the visual assessment on locations with potential visibility. The results of this preliminary viewshed analysis are illustrated in Figure 6-1, which shows the extent of land from which the Project could theoretically be seen and informs the selection of representative viewpoints for further visual impact assessment.

The preliminary visual assessment identified 135 non-associated dwellings within 2 km of the Project. The Project Site contains one (1) associated receiver within the Development Area which will be removed as part of this SSD Application. There are two (2) non-associated receivers that border the Project Site.

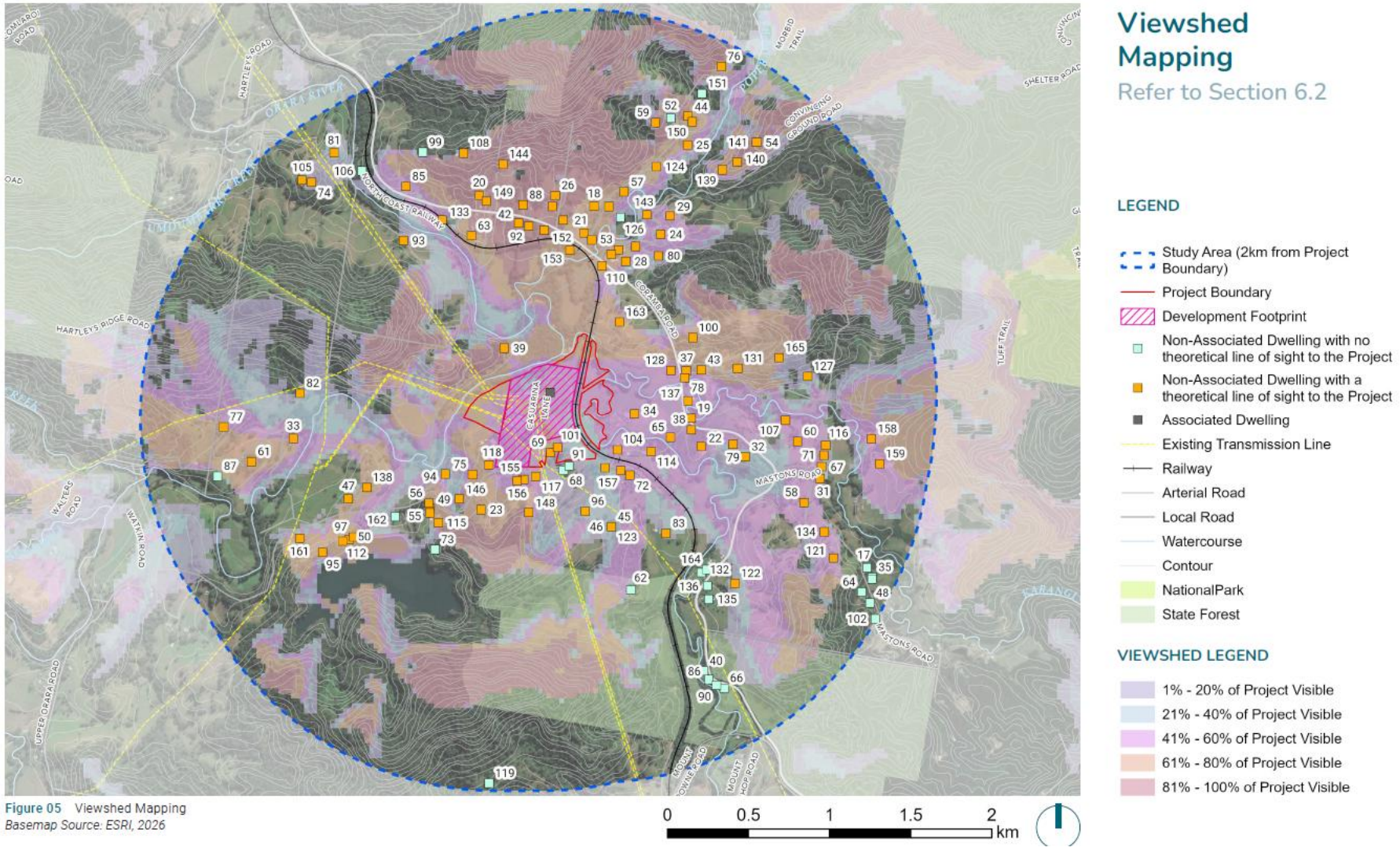

Figure 6-1 Viewshed mapping

6.3.2. Potential Impacts

Preliminary viewshed modelling, which represents a worst-case scenario based solely on topography, indicates that portions of the Project may be theoretically visible from up to 106 non-associated dwellings and 12 public viewpoints. Visibility is primarily associated with portions of Coramba Road, most of Upper Orara Road, and elevated land to the north, while undulating terrain to the south provides natural screening.

Potential visual impacts relate to the introduction of new built elements during the construction and operational phases. However, the Project will be sited in an area where the existing landscape character is already heavily influenced by the presence of the existing Coffs Harbour Transgrid 330kV Substation and its associated high-voltage transmission lines. The addition of new BESS infrastructure has the potential to elevate the overall visual magnitude experienced by nearby receptors. However, actual visibility will be heavily dependent on intervening vegetation, landform, and distance.

At a regional scale, cumulative visual impacts will be assessed in accordance with DPHI's *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b)

6.3.3. EIS Assessment Approach

A Landscape Character and Visual Impact Assessment (LCVIA) will be prepared following receipt of the SEARs, drawing on the relevant guidelines to assess impacts on nearby residences, public viewpoints, scenic vistas and road corridors. The assessment will begin with baseline landscape analysis, combining desktop review, fieldwork, panoramic photography and drone imagery to define existing landscape character and identify areas sensitive to change.

The visual impact assessment will analyse theoretical visibility from 110 non-associated dwellings, review baseline photography from 12 public viewpoints, and develop photomontages or wireframes for key public and private receivers to illustrate project visibility and screening.

Night-time lighting impacts will be assessed with reference to the *Dark Sky Planning Guideline* to identify potential effects on sensitive receivers and recommend appropriate lighting mitigation (DPHI, 2023).

Based on assessment outcomes and community consultation, mitigation strategies will be developed to support landscape integration and reduce visual impacts to acceptable levels.

6.4. Noise and Vibration

6.4.1. Existing Environment

The Project Site is situated within a rural setting with moderate to low relief and undulating topography adjacent to the existing Coffs Harbour Transgrid 330 kV Substation. The main sources of existing background noise include continuous operational noise from the Coffs Harbour Transgrid 330 kV Substation, traffic noise from local roads, the adjacent Australian Rail Track Corporation (ARTC) North Coast Line, and other lower sources of background noise that characterise the area including natural sounds and occasional agricultural activity. The ARTC North Coast Line, an interstate corridor that facilitates an average of six non-stopping freight train movements per day and six non-stopping passenger train movements per day. While the exact timing of the freight passes is variable and distributed throughout the 24-hour period, passenger movement services follow a fixed schedule passing through Karangi during the day and night.

There is a total of 135 non-associated receivers within 2 km of the Project Site which will be considered as noise sensitive receivers for the purposes of the noise assessment (Figure 6-2).

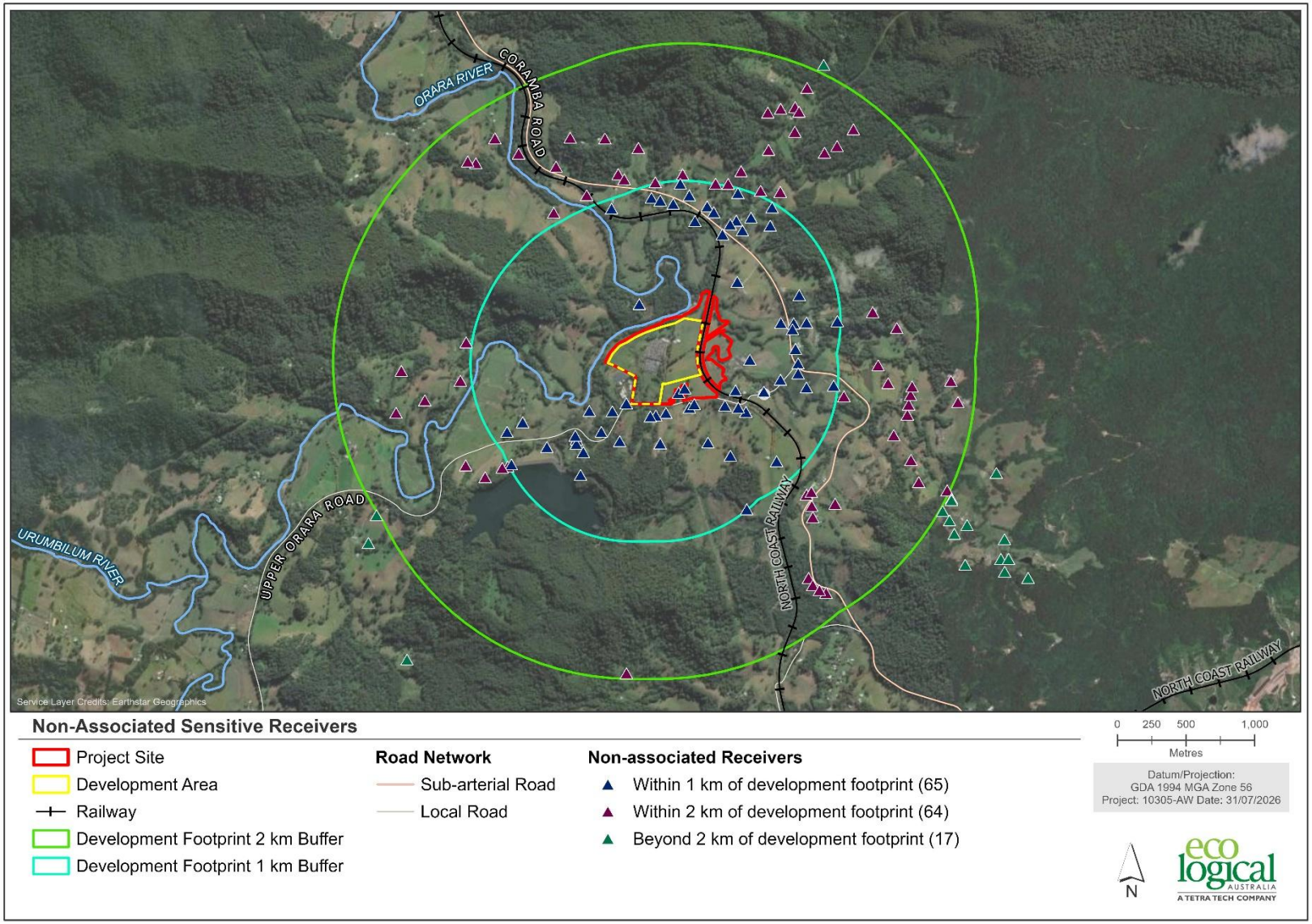

Figure 6-2: Noise sensitive receivers in relation to the Project

6.4.2. Potential Impacts

Construction vehicles and machinery – including the allowance for two (2) OSOM vehicles – would be the most relevant in contributing noise and vibration impacts during construction. During operation, noise would be generated primarily by the BESS container cooling system and inverters.

The preliminary layout intentionally locates the BESS equipment and inverters, generating noise during operation, as far as possible from potential noise sensitive receivers. Preliminary noise investigations have confirmed that achieving noise management levels, in accordance with the *NSW Noise Policy for Industry (2017)*, at nearby noise sensitive receivers is feasible with available BESS equipment and noise mitigation control.

Construction Noise

Construction activities are expected to represent the primary source of Project-related noise and therefore have the greatest potential to result in noise impacts at nearby receivers. As such, a detailed construction noise assessment would be undertaken to identify and manage potential impacts during the construction phase.

The construction noise assessment would be conducted in accordance with the *Interim Construction Noise Guideline* (ICNG). Predicted construction noise levels would be calculated generally in accordance with the methodology outlined in *Australian Standard 2436:2010 Guide to noise and vibration control on construction, demolition and maintenance sites* (AS 2436). Noise modelling would be informed by project-specific work areas, construction plant, and the proposed staging or phasing of works, as defined by the Applicant, to ensure a representative and conservative evaluation of potential impacts at nearby receivers.

Where predicted construction noise levels are anticipated to exceed the ICNG noise management levels, reasonable and feasible mitigation and management measures would be identified to minimise potential impacts. These may include the implementation of considerate work practices, scheduling controls, or the use of quieter plant and temporary noise controls. Such measures are typically documented within a Construction Noise and Vibration Management Plan (CNVMP), which would form part of the broader Environmental Management Plan (EMP). A high-level summary of construction noise mitigation measures may be included in the EIS, where required.

Operational Noise

Operational noise emissions are expected to be relatively limited, with the majority of project-related noise anticipated to occur during the construction phase. However, potential operational noise impacts would be assessed to confirm that ongoing activities do not result in negative impacts to nearby receivers.

A detailed operational noise assessment would be undertaken in accordance with Section 3.1 of the NPfI. The assessment would be informed by Project-specific operational equipment, including sound power level data and technical specifications, and would consider representative operational scenarios for each relevant assessment period. The assessment would incorporate a detailed Project layout identifying the locations of all operational noise-generating infrastructure and would apply three-dimensional noise modelling to account for topography and its influence on predicted noise levels at surrounding receivers.

The assessment would also consider the potential for tonal or other distinctive noise characteristics, based on the specific equipment proposed. Where potential impacts are identified, appropriate

mitigation measures would be developed to minimise operational noise emissions, which may include manufacturer-provided attenuation treatments, equipment enclosures, or the installation of noise barriers.

Traffic Noise

The traffic noise assessment would be undertaken in accordance with Section 3.4 of the RNP. Traffic noise impacts during Project operation are expected to be minimal, with construction activities anticipated to generate most traffic movements associated with the Project. As such, operational traffic noise on public roads is not expected to require detailed assessment as part of the EIS.

The assessment would also consider the potential for sleep disturbance impacts arising from out-of-hours oversize or over-mass (OSOM) vehicle movements during the construction phase.

6.4.3. EIS Assessment Approach

The procedure for determining the background noise levels is outlined in the Noise Policy for Industry (NPfI) and will be used to complete the operational noise assessment (EPA, 2017). The construction noise assessment will be completed under the Interim Construction Noise Guideline (ICNG) (EPA, 2020).

A detailed NVIA in accordance with the NPfI and ICNG, will be prepared at the EIS stage. This will include:

- Selection of project-specific equipment and provision of the associated sound power level data and specifications
- Review of the status of dwellings/receivers in relation to any private agreements
- Identification of operational conditions applicable to each assessment period
- A detailed Project layout showing the exact locations of all noise-generating infrastructure
- 3-D noise modelling that accounts for topographic influences on predicted noise levels at sensitive receivers
- Assessment of potential tonality based on the Applicant's selected equipment
- Identification of feasible noise mitigation measures, such as manufacturer-supplied attenuation kits or noise barriers
- Based on typical SEARs for comparable projects, further assessments will also likely be required, including:
    - Construction noise assessment in accordance with the ICNG (2009), with predicted levels modelled using the methodology in AS 2436:2010 Guide to noise and vibration control on construction, demolition and maintenance sites
    - Assessment under the Noise Policy for Industry (EPA, 2017)
    - Traffic noise assessment following the DECCW Road Noise Policy (2011)
    - Evaluation of cumulative noise impacts, including contributions from nearby industrial facilities.

6.5. Biodiversity

A preliminary biodiversity constraints assessment was undertaken by Biosis (2026; Appendix D) to describe the ecological values and constraints associated with the Project Site.

6.5.1. Existing Environment

The Project Site is wholly located within the Coffs Coast and Escarpment subregion within the NSW North Coast Bioregion (Interim Biographic Regionalisation for Australia (IBRA)). The NSW North Coast Bioregion is characterised by hills, coastal plains and sand dunes consisting of *Eucalyptus* open forests and woodlands, sub-tropical rainforest, wetlands and heaths.

Regional soil landscape mapping indicates that the Project Site occurs on the Clarence - Richmond Alluvial Plains Mitchell landscape (Mitchell, 2002). Characteristic flora species of the Clarence – Richmond Alluvial Plains have been extensively cleared historically. The Nymboida Great Escarpment Mitchell landscape (Mitchell, 2002) occurs extensively in the locality in close proximity to the Project Site.

Two natural watercourses occur within the immediate vicinity of the Project Site. Orara River is a 6th order watercourse in accordance with the Strahler system and is the most significant waterway that occurs directly adjacent to the Project Site along a minor portion of the northern boundary. The Orara River is outside of the Project Site, however influences vegetation along its northern boundary. An unnamed 1st order watercourse is present in the west of the Project Site.

Category One Land

A review of land categorisation under the LLS Act was undertaken by Biosis. This Land Category Assessment (LCA) clarifies the native vegetation management and land use regime of the Project Site and where applicable to do so, land to be mapped as 'Category 1 exempt land'. Land mapped or determined as Category 1 - Exempt land is not required to be assessed under the BAM, with the exception of prescribed impacts.

A detailed LCA and review of desktop vegetation mapping to PCT was undertaken to inform the extent of the area subject to assessment under the BAM and BC Act, as well as preliminary PCT mapping and field validation. This was then compared to the Native Vegetation Regulatory Map (NVR Map) as well as the review of historical imagery from 1990 to present, where available (Figure 6-3).

Site-based floristic assessment was undertaken to verify the presence or absence of the Critically Endangered Ecological Communities (CEEC), critically endangered plants and other Category 2 – Regulated land criteria, to confirm at the site scale, whether the criteria for Category 1 - Exempt land are met. The method applied followed both stage 2 and stage 3 of the IGGAM. Biosis understands this approach is consistent with regulatory expectations during the transitional period, allowing survey data to be collected in a scientific and objective manner to determine the conservation value of grasslands and ground cover. Six transects were collected in areas considered to be Category 1 - Exempt land as well as six BAM plots. Both methods when analysed determined that land assessed met the conditions of low conversation grasslands and can remain as Category 1 - Exempt land.

Preliminary Plant Community Types

The following Plant Community Types (PCTs) have been identified within the Project Site:

- PCT 3020 Northern Hinterland River Oak Sheltered Forest
- PCT 3021 Northern Lowland Subtropical Rainforest

- PCT 3161 Mid North Hinterland Wet Forest
- PCT 3167 Northern Hinterland Blackbutt-Forest Oak Wet Forest
- PCT 3959 Coast Sands Baumea articulata Sedgeland.

These PCTs occur in several broad condition states, and respective vegetation zones for each were mapped in accordance with the Biodiversity Assessment Method (BAM, 2020). The condition states of zones observed in the Project Site are defined below:

- Moderate condition: Areas of sparse-moderate canopy cover, some native midstorey (low diversity), predominantly native groundcover with low to moderate native diversity, high woody weed cover
- Low condition: Areas of sparse canopy cover, no native midstory, high woody weed cover, predominantly exotic understorey with low percentage cover of scattered native understory species
- Derived: Areas of no native canopy, some native midstory, predominantly native ground cover and low-moderate woody weed cover
- Scattered Trees: Areas of remnant canopy species with cleared midstory and exotic understory
- Planted: Areas of sparse canopy cover that has been planted consistent with the local PCT, no native midstory, predominantly exotic understorey with low percentage cover of scattered native understory species.

Areas containing no mapped native vegetation were assigned to the following:

- Exotic grassland: Non-native understory vegetation dominated by grasses
- Exotic trees: Non-native canopy vegetation.

A summary of ground validated PCTs and vegetation in the Project Site is provided below in Table 6-4 and these vegetation zones are shown on Figure 6-4.

Threatened Ecological Communities

Two Threatened Ecological Communities (TECs) have been identified within the Project Site. Vegetation conforming to TECs in the Project Site are shown on Figure 6-4.

PCT 3021 in the Project Site is most consistent with the BC Act listed EEC *Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion*. Given the *Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion* EEC's final determination provides inclusion of degraded areas, all patches of PCT 3021 are considered the BC Act listed EEC (NSW Environment and Heritage, 2011).

Unlike the BC Act listed EEC *Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion* present in the Project Site, the EPBC Act CEEC *Lowland Rainforest of Subtropical Australia* must satisfy further criterion to be listed, including high species richness with a minimum of 30 woody species from Appendix A of the community listing (Threatened Species Scientific Committee, 2011). The patch of PCT 3021 in the Project Site does not meet this criterion, due to a lack of woody species diversity, and therefore is not considered to be the EPBC Act CEEC.

The EPBC Act CEEC is likely to be present outside of the Project Site only, adjacent to the Orara River, however these areas were not assessed in detail. These patches outside of the Project Site are in a more natural, higher quality state due to less historical disturbance and are likely to meet the key

diagnostic characteristics and minimum condition thresholds for the EPBC Act CEEC (Threatened Species Scientific Committee, 2011).

Similarly, the PCT 3959 patches are associated with the BC Act EEC *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*. Areas of PCT 3959 in the Project Site are consistent with this BC Act TEC due to meeting the following listing criteria for the community (NSW TSSC, 2010):

- Occurs on Coastal Floodplains of the NSW North Coast bioregion
- Associated with periodic or semi-permanent inundation by freshwater, although there may be minor saline influence
- Varying composition primarily determined by the frequency, duration and depth of waterlogging and may be influenced by the level of nutrients and salinity in the water and substrate
- Dominated by herbaceous species and sedges
- Contains characteristic species including *Persicaria strigosa, Ludwigia peploides, Cyperus* species and *Baumea* species.

The other PCTs in the Project Site are not consistent with any TECs listed under the BC Act or the EPBC Act.

Table 6-4: Summary of ground validated PCTs within the Project Site

PCT/vegetation community	Description	Area (ha)	Vegetation class	Associated TEC and listing status	
				BC Act	EPBC Act
3020 – Northern Hinterland River Oak sheltered Forest	• **Structure:** Mid – tall forest • **Upper stratum:** Dominated by exotic species *Cinnamomum camphora* (Camphor Laurel) and native canopy is *Casuarina cunninghamiana subsp. cunninghamiana* (River Oak), *Alphitonia excelsa* (Red Ash), *Toona ciliata* (Red Cedar), *Ficus macrophylla subsp. macrophylla* (Moreton Bay Fig) and *Araucaria cunninghamii* (Hoop Pine) and were also present. • **Mid stratum:** *Acacia melanoxylon.* • **Ground stratum:** Carex brunnea (Greater Brown Sedge,) *Dichondra repens* (Kidney Weed), *Pteridium esculentum* (Bracken) and *Lomandra hystrix*. • **Occurrence:** Generally, in the northwestern boundary of the Project Site, near Orara River.	Vegetation zones • **Moderate**: 0.60 ha • **Low:** 0.09 ha • **Planted:** 0.05 ha • **Scattered Trees:** 0.02 ha • **Total:** 0.76 ha	Eastern Riverine Forests	-	-
3021 – Northern Lowland Subtropical Rainforest	• **Structure:** Tall–very tall dense rainforest. • **Upper stratum:** *Cinnamomum camphora*, *Neolitsea dealbata* (Hairy-leaved Bolly Gum), *Sloanea australis* (Maiden's Bush), *Sloanea woollsii* (Yellow Carabeen), *Sarcopteryx stipata* (Steelwood). • **Mid stratum:** *Cyathea cunninghamii* (Slender Treefern), *Cordyline stricta* (Narrow-leaved Palm Lily), *Sarcopteryx stipata*, *Asplenium australasicum* (Bird's Nest Fern). • **Ground stratum:** *Lomandra longifolia* (Spiny-headed Mat-rush), *Lomandra hystrix*, *Commelina cyanea*. • **Occurrence:** Directly adjacent to the Orara River at the north end of Casuarina Lane. Note: occurrences in the Project Site are lower quality (reduced native woody species diversity) and therefore represent the BC Act TEC only, not the EPBC Act TEC.	Vegetation zones • **Moderate:** 0.20 • **Total:** 0.20	Subtropical Rainforests	*Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions* (Endangered)	*Lowland Rainforest of Subtropical Australia* (Critically Endangered)
3161 – Mid North Hinterland Wet Forest	• **Structure:** Extremely tall sclerophyll open forest. • **Upper stratum**: *Cinnamomum camphora*, *Eucalyptus grandis* (Flooded Gum), *Eucalyptus saligna* (Sydney Blue Gum), *Eucalyptus microcorys* (Tallowwood) [infrequent].	Vegetation zones • **Moderate:** 0.52 • **Low:** 0.84 • **Planted:** 0.27 • **Derived:** 0.37 • **Total:** 2.00	North Coast Wet Sclerophyll Forests	-	-

PCT/vegetation community	Description	Area (ha)	Vegetation class	Associated TEC and listing status	
				BC Act	EPBC Act
	• **Mid stratum:** *Ligustrum sinense*, *Ozothamnus diosmifolius* (White Dogwood), *Archontophoenix cunninghamiana*, *Pittosporum undulatum* (Sweet Pittosporum), *Acacia melanoxylon*. • **Ground stratum:** *Lomandra longifolia*, *Lomandra hystrix*, *Commelina cyanea*. • **Occurrence:** In various conditions through the Project Site.				
3167 – Northern Hinterland Blackbutt-Forest Oak Wet Forest	• **Structure:** Very tall to extremely tall sclerophyll forest. • **Upper stratum:** *Cinnamomum camphora* present; *Eucalyptus pilularis* (Blackbutt) in remnant canopy. • **Mid stratum:** *Ligustrum sinense*, *Archontophoenix cunninghamiana*, *Pittosporum undulatum*, *Acacia melanoxylon.* • **Ground stratum:** *Lomandra longifolia*, *Lomandra hystrix*, *Commelina cyanea*, *Centella sp*. • **Occurrence:** In various conditions through the Project Site.	Vegetation zones • **Moderate:** 0.03 • **Low:** 0.24 • **Total:** 0.27	Northern Hinterland Wet Sclerophyll Forests	-	-
3959 – Coast Sands Baumea articulata Sedgeland	• **Structure:** Very tall freshwater sedgeland in closed depressions. • **Ground stratum:** *Baumea sp*., *Cyperus spp.*, *Ludwigia spp.*; fringe vegetation degraded by weed ingress from surrounding exotic grasslands. • **Occurrence:** Fringing waterways or waterbodies; weedy species prevalent along edges.	Vegetation zones • **Moderate:** 0.45 • **Low:** 0.04 • **Total:** 0.49	Coastal Freshwater Lagoons	*Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions* (Endangered)	-
Exotic trees	• Scattered exotic trees in exotic-dominated paddocks: *Cinnamomum camphora,* occasional *Araucaria sp.*, *Acer sp*. • **Occurrence:** Scattered within exotic paddocks.	**Total:** 2.10	-	-	-
Exotic grassland	• Exotic-dominated grassland paddocks: *Cenchrus clandestinus* (Kikuyu), *Digitaria sanguinalis* (Crab Grass*), Lolium rigidum* (Wimmera Ryegrass), *Paspalum sp.*; weeds including *Cirsium vulgare* (Spear Thistle), *Lantana camara* (Lantana), *Senecio madagascariensis* (Fireweed), *Verbena bonariensis* (Purpletop), *Solanum mauritianum* (Wild Tobacco Bush). • **Occurrence:** Extensive across the Project Site; source of weed ingress into remnant patches.	**Total:** 21.00	-	-	-

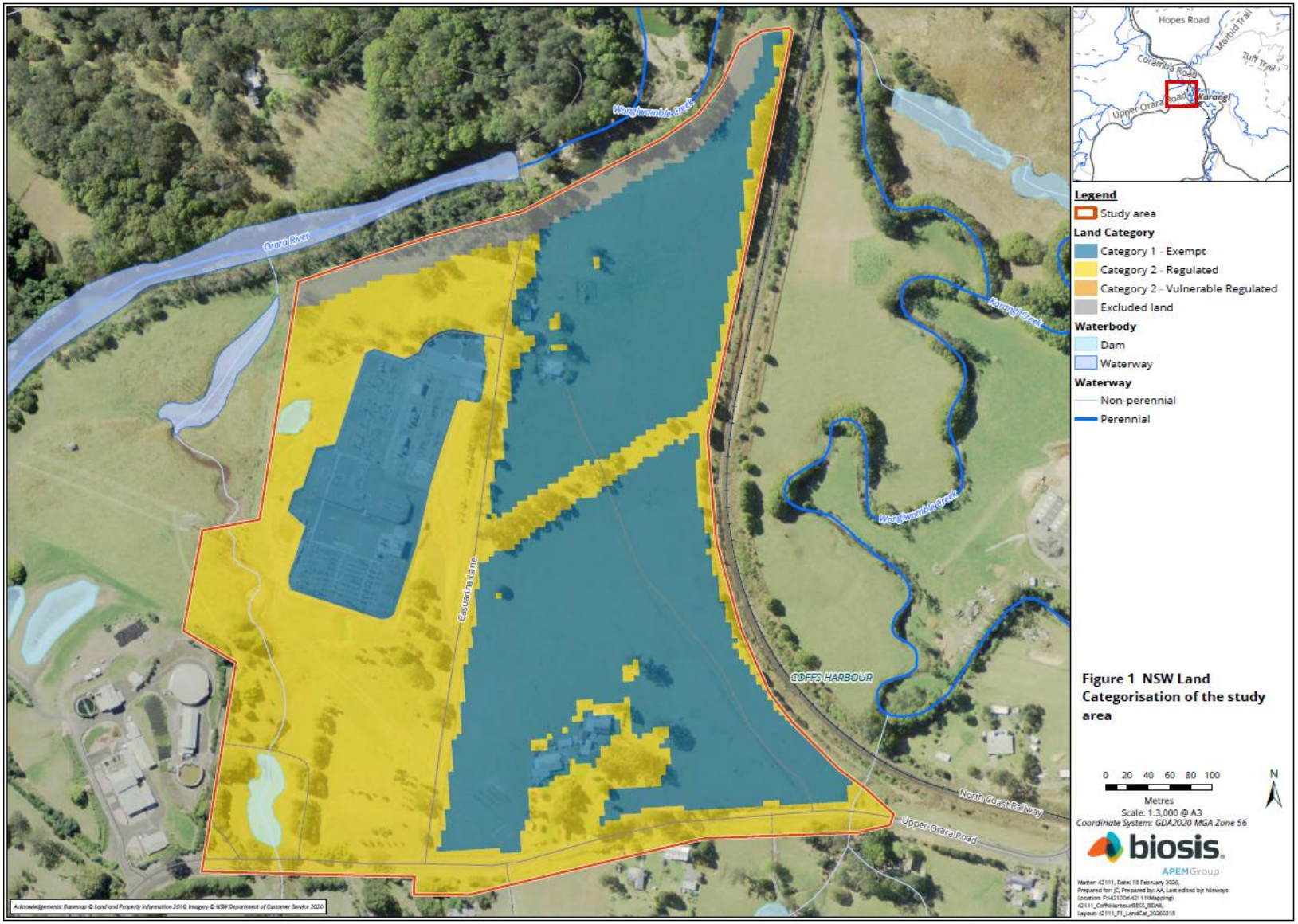

Figure 6-3: NSW Land Categorisation of the Survey Area (DCCEEW, 2025; Biosis, 2026)

Figure 6-4: PCTS and TECs identified within the Survey Area (Biosis, 2026)

Threatened Flora and Fauna

Background searches (BioNet and PMST) and use of the BAM Calculator identified numerous threatened flora and fauna species recorded (NSW DCCEEW 2025b) or predicted to occur (DCCEEW, 2025) within 5 km of the Project Site. These species have been ranked as having a low, medium or high likelihood of occurrence within the Project Site based on a preliminary assessment of habitat values (Table 6-5).

The vegetation zones within the Project Site were entered into the BAM Calculator to generate a list of predicted ecosystem credit species and species credit species. Table 6-5 also outlines the species credit species predicted to occur within the Project Site (i.e. candidate species). These species will require targeted survey in accordance with the BAM endorsed species/guild survey guidelines to determine presence/absence and to assess impacts as part of the preparation of the Biodiversity Development Assessment Report (BDAR) to accompany the EIS.

First season targeted surveys have been completed for threatened species in the January 2026 period in accordance with the BAM. During these surveys a number of threatened species were identified including Powerful Owl (*Ninox strenua*; vulnerable, BC Act), White-bellied Sea-Eagle (*Haliaeetus leucogaster*; vulnerable, BC Act), Grey-headed Flying-fox (*Pteropus poliocephalus*; vulnerable, BC Act and EPBC Act) and Giant Barred Frog (*Mixophyes iteratus*; vulnerable, BC Act and EPBC Act).

Table 6-5: Threatened species predicted to occur in the Project Site

Scientific Name	Common Name	EPBC Act Status	BC Act Status	Likely Occurrence in Project Site
Acacia chrysotricha	Newry Golden Wattle	Not Listed	Endangered	Low
Acronychia littoralis	Scented Acronychia	Endangered	Endangered	Low
Arthraxon hispidus	Hairy Jointgrass	Vulnerable	Vulnerable	Medium
Asperula asthenes	Trailing Woodruff	Vulnerable	Vulnerable	Medium
Bertya sp. Clouds Creek (M. Fatemi 4)	-	Endangered	Not Listed	Low
Belvisia mucronata	Needle-leaf Fern	Not Listed	Endangered	Medium
Boronia umbellata	Orara Boronia	Vulnerable	Vulnerable	Medium
Corynocarpus rupestris subsp. rupestris	Glenugie Karaka	Vulnerable	Vulnerable	Low
Cryptostylis hunteriana	Leafless Tongue Orchid	Vulnerable	Vulnerable	Low
Cynanchum elegans	White-flowered Wax Plant	Endangered	Endangered	Medium
Danhatchia copelandii		Not Listed	Critically Endangered	Low
Dichanthium setosum	Bluegrass	Vulnerable	Vulnerable	Low
Endiandra hayesii	Rusty Rose Walnut	Vulnerable	Vulnerable	Low
Eucalyptus glaucina	Slaty Red Gum	Vulnerable	Vulnerable	Medium
Fontainea sp. Coffs Harbour (A. S. Benwell 341, NSW1102027)	-	Critically Endangered	Not Listed	Low
Haloragis exalata subsp. velutina	Tall Velvet Sea-berry	Vulnerable	Vulnerable	Low
Hicksbeachia pinnatifolia	Red Boppel Nut	Vulnerable	Vulnerable	Medium
Macadamia integrifolia	Macadamia Nut	Vulnerable	Not Listed	Medium
Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Vulnerable	Low
Marsdenia longiloba	Slender Marsdenia	Vulnerable	Endangered	Medium

Scientific Name	Common Name	EPBC Act Status	BC Act Status	Likely Occurrence in Project Site
Niemeyera whitei	Rusty Plum / Plum Boxwood	Not Listed	Vulnerable	Medium
Oberonia titania	Red-flowered King of the Fairies	Not Listed	Endangered	Low
Owenia cepiodora	Onion Cedar	Vulnerable	Vulnerable	Low
Parsonsia dorrigoensis	Milky Silkpod	Endangered	Vulnerable	Low
Persicaria elatior	Tall Knotweed	Vulnerable	Vulnerable	Low
Phaius australis	Southern Swamp Orchid	Endangered	Endangered	Low
Plectranthus nitidus	Nightcap Plectranthus (as listed)	Endangered	Endangered	Low
Quassia sp. Moonee Creek	Moonee Quassia	Endangered	Endangered	Low
Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Critically Endangered	Medium
Rhodomyrtus psidioides	Native Guava	Critically Endangered	Critically Endangered	Medium
Samadera sp. Moonee Creek (J. King s.n. Nov 1949)	-	Endangered	Endangered	Low
Sarcochilus fitzgeraldii	Ravine Orchid	Vulnerable	Vulnerable	Low
Sarcochilus hartmannii	Hartman's Sarcochilus	Vulnerable	Vulnerable	Low
Senna acclinis	Rainforest Cassia	Not Listed	Endangered	Low
Syzygium hodgkinsoniae	Red Lilly Pilly	Vulnerable	Vulnerable	Low
Thesium australe	Austral Toadflax	Vulnerable	Vulnerable	Low
Tinospora smilacina	Tinospora Vine	Not Listed	Endangered	Low
Tylophora woollsii	Cryptic Forest Twiner	Endangered	Endangered	Medium
Typhonium sp. aff. brownii	Stinky Lily	Not Listed	Endangered	Low
Zieria prostrata	Headland Zieria	Endangered	Endangered	Low
Actitis hypoleucos	Common Sandpiper	Migratory	Not Listed	Low
Aepyprymnus rufescens	Rufous Bettong	Not Listed	Vulnerable	Medium
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Critically Endangered	Low
Apus pacificus	Fork-tailed Swift	Migratory	Not Listed	Low
Ardenna pacifica	Wedge-tailed Shearwater	Migratory	Not Listed	Low
Ardenna tenuirostris	Short-tailed Shearwater	Migratory	Not Listed	Low
Argynnis hyperbius inconstans	Australian Fritillary	Critically Endangered	Endangered	Low
Assa darlingtoni	Pouched Frog	Vulnerable	Vulnerable	Low
Atrichornis rufescens	Rufous Scrub-bird	Endangered	Vulnerable	Medium
Botaurus poiciloptilus	Australasian Bittern	Endangered	Endangered	Low
Calidris acuminata	Sharp-tailed Sandpiper	Vulnerable / Migratory	Vulnerable	Low
Calidris canutus	Red Knot	Endangered / Migratory	Vulnerable	Low
Calidris ferruginea	Curlew Sandpiper	Critically Endangered	Critically Endangered	Low
Calidris melanotos	Pectoral Sandpiper	Migratory	Not Listed	Low

Scientific Name	Common Name	EPBC Act Status	BC Act Status	Likely Occurrence in Project Site
Calyptorhynchus lathami lathami	South-Eastern Glossy Black-Cockatoo	Vulnerable	Vulnerable	Medium
Charadrius leschenaultii	Greater Sand-plover	Vulnerable / Migratory	Vulnerable	Low
Chalinolobus dwyeri	Large-eared Pied Bat	Endangered	Endangered	Low
Cercartetus nanus	Eastern Pygmy-possum	Not Listed	Vulnerable	Medium
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern subspecies)	Vulnerable	Vulnerable	Medium
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	Vulnerable	Vulnerable	Low
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	Critically Endangered	Critically Endangered	Low
Cuculus optatus	Oriental Cuckoo	Migratory	Not Listed	Low
Dasyurus maculatus	Spotted-tailed Quoll	Endangered	Vulnerable	Low
Erythrotriorchis radiatus	Red Goshawk	Endangered	Endangered	Low
Ephippiorhynchus asiaticus	Black-necked Stork	Not Listed	Endangered	Medium
Falsistrellus tasmaniensis	Eastern False Pipistrelle	Not Listed	Vulnerable	Low
Falco hypoleucos	Grey Falcon	Vulnerable	Vulnerable	Low
Gallinago hardwickii	Latham's Snipe	Vulnerable / Migratory	Vulnerable	Medium
Grantiella picta	Painted Honeyeater	Vulnerable	Vulnerable	Medium
Haematopus fuliginosus	Sooty Oystercatcher	Not Listed	Vulnerable	Low
Haematopus longirostris	Pied Oystercatcher	Not Listed	Endangered	Low
Haliaeetus leucogaster	White-bellied Sea-Eagle	Not Listed	Vulnerable	Medium
Harrisoniascincus zia	Rainforest Cool-skink	Vulnerable	Vulnerable	Low
Hieraaetus morphnoides	Little Eagle	Not Listed	Vulnerable	Medium
Hirundapus caudacutus	White-throated Needletail	Vulnerable / Migratory	Vulnerable	Medium
Hoplocephalus bitorquatus	Pale-headed Snake	Not Listed	Vulnerable	Low
Hoplocephalus stephensii	Stephens' Banded Snake	Not Listed	Vulnerable	Low
Lathamus discolor	Swift Parrot	Critically Endangered	Endangered	Medium
Litoria aurea	Green and Golden Bell Frog	Vulnerable	Endangered	Low
Litoria brevipalmata	Green-thighed Frog	Not Listed	Vulnerable	Low
Litoria olongburensis	Wallum Sedge Frog	Vulnerable	Vulnerable	Low
Lophoictinia isura	Square-tailed Kite	Not Listed	Vulnerable	Low
Melanodryas cucullata cucullata	South-eastern Hooded Robin	Endangered	Endangered	Low
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Not Listed	Vulnerable	Medium
Miniopterus australis	Little Bent-winged Bat	Not Listed	Vulnerable	Medium
Miniopterus orianae oceanensis	Large Bent-winged Bat (oceanensis)	Not Listed	Vulnerable	Medium
Maccullochella ikei	Eastern Freshwater Cod	Endangered	FM Act: Endangered (BC Act: Not Listed)	Low

Scientific Name	Common Name	EPBC Act Status	BC Act Status	Likely Occurrence in Project Site
Mixophyes balbus	Stuttering Frog	Vulnerable	Endangered	Low
Mixophyes iteratus	Giant Barred Frog	Vulnerable	Vulnerable	Low
Motacilla flava	Yellow Wagtail	Migratory	Not Listed	Low
Myuchelys georgesi	Bellinger River Snapping Turtle	Critically Endangered	Critically Endangered	Low
Myotis macropus	Southern Myotis	Not Listed	Vulnerable	Medium
Neophema chrysostoma	Blue-winged Parrot	Vulnerable	Vulnerable	Low
Ninox connivens	Barking Owl	Not Listed	Vulnerable	Medium
Ninox strenua	Powerful Owl	Not Listed	Vulnerable	Medium
Notamacropus parma	Parma Wallaby	Vulnerable	Vulnerable	Low
Numenius madagascariensis	Eastern Curlew	Critically Endangered / Migratory	Critically Endangered	Low
Pandion cristatus / Pandion haliaetus	Eastern Osprey / Osprey	Not Listed / Migratory	Vulnerable	Low
Parvipsitta pusilla	Little Lorikeet	Not Listed	Vulnerable	Medium
Philoria sphagnicolus	Sphagnum Frog	Vulnerable	Vulnerable	Low
Phoniscus papuensis	Golden-tipped Bat	Not Listed	Vulnerable	Low
Phascolarctos cinereus	Koala	Endangered	Vulnerable	Medium
Petauroides volans	Southern Greater Glider	Endangered	Endangered	Medium
Petaurus australis	Yellow-bellied Glider	Vulnerable	Vulnerable	Medium
Petrogale penicillata	Brush-tailed Rock-wallaby	Vulnerable	Endangered	Low
Phyllodes imperialis smithersi	Pink Underwing Moth	Endangered	Endangered	Low
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Not Listed	Vulnerable	Low
Pseudomys novaehollandiae	New Holland Mouse	Vulnerable	Vulnerable	Low
Pseudomys oralis	Hastings River Mouse	Endangered	Endangered	Low
Ptilinopus magnificus	Rose-crowned Fruit-Dove	Not Listed	Vulnerable	Medium
Ptilinopus regina	Wompoo Fruit-Dove	Not Listed	Vulnerable	Medium
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Vulnerable	Medium
Potorous tridactylus	Long-nosed Potoroo	Vulnerable	Vulnerable	Low
Rostratula australis	Australian Painted Snipe	Endangered	Endangered	Low
Saltuarius moritzi	New England Leaf-tailed Gecko	Endangered	Not Listed	Low
Stagonopleura guttata	Diamond Firetail	Vulnerable	Vulnerable	Low
Sternula nereis nereis	Australian Fairy Tern	Vulnerable	Not Listed	Low
Thalasseus bergii	Crested Tern	Migratory	Not Listed	Low
Tringa nebularia	Common Greenshank	Endangered / Migratory	Endangered	Low
Turnix melanogaster	Black-breasted Button-quail	Vulnerable	Critically Endangered	Low

Matters of National Environmental Significance

Based on the results of a PMST run by Biosis in February 2026, and the findings of the preliminary field investigations, MNES potentially of relevance to the Project are provided in Table 6-6. Impacts to

present MNES may potentially require referral to the Commonwealth DCCEEW, depending on impacts proposed as part of the Project.

Table 6-6: MNES of relevance to the Project

MNES	Relevance to the Project
World Heritage Properties	Not identified within the Project Site or a 5 km radius.
National Heritage Places	Not identified within the Project Site or a 5 km radius.
Wetlands of International Importance (Ramsar Wetlands)	Not identified within the Project Site or a 5 km radius.
Great Barrier Reef Marine Park	Not identified within the Project Site or a 5 km radius.
Commonwealth Marine Area	Not identified within the Project Site or a 5 km radius.
Listed Threatened Ecological Communities	A total of four (4) Commonwealth listed TECs are predicted to occur within the Project Site or 5 km buffer. One Commonwealth listed TEC may occur within the immediate surrounds of the Project Site. • *Lowland Rainforest of Subtropical Australia* (Critically Endangered). This EPBC Act listed CEEC was determined to be absent from the Project Site. This CEEC may be present in the remnant vegetation surrounding the Project Site.
Listed Threatened Species	A total of 81 threatened fauna species and 34 threatened flora species are predicted to occur within a 5 km buffer of the Project Site.
Listed Migratory Species	A total of 18 listed migratory species are predicted to occur within a 5 km buffer of the Project Site.

6.5.2. Potential Impacts

Direct and indirect impacts during the construction phase may include clearing, sedimentation, dust deposition, erosion, weed introduction and/or spread, introduction of competitive feral fauna, vehicle/machinery strike, light and noise pollution, and vibration from the movement of equipment and vehicles. Impacts during the operational phase of the Project may include risk of increased cases of electrocution of fauna and a continuation of indirect impacts associated with weed spread.

Significant efforts have been made to date to locate the Project to avoid impacts to biodiversity with Project design to be updated following the preliminary constraints assessment (Biosis, 2026). Biodiversity will continue to feature as a key component to the Project design throughout the lifecycle of the biodiversity assessment.

The key receptors for potential impacts are nearby ecosystems, vegetation communities, flora and fauna species. The potential impacts during construction and operation will likely include the following:

- Construction
    - Disturbance/loss of vegetation during construction, including potential direct (clearing) and indirect impacts (sedimentation, dust deposition, erosion, weed introduction and/or spread, soil and/or water pollution) to TECs and threatened flora species
    - Direct impacts including disturbance / loss of habitat, injury and mortality from vehicle strike, and loss of wildlife corridors. Indirect impacts including impacts resulting from light, noise, and dust
    - Potential direct impacts on terrestrial ecosystems including loss or modification of habitat for aquatic and terrestrial species. Potential indirect impacts through the introduction and spread of weeds and pests, sedimentation and erosion, soil and water pollution, light, noise, and dust
- Operation:
    - Potential direct impacts due to traffic and maintenance activities (though significantly less than the construction phase)
    - Potential increase in risk of electrocution of native fauna via a short new connection.

The cumulative impacts in relation to the new transmission line from the Project Site to the existing Coffs Harbour Transgrid 330 kV Substation as well as potential cumulative biodiversity impacts on TECs will also be considered.

6.5.3. EIS Assessment Approach

An assessment under the NSW Biodiversity Offset Scheme (BOS) using the BAM will be undertaken and a BDAR will be prepared and included in the EIS to address impacts to TECs, and threatened species protected under the BC Act. The BDAR will be prepared in accordance with the BAM detailing the Project scope and the associated biodiversity values, how the Project has avoided and minimised impacts to biodiversity, and an impact assessment for those residual impacts that could not be avoided. This will include an impact assessment in accordance with the EPBC Act.

Further consultation with Renewable Energy Biodiversity Support (REBS) team within CPHR will be undertaken following the Scoping Report lodgement. The land categorisation method will be shared with CPHR for comment.

Targeted surveys for the species identified in Table 6-5 will be undertaken in accordance with the relevant BAM endorsed species/guild survey guidelines.

Opportunities for further impact avoidance, mitigation and offset measures will be discussed throughout the BDAR preparation stage, particularly avoidance of TECs and any potential future identified threatened species or their habitat. Avoid and minimise are a key component of the BAM and must be demonstrated in the BDAR.

Regarding the provisions of the EPBC Act, while preliminary biodiversity surveys have been conducted, additional detailed surveys are required to determine potential impacts on MNES. The Project may have the potential to have a significant impact upon Commonwealth listed threatened species and ecological communities and a Referral to the Commonwealth DCCEEW may be required. If the Commonwealth determine that the Project is likely to have a significant impact upon MNES, the Project will become a 'Controlled Action' and assessed under the NSW Bilateral Agreement with the Commonwealth. A referral will be made to the Commonwealth for either a 'Non-controlled' or 'Controlled Action' once impacts upon MNES from the Project have been determined.

6.6. Traffic and Transport

A Preliminary Traffic Assessment was undertaken by PDC Consultants (2026; Appendix E) to identify potential impacts to transport routes and local traffic because of the Project.

6.6.1. Existing Environment

The Project Site primary access point is via Upper Orara Road through to Casuarina Lane (on site). As this is within a rural environment, Casuarina Lane is subject to an 80km/h speed limit demonstrating the low traffic volume within the Karangi locality. Due to the rural setting, there is no official formal traffic count data available to confirm traffic volume. Upper Orara Road is used for the access of both the Coffs Harbour Transgrid 330 kV Substation and Karangi water treatment plant and therefore subject to previous road and intersection upgrades to facilitate their construction. The existing road condition including intersections will be investigate during the EIS for the suitability of the Project.

Upper Orara Road and Coramba Road form a key connection to rural areas between Coffs Harbour and the Pacific Highway. The traffic patterns in this network will change significantly with the construction of the Coffs Harbour Bypass (to be complete late 2026), which will reduce traffic on the existing highway from about 35,000 to 12,600 vehicles per day. While some surrounding roads may see minimal increases, the bypass will generally improve traffic flow, reduce congestion, and enhance access for construction vehicles associated with the Project.

Two intersections to be used during construction and operation of the Project (Casuarina Lane/Upper Orara Road and Coramba Road/Upper Orara Road) will require detailed consideration due to narrow road widths, limited shoulders, and existing traffic conflicts, particularly at the Coramba Road intersection. Both locations may need upgrades or temporary traffic management to safely accommodate increased project-related heavy vehicle movements and ensure the intersections operate effectively during construction.

Public transport accessibility within the area is minimal due to the rural nature of the locality. There are no train stations within proximity to the Project Site. The nearest is Coffs Harbour Railway Station at 11 km southeast and the nearest bus stop being 4 km from the Project Site. Buses do not run at regular intervals, limiting public transport access to the site. This means that workforce travel to the site will rely on private vehicle access.

The surrounding area contains rural road environment and limited active transport infrastructure. This infrastructure is limited as there are no dedicated footpaths, shared paths or marked cycle lanes within proximity to the Project Site. However, the broader Coffs Harbour and Orara region contains several established cycle and walking routes used for recreational purposes. There is limited active infrastructure specifically for commute use within proximity to the Project Site and the region relies heavily on private vehicle use or public transport within more populated areas. The transport route for the Project is shown in Figure 6-5.

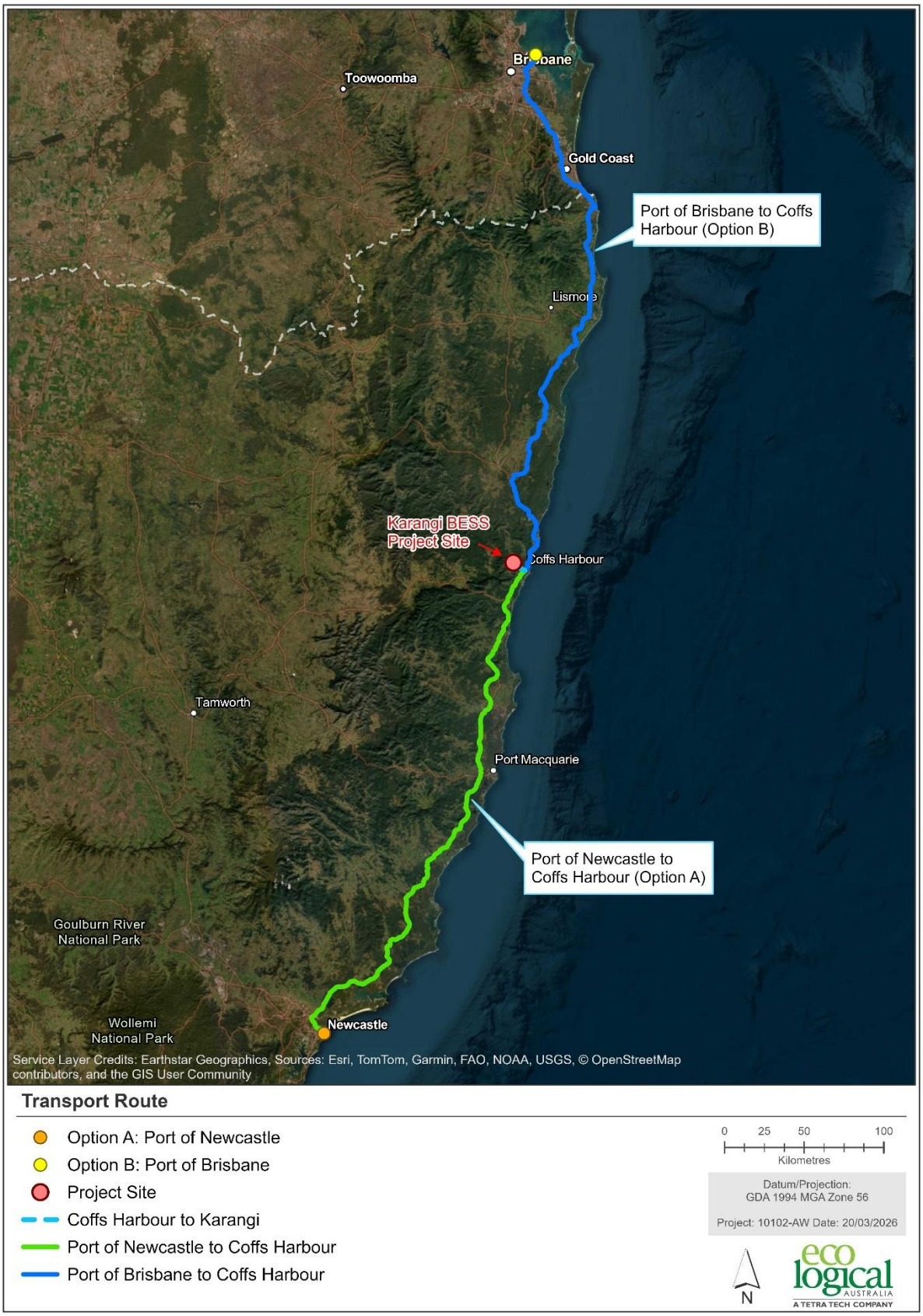

Figure 6-5 Transport Route

6.6.2. Potential Impacts

Construction

The construction phase is expected to create the highest level of traffic activity, resulting in a range of temporary impacts on the surrounding road network. Increased movements of construction workers, heavy vehicles, and OSOM equipment have the potential to affect road operation, safety, amenity and local access. Key potential impacts to be assessed in the EIS include:

- Road network and pavement impacts
    - Increased daily traffic volumes on Casuarina Lane, Upper Orara Road and Coramba Road may influence road performance, particularly given some sections of the existing carriageways are narrow with limited shoulders
    - Potential need for localised road widening, pavement strengthening, resurfacing or shoulder upgrades to accommodate sustained heavy and OSOM vehicle use
    - Sight distance along heavy vehicle and worker access routes may require verification to ensure safe operation of construction vehicles
- Intersection performance
    - While major performance issues are not anticipated due to low existing traffic volumes, increased construction traffic may temporarily affect queuing and turning movements at key intersections, particularly Casuarina Lane / Upper Orara Road and Upper Orara Road / Coramba Road
    - Detailed assessment is required to confirm whether auxiliary turning lanes, geometric refinements or other safety measures are warranted
- OSOM and route suitability
    - Transport of large battery units, transformers and other electrical infrastructure using a maximum of 2 OSOM vehicles may create temporary impacts along the Pacific Highway, Coramba Road and Upper Orara Road
    - Constraints on Casuarina Lane (including narrow widths and roadside conditions) may require temporary traffic management or upgrades
    - Bridge and culvert load limits, turning radii and geometric suitability along haulage routes require assessment to ensure safe OSOM movements
- Parking and Site access
    - On-Site parking will prevent impacts on rural roads; however, temporary access disruptions may occur where road upgrades, widening or intersection works are required
    - Construction activities may temporarily affect rural property driveways along haulage and access routes
- Public transport and school bus services
    - No major effects on public transport are expected due to low construction traffic volumes; however, interactions with school bus services near Karangi Public School require detailed consideration once construction scheduling is known
- Active transport

- Minimal pedestrian and cyclist impacts are anticipated given low active transport demand in the rural area
- Any short-term effects related to road widening or intersection works will be managed through appropriate traffic controls

- Railway corridor
  - Although haulage routes do not use rail crossings, part of the project site is bisected by the North Coast rail corridor. Construction near the rail line may require additional approvals, asset protection measures and coordination with the relevant rail authority
- Road safety
  - Additional heavy vehicle movements may increase interaction risks along narrow rural roads and at key intersections
  - A review of local crash history indicates existing safety considerations that will be further assessed to identify whether targeted mitigation measures are required.

Operation

Traffic generation during the operation phase is expected to be minimal. Vehicle movements will be limited to routine inspection, monitoring and maintenance visits, with occasional specialist access for equipment servicing. Therefore, operational traffic is unlikely to result in any measurable impacts.

Decommissioning

At the end of the Project's operational life, decommissioning activities will include battery electrical infrastructure and equipment removal from the Project Site. Traffic during this phase will be similar to the construction phase with a shorter duration. OSOM movements may be required to remove major components, however, a detailed assessment of decommissioning traffic impacts will be prepared closer to the end of Project life.

6.6.3. EIS Assessment Approach

A Traffic and Transport Assessment will be undertaken as a technical assessment within the EIS to identify potential impacts during construction, operation and decommissioning of the Project. The assessment will address SEARs requirements and review existing road network conditions on Casuarina Lane, Upper Orara Road, Coramba Road and the Pacific Highway, including traffic volumes, intersection layouts, pavement condition, heavy-vehicle access and crash history. Existing public and active transport facilities will also be considered.

Construction traffic is expected to generate the greatest impact and will form the core of the assessment. Traffic generation will be estimated based on construction staging, workforce numbers and delivery schedules, including light-vehicle workforce trips, heavy-vehicle deliveries and OSOM transport needs. Key intersections along haulage and access routes will be assessed for capacity and safety, with intersection modelling, turning-lane warrants and sight-distance checks undertaken where required. Access design requirements for rural properties will also be addressed.

An OSOM route assessment will be completed to confirm suitable transport corridors from the Pacific Highway to the Site, including review of geometric constraints and swept-path analysis. The assessment will identify whether temporary traffic management, pavement strengthening, widening or other enabling works are required.

Operational traffic is expected to be minimal and limited to periodic inspections and maintenance, with negligible impact on the surrounding network.

Where impacts are identified, mitigation measures may include intersection upgrades, auxiliary turning lanes, pavement improvements, managed delivery schedules, traffic control during key activities and community notifications. A Construction Traffic Management Plan (CTMP) will be prepared prior to construction, detailing haulage routes, OSOM procedures, workforce parking, staging requirements and traffic control measures, in consultation with relevant road authorities.

6.7. Aboriginal Cultural Heritage

A preliminary assessment of Aboriginal Cultural Heritage was undertaken for the Project Site. Ethnographic resources attribute the traditional owners of the Project Site to be part of the Gumbaynggirr (*Kumbainggiri*) language group. Tindale (1974) describes the Gumbaynggirr boundaries as being located between the 'lower course of the Nymboida River and across the range towards Urunga, Coffs Harbor and Bellingen, and near One Tree Point at Woolgoolga and Nambucca Heads' (Tindale, 1974:195).

6.7.1. Existing Environment

AHIMS Database

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 9 February 2026 (AHIMS Search ID 1089922). The search covered a 7 km area surrounding the Project Site to understand the known archaeological resource and provide an understanding of the types of features that might be present in the current landscape. The search identified no previously recorded sites within the Development Area.

The extensive search identified a total of 92 Aboriginal sites within the search parameters (Figure 6-6, Figure 6-7; Table 6-7). Artefact scatters or isolated finds (76.1%) account for the majority of recorded Aboriginal sites in the region. Other common sites include Aboriginal Resource and Gathering sites (4.3%) and culturally modified trees (4.3%). These sites are often located in areas of low to moderate disturbance in proximity to the Orara River and its associated tributaries. It should be noted that the frequency and distribution of site types within the region tends to reflect areas that have undergone previous investigations for major road works and urban developments and may not be an accurate reflection of Aboriginal sites in the region.

AHIMS ID 22-1-0304 (Karangi WTP), is located within the boundaries of the Project Site (Figure 6-6) on AHIMS, however based on the site card description of the site it is likely meant to be at the location of the current water treatment plant outside the Project Site boundary. This site is listed as 'valid' on the AHIMS database and was recorded by Jacqueline Collins in 2007; the site is likely destroyed as it was a subsurface scatter identified through test excavations. The recommendations following the recording were for the construction of the Water treatment plant to go ahead, therefore the AHIMS site has been destroyed. The site comprised a low density artefact scatter (n=40) recovered during test excavations located on a crest / upper slope of a spur. The site was considered to have a low cultural and archaeological significance due to the observed level of disturbance and was considered 'background scatter'. It was recommended that the recovered artefacts be re-deposited once the Water Treatment Plant development works were complete (see site card). Reburied artefacts are recorded on AHIMS as sites AHIMS ID 22-1-0500 and AHIMS ID 22-1-0697.

Other AHIMS sites in close proximity to the Project site are also low density scatters or isolated finds identified in disturbed contexts.

AHIMS ID 22-1-0064 - Two Aboriginal objects identified within an erosion scar associated with a residential property. The Aboriginal sites are on a crest landform overlooking the Orara River, the assessment expected further Aboriginal objects may be present.

AHIMS ID 22-1-0459, AHIMS ID 22-1-0460 and AHIMS ID 22-1-0501 are technically the one Aboriginal site located within a ploughed field across a crest landform overlooking tributaries of the Orara River. AHIMS ID 22-1-0460 is a flaked cobble/ manuport identified on the ground surface. AHIMS ID 22-1-0459 and AHIMS ID 22-1-0501 were identified subsurface through a test pitting program under AHIP

C0000716. Low density scatter was retrieved; the Aboriginal community were expecting a higher density of artefacts to be recovered.

AHIMS ID 22-1-0435 and AHIMS ID 22-1-0458 are an isolated find and low density scatter identified through test pitting under AHIP C0000716 on a similar spur landform to the previous AHIMS sites. The Aboriginal community again identified that there is a medium to high potential for further cultural material to be present in similar landforms.

Table 6-7: Frequencies of site types within the AHIMS search area

Site Features	Number of Sites	Percentage % Of Sites
Aboriginal Ceremony and Dreaming	4	4.3
Aboriginal Resource and Gathering	2	2.2
Artefact	70	76.1
Artefact; Potential Archaeological Deposit (PAD)	8	8.7
Grinding Groove	1	1.1
Modified Tree (Carved or Scarred)	4	4.3
PAD	2	2.2
Water Hole	1	1.1
Total	92	100

6.7.2. Potential Impacts

The Project Site is located across an undulating landform with crests and gentle slopes adjacent to the Orara River and major tributaries. The major water courses and crests are landscape features that indicate the likely presence of Aboriginal objects. Previous investigations surrounding the Project Site have identified Aboriginal sites within similar landforms. Aboriginal community consultation on these previous investigations have highlighted the moderate to high potential for further cultural material to be present in the landform feature of the Project Site and archaeological investigations would be required as part of further assessment. There is potential that works associated with the Project may impact on Aboriginal cultural heritage values during the construction and operational phase (Figure 1-1).

Aboriginal objects are protected under the NPW Act regardless of whether they are registered on AHIMS or not. It is an offence to disturb or damage these sites without first having obtained an AHIP or approvals from the minister for state significant projects. Works or activities that could potentially disturb the ground surface include bulk earthworks, access road construction / upgrades, associated building construction, services installation, and repetitive vehicular movements. These works have the potential to disturb the ground surface and *in situ* subsurface Aboriginal sites.

The key receptors for these potential impacts are Aboriginal people and the community. Construction excavations and the construction of access roads has the potential to impact on known and unknown Aboriginal objects and cultural heritage values. Whereas, during operation, potential impacts could be the result of permanent change to potentially sacred and cultural landscapes and Places for Aboriginal people.

Cumulative impacts to Aboriginal cultural heritage values and degradation of the intactness and significance of known Aboriginal sites and objects will also be considered.

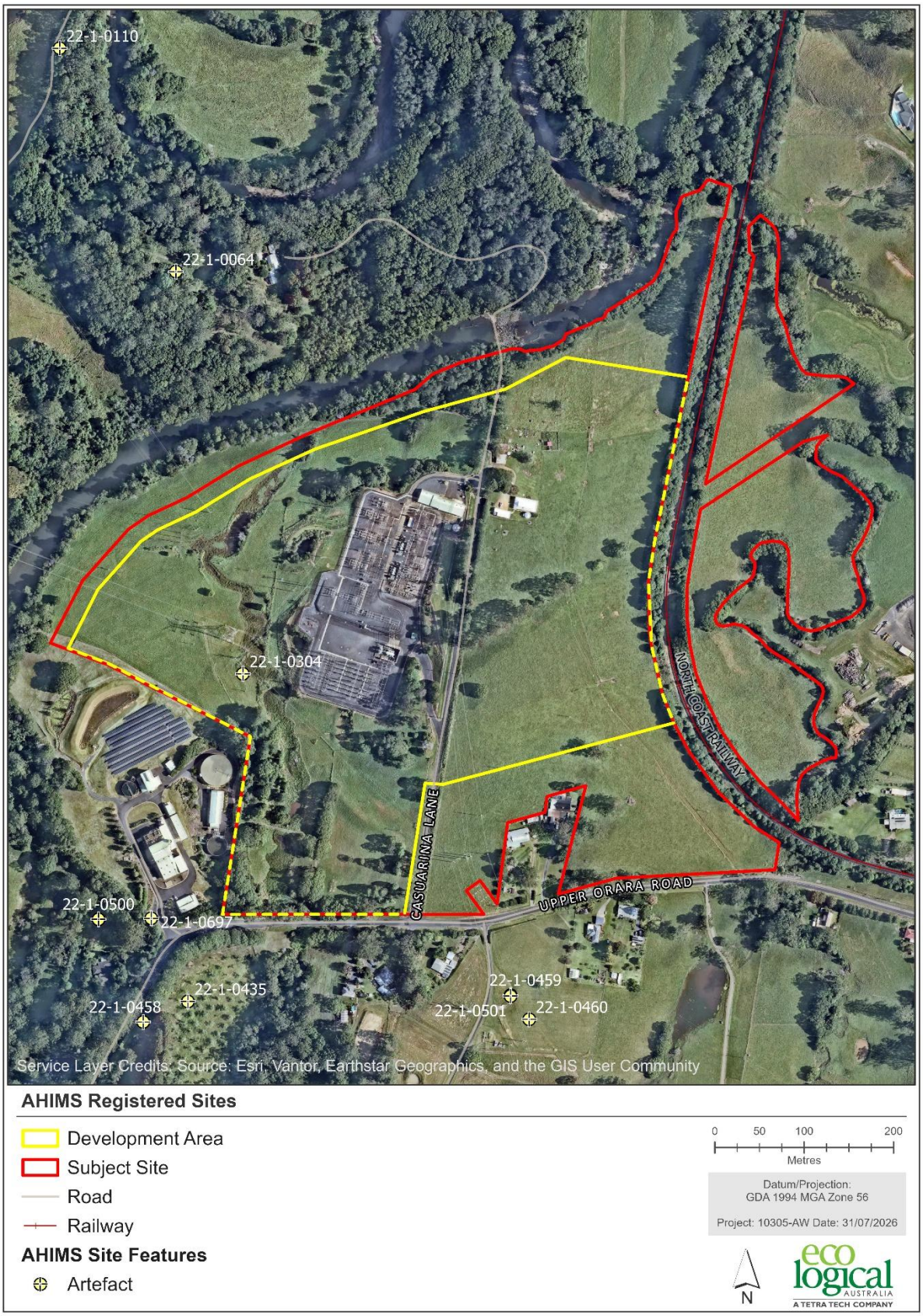

Figure 6-6: AHIMS sites within and surrounding the Project Site

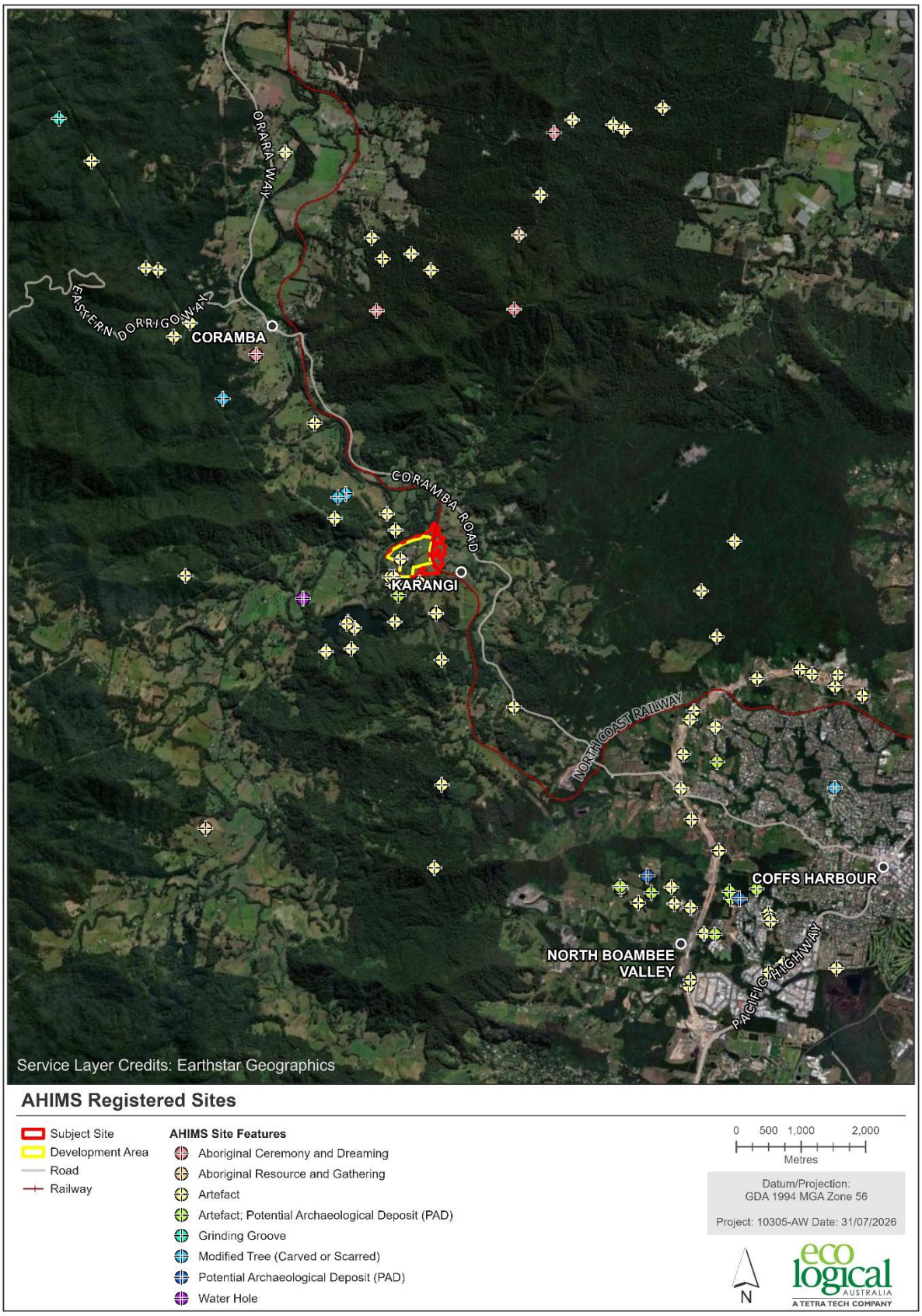

Figure 6-7: AHIMS sites within the surrounding region

6.7.3. EIS Assessment Approach

Based on the size of the Project Site and the presence of archaeologically sensitive landscape features and surrounding AHIMS sites, an Aboriginal Cultural Heritage Assessment (ACHA) will be required to inform the EIS. The ACHA will be prepared in accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) and the requirements of the NPW Act.

As a component of the ACHA process, consultation with the Aboriginal community will be required in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010a). Archaeological test excavations may likely be required in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b). The scope of the ACHA would include:

- Desktop review, including an extensive search of the AHIMS database, NSW State Heritage Inventory, Native Title Search, and a review of previous archaeological investigations undertaken in the region to assist in the development of a predictive model
- Aboriginal stakeholder consultation undertaken in line with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010a)
- An archaeological survey undertaken with Registered Aboriginal Parties (RAPs) to identify and record any objects / sites, areas of archaeological potential or Aboriginal cultural heritage values (social, historical, scientific, and aesthetic values) within the Project Site, specifically areas within the Development Area, as well as re-identifying any previously recorded Aboriginal sites registered on the AHIMS database within the Project Site
- Preparation of an archaeological assessment and methodology for provision to RAPs, including a test excavation methodology (if required)
- Archaeological test excavation if areas of archaeological potential are identified during the desktop assessment and archaeological survey (if required), undertaken with members of the local Aboriginal community / RAPs
- An assessment of potential impacts to any Aboriginal cultural heritage values / Places identified during the assessment
- Development of appropriate management and mitigation strategies for any Aboriginal sites / areas or intangible / tangible values within the Project Site, identified as culturally significant by the local Aboriginal community and that are identified to be directly or indirectly impacted by the Project.

6.8. Historic Heritage

A preliminary heritage assessment was undertaken by ELA to provide insight into the risks the Project may pose to the heritage values of the Project Site.

6.8.1. Existing Environment

Early European occupation of the Coffs Harbour region began in the 1840s, as maritime exploration of northern NSW was difficult due to a lack of natural harbours, and land-based exploration was hindered by dense forests and large rivers (Coffs Harbour Heritage Study 2015:9). The first European known to visit Coffs Harbour was John Korff in the 1840s, however it was not until the 1860s – 1870s that European cedar-getters began to settle in the region and in the Orara Valley (Coffs Harbour Heritage Study, 2015:10-12). As European settlers expanded into the region, hostilities between European cedar-getters and the local Aboriginal people became increasingly hostile and violent, with tensions heightened over the European exploitation of land and traditional resources (Thomas, 2013).

Searches of the, NSW State Heritage Inventory (SHI) and Australian Heritage Database were undertaken on 19 February 2026 to determine if there were any places of historic heritage significance listed on the World (WHL), National (NHL) Commonwealth (CHL), State (SHR and s170) or local (LEP) heritage registers being located within or in proximity to the Project Site Figure 6-8.

No historic heritage items were recorded on these databases as being within or in the immediate vicinity of the Project Site.

6.8.2. Potential Impacts

The *Heritage Act 1977* (Heritage Act) provides protection of the environmental heritage of the State which includes places, buildings, works, relics, movable objects or precincts that are of State or local heritage significance. Under Section 140 of the Heritage Act, a person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a 'relic' being discovered, exposed, moved, damage or destroyed unless the disturbance or excavation is carried out in accordance with a Section 140 permit.

Section 4(1) of the Heritage Act (as amended 2009) defines a 'relic' as *"any deposit, artefact, object or material that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and is of State or Local heritage significance".* The Heritage Council must be notified on the discovery of a relic under Section 146 of the Heritage Act.

The key receptor for these potential impacts is the community outlines the potential historic heritage impacts from the Project (Figure 6-8). During construction, the excavation and access road construction has the potential to impact on unknown historic relics/artefacts. This could include impacts to build structures, archaeological sites or artefacts/relics.

Cumulative impacts to historic heritage will also be considered within the assessment.

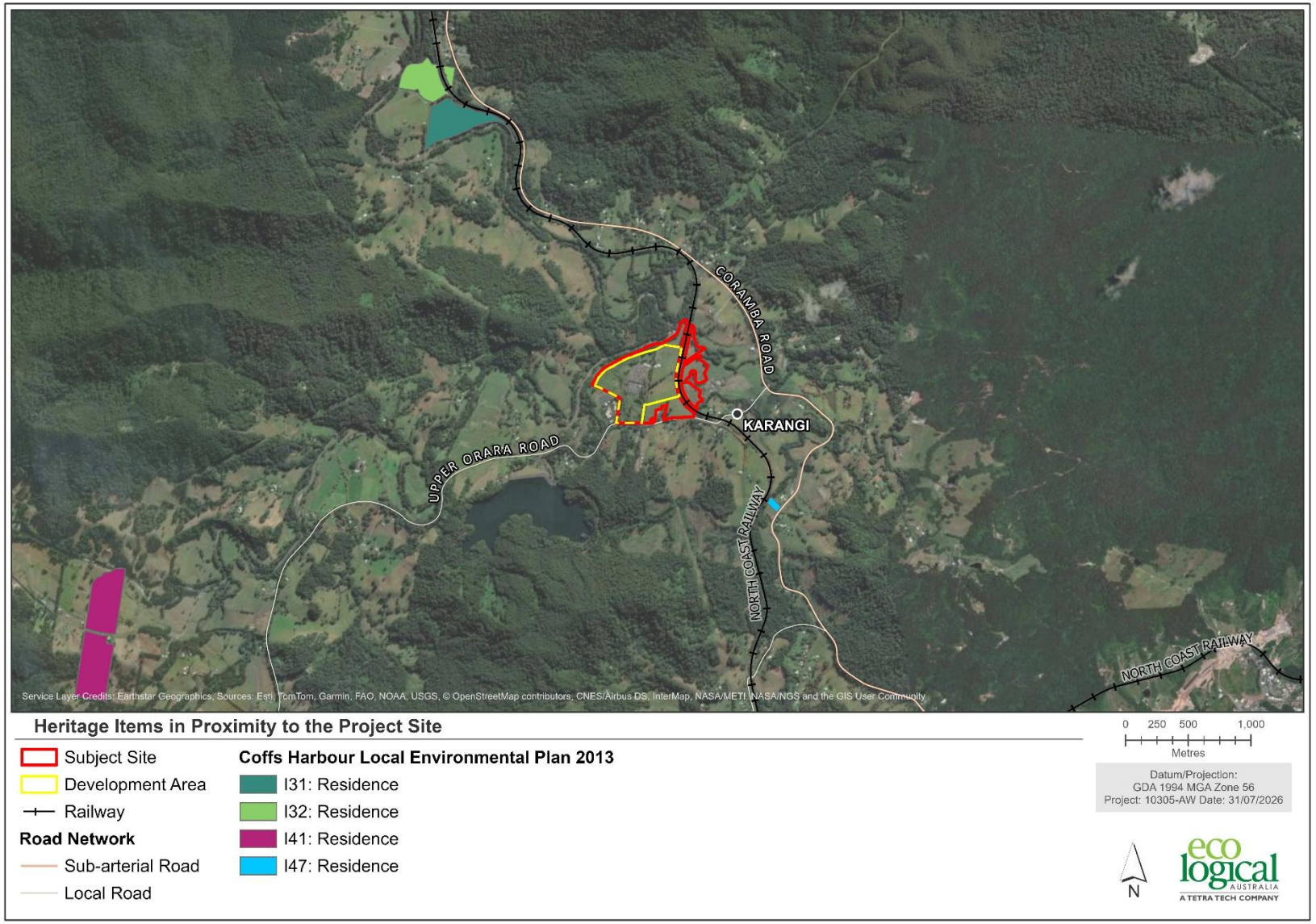

Figure 6-8: Heritage items in proximity to the Project Site

6.8.3. EIS Assessment Approach

A Historic Heritage Assessment (HHA) will be required to identify the historical heritage values relevant to the Project Site. This assessment would be undertaken in accordance with the NSW guidelines for *Assessing Heritage Significance* (Heritage NSW, 2025) and following the approach in the *Guidelines for Preparing a Statement of Heritage Impact* (Heritage NSW, 2023). The scope of the HHA will include:

- A search of all relevant statutory heritage registers including local planning instruments (LEP and DCP), State Agency's Heritage Registers (s170), State Heritage Register (SHR), Commonwealth Heritage List (CHL), National Heritage List (NHL) and World Heritage List (WHL)
- A review of any relevant historical records, previous assessments, background, maps, plans and aerials and other sources of information regarding heritage items in the region
- A survey of the Project Site undertaken in conjunction with the Aboriginal heritage survey, with an emphasis on sites / areas of historical archaeological potential identified during preliminary research and recording any historic sites/relics identified
- Preparation of an HHA which considers the potential for the Project to impact any heritage items or values
- Provide recommendations and mitigation and management measures.

6.9. Groundwater and Surface Water

6.9.1. Existing Environment

The Project Site lies within the Orara River sub-catchment of the Clarance Hydrological Catchment. The Project Site is roughly bordered on the eastern and northern sides by the Wongiwomble Creek and Karangi Creek flowing north and west until it joins the Orara River on the northern boundary of the Project Site. The Orara River then flows north meeting the Clarance River 74 km northwest of the Project Site.

The Project Site is in proximity to Wongiwomble Creek, Karangi Creek and the Orara River, which are category fourth, third and sixth Stahler stream order water courses respectively, meaning that significant portions of the Project Site are identified as flood prone land and expected to be inundated under a 1% AEP event (City of Coffs Harbour Council, 2013a) and fall under the Flood Planning Area (City of Coffs Harbour Council, 2013b) (Figure 6-9). In addition to these named drainage lines, there is an unnamed 2nd order Stahler stream Watercourse which is a tributary of Wongiwomble Creek and may intersect the southeast corner of the Project Site. Any interferences with watercourses will need to consider the *Controlled Activities – Guidelines for Riparian Corridors on Waterfront Land* and the associated Vegetated Riparian Zone (VRZ) buffers (DCCEEW, 2025) (Figure 6-9).Stream gauge data available upstream on the Orara River (site id 204025) between years 1925 and 2023 which provides the baseline conditions for the Project Site.

The Project is within the NSW North Coast Regional Water Strategy area and is managed under the *Water Sharing Plan for Clarence River Unregulated and Alluvial Water Sources 2016* (NSW, 2016a) and the *Water Sharing Plan for North Coast Fractured and Porous Rock Groundwater Sources 2016* (NSW, 2016b). The River Condition Index ranks river health from 1 (very poor) to 5 (very good) based on riparian vegetation, hydrological stress, biodiversity, geomorphic condition and catchment disturbance (NSW DCCEEW, 2023). The river condition catchment for the Project Site is Northern rivers, which is in moderate (level 3) condition.

One unnamed creek or drainage line, 1st order Strahler stream, is situated within the Development Area and has been identified as Key Fish Habitat (KFH) (Figure 6-9). These are aquatic areas that have been identified as important to the sustainability of the maintenance of fish populations. Any waterway crossings within KFH will be designed with reference to *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossing*s (DPI, 2013).

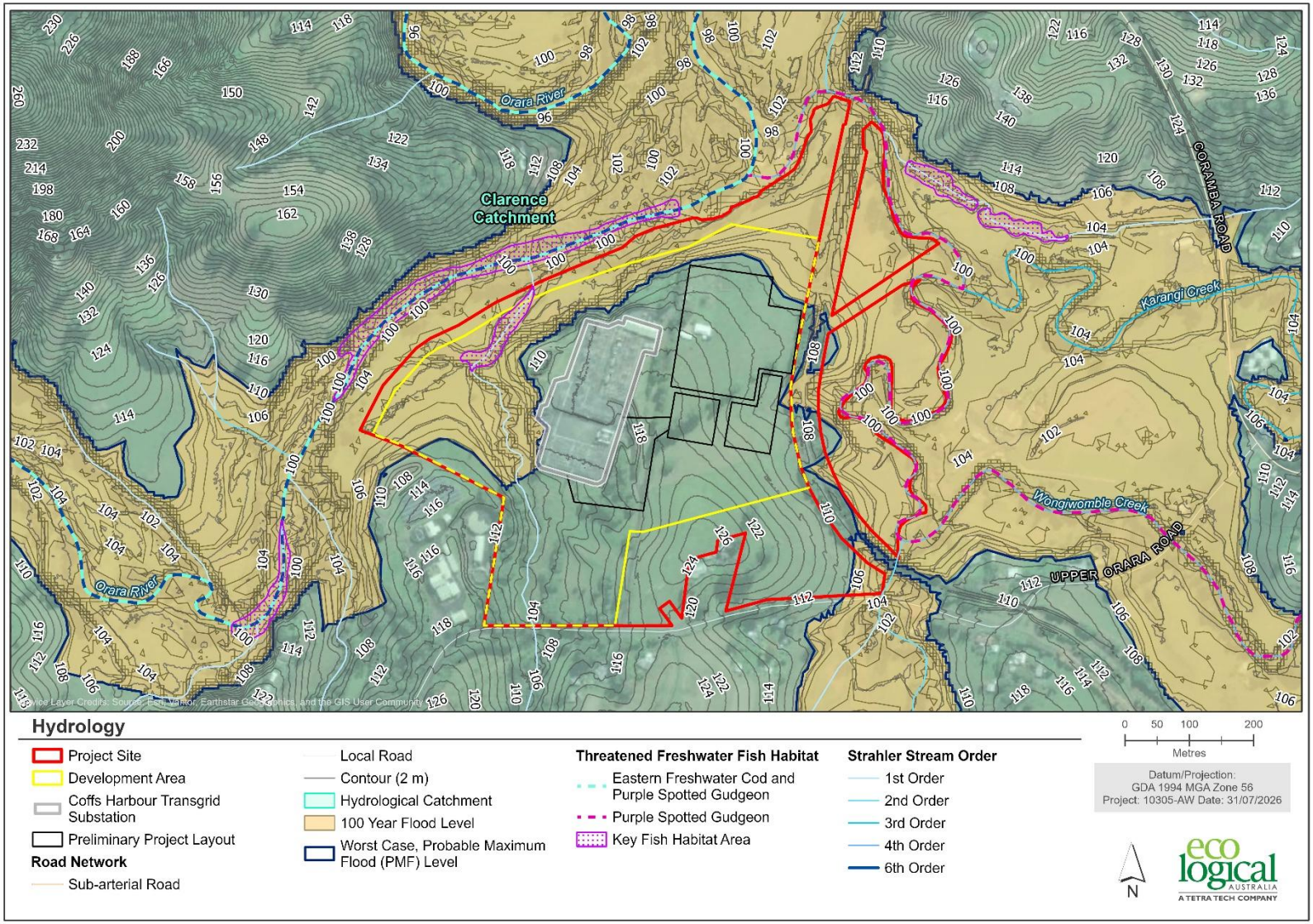

Figure 6-9 Hydrology in relation to the Project Site

6.9.2. Potential Impacts

The potential impacts of the Project can be categorised as changes to surface water, groundwater, flooding impacts and aquatic ecology. The construction phase of the Project will be the period most likely for these potential impacts to occur.

The development of the Project has the potential for degradation of water quality related to sediment and erosion, dust deposition, pollution from spills and contamination from waste. Depending on the local groundwater conditions this could also lead to degradation of groundwater quality through infiltration processes or construction intersecting with aquifers. The potential impacts to water quantity and availability are a result of construction water requirements, alterations to overland flow paths and a reduction in environment health from groundwater drawdown or reduced streamflow.

Whilst there is flood prone land within the Project Site, the Development Area has been designed to ensure all Project infrastructure will be situated outside of the 100 year, 500 year and Probable Maximum Flood (PMF) level as per the 2013 flood extent provided by City of Coffs Harbour Council (City of Coffs Harbour Council, 2013). Given, the City of Coffs Harbour flood data is based on older data, the extent of the flood prone land will be verified during the EIS to ensure the Project will not adversely influence downstream flood behaviour or erosion.

To ensure impacts are avoided to the riparian corridors associated with the watercourses within and surrounding the Project Site, the recommended riparian buffers outlined in the *Controlled Activities – Guidelines for Riparian Corridors on Waterfront Land* guideline (DCCEEW, 2025) will be implemented. Specifically, as the Orara River, which is a 6th order watercourse, a 40 m riparian buffer from the highest bank will be implemented.

6.9.3. EIS Assessment Approach

It is expected that a groundwater, surface water and flood risk and impact assessment will be required. Flood inundation mapping is publicly available for the site but given the age of this study (2013) and the larger scale, it is assumed that a refined flood model will be required based on the latest Australian Rainfall and Runoff Guideline (Australian Government, 2019). The assessment will include the potential effects of long-term climate change effects, mitigation measures and any other provisions considered necessary under the *NSW Flood Risk Management Manual* (DPE, 2023a).

The installation of BESS typically has a low to negligible impact on the flooding behaviour within their respective catchments, given the relatively low disturbance footprint on the soil. However, the proposed impact assessment will consider potential changes in flood behaviour and potential hazard. Where the development could alter these matters, a Flood Impact and Risk Assessment (FIRA) will be prepared in accordance with the Flood Risk Management Guide LU01 (DPE, 2023b), and solutions and mitigation measures will be adopted where required.

The Surface water and Groundwater Assessment will also identify and evaluate any potential impacts to water quantity and quality on surface and groundwater receptors, including GDEs, during both construction and operational phases. This will include careful consideration of the Managing Urban Stormwater: Soils & Construction (Landcom, 2004) guidelines and the Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000) guidelines to ensure avoidance or minimisation of land degradation and water quality impacts. Including soil erosion, compaction, geomorphic instability, contamination, acidity, waterlogging, a decline of native vegetation or, where appropriate, salinity. Water levels and quality data will be assessed from available bore data surrounding the Project Site.

6.10. Hazards and Risks

6.10.1. Bushfire

A preliminary bushfire assessment was undertaken by ELA to provide insight into the bushfire risks associated with the Project.

6.10.1.1. Existing Environment

The Project Site is mapped as bush fire prone land, requiring the Project to comply with *Planning for Bush Fire Protection 2019* (PBP) and the relevant provisions of the *National Construction Code 2025* (NCC). PBP and associated guidance are currently under review (2026), and future updates may influence the interpretation of this assessment.

The Project is located on the lower slopes of the Orara River valley and is surrounded by a landscape comprising grassland and pockets of rainforest and wet sclerophyll forest with bushfire-prone vegetation present in all directions. To the north, vegetation is mapped as PCT 3021 Northern Lowland Subtropical Rainforest and is classified as 'Rainforest' under PBP. Along the eastern boundary, a 40 m-wide railway corridor has also been conservatively treated as 'Rainforest' due to its vegetation structure and connectivity.

Most remaining areas have been assessed as 'Grassland' excluding where land is clearly maintained, such as the Coffs Harbour Transgrid 330 kV Substation. To adopt a precautionary approach, the assessment assumes that neighbouring vegetation in some areas may not be consistently managed over time. Broader areas of bushfire-prone vegetation (including state forests and national parks) are present within the wider landscape and contribute to the regional bushfire risk profile.

Local firefighting capability includes four NSW Rural Fire Service (RFS) brigades located within 5 km of the Site, with the Karangi brigade approximately 2.1 km away. Additional NSW RFS and Fire and Rescue NSW resources are available in Coffs Harbour, around 10 km to the east. Project Site Access is via Upper Orara Road, linking to Coramba Road and key regional transport routes (Figure 6-10).

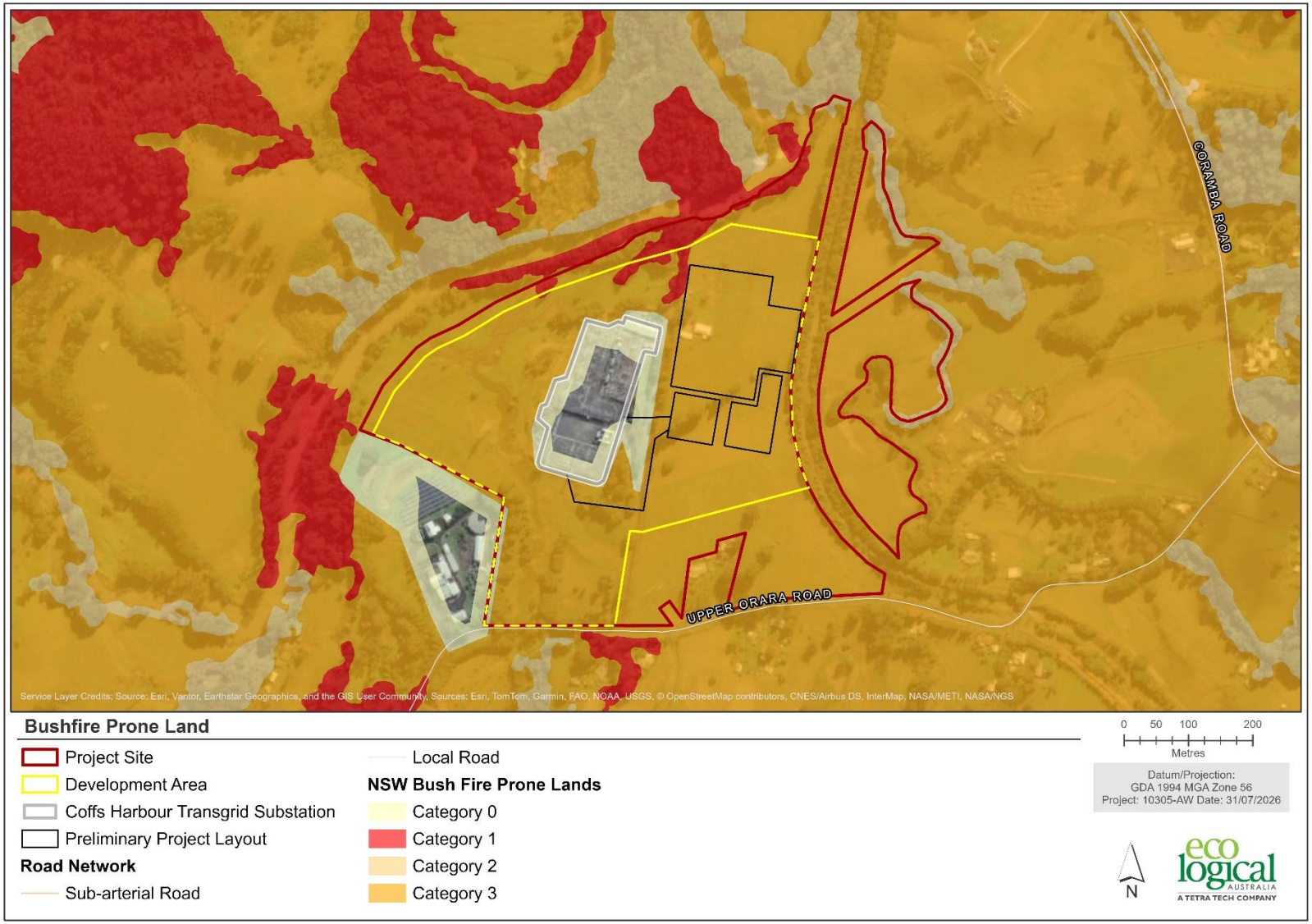

Figure 6-10: Bush Fire Prone Land mapping

6.10.1.2. Potential Impacts

The primary bushfire-related impacts associated with development and operation of the BESS are related to radiant heat, ember attack and potential direct flame contact affecting BESS infrastructure and Ancillary Infrastructure. Construction and operational periods present exposure risks, though operational consequences are of particular significance given the hazardous industry considerations associated with BESS thermal runaway and fire behaviour. Potential impacts include:

- Damage to BESS cells, containers, transformers, control equipment, communications and protections from radiant heat and ember intrusion leading to loss of function or ignition
- Damage to site buildings, fencing, access infrastructure and utilities (water, electrical connections) from fire, ember attack or heat
- Impaired emergency access/egress for site personnel and emergency responders if internal or external roads become compromised by fire or firefighting operations
- Potential downstream consequences for the electricity network and community in the event of a fire
- Off-site fire spread beyond the Project Site to adjoining vegetation, neighbouring properties, access roads and utility infrastructure, as well as increased risk to the wider community and emergency response network
- Regulatory and approval impacts should PBP or other bushfire policy change during the assessment and approvals process, or if SEARs specify additional assessment requirements
- Key receptors for these impacts are the BESS infrastructure and associated plant, on-site personnel, emergency responders, downstream electricity network assets, neighbouring properties and the community.

The Project layout will consider for the existing vegetation within and surrounding the Project Site and implement suitable Asset Protection Zones (APZ) where required in accordance with the PBP (NSW RFS, 2019). The incorporation of APZs within the Project layout will assist in reducing bushfire risk.

6.10.1.3. EIS Assessment Approach

A Bushfire Risk Assessment will scope the detailed analysis, information sources, methods and stakeholder engagement required for the proposed BESS, and will be developed to respond to the SEARs and the current review of PBP. The revised PBP is expected to include BESS-specific prescriptions, but timing and content remain uncertain (draft for consultation anticipated mid-2026 and final late-2026). To manage this uncertainty the EIS will adopt a conservative approach that addresses current PBP guidance and commits to revisiting findings once draft PBP and SEARs are released; early pre-DA consultation with the RFS will be undertaken prior to finalising layout and key design parameters.

The EIS will include a legislative and policy review, updated site characterisation and hazard mapping, bushfire behaviour modelling for credible worst-case scenarios, asset vulnerability and consequence analysis, and development of passive and active mitigation measures (e.g., defendable space, hardened asset design, access/egress, water supply, detection/suppression, and emergency procedures). Construction and operational phase controls, climate change considerations and an implementation, monitoring and maintenance schedule will be produced. All technical methods, inputs, assumptions and RFS consultation outcomes will be documented in the EIS, and mitigation measures will be justified against PBP (current or revised) and SEARs requirements.

6.10.2. Hazards

6.10.2.1. Existing Environment

The Project Site presents minimal inherent hazards; however, existing infrastructure (including the existing Coffs Harbour Transgrid 330 kV Substation and associated transmission cabling) poses notable existing risks

Electromagnetic Fields (EMFs) are generated in proximity to current powerlines and associated electrical assets. The Coffs Harbour Transgrid 330 kV Substation is situated within the Development Area. To support the Project, a new cable is required to connect to the Project (crossing Casuarina Lane) to the existing Coffs Harbour Transgrid 330 kV Substation. This will involve the installation of a new transmission line comprising of above-ground or underground infrastructure.

6.10.2.2. Potential Impacts

Potential hazardous scenarios and risks associated with the Project include the presence and use of lithium batteries, fires within the BESS and exposure to Electromagnetic Fields (EMFs) particularly during the operational phase of the Project.

Hazardous Materials

The proposed 240 MW/960 MWh BESS will be assessed under the *State Environmental Planning Policy (Resilience and Hazards) 2021* (Resilience and Hazards SEPP) to determine the potential risk. The Project will utilise lithium-ion based battery technology – likely Lithium Iron Phosphate (LFP), which is an industry standard known for its superior thermal stability and lower fire risk profile.

Lithium-ion based batteries are designated as Class 9 dangerous goods under the Australian Dangerous Goods Code (National Transport Commission, 2020). According to the Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 (Department of Planning, 2011), which operate under Chapter 3 of the Resilience and Hazards SEPP, Class 9 dangerous goods do not exceed the screening thresholds, as they are considered to 'pose little threat to people or property'.

The Project layout will be designed to ensure there is an acceptable separation distance between equipment such battery containers and power conversion units as well as receptors to minimise and prevent fire propagation on-site and off-site.

Electromagnetic Fields

EMFs are produced within the vicinity of existing powerlines and substations, including the Coffs Harbour Transgrid 330 kV Substation and connecting high-voltage transmission lines. The operation of the Project will introduce new, localised sources of EMFs, primarily originating from the inverters, transformers, and the new grid connection to the existing Coffs Harbour Transgrid 330 kV Substation.

As EMF strength decays rapidly with distance from the source, the associated EMFs at the site boundaries are expected to be well below the public exposure guidelines and are not expected to pose any adverse impact to human health.

EMF levels associated with the proposed BESS infrastructure will be assessed as part of the EIS in accordance with the *International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields.* It is anticipated that standard design measures will ensure compliance with the relevant exposure limits, supported by appropriate communication of any potential issues.

6.10.2.3. EIS Assessment Approach

A Preliminary Hazard Analysis (PHA) will be undertaken as part of the EIS. The PHA will be prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6: Hazard Analysis* and *Multi-level Risk Assessment* (NSW Department of Planning, 2011) guideline for assessment against the HIPAP No.4 Risk Criteria for Land Use Planning. This assessment will identify potential hazards, such as fire risks and hazardous chemical exposures, and outline mitigation and control measures to reduce associated risks. Measures implemented by the Applicant and the construction contractor will minimise the likelihood of hazardous events and ensure that any impacts can be effectively contained on-site.

In addition, a Preliminary Risk Screening (PRS) will be completed as part of the PHA process in accordance with the requirements of the Resilience and Hazards SEPP.

6.11. Soils and Agriculture

6.11.1. Existing Environment

The Project Site comprises land mapped as both Class 5 (moderate–low capability) and Class 3 (high capability) under the Land and Soil Capability (LSC) Assessment Scheme (Figure 6-11). The proposed location for the BESS infrastructure is mapped wholly as Class 5 which has significant limitations that restrict use primarily to grazing, horticulture and forestry, with careful management required to avoid long-term degradation. In contrast, Class 3 land has moderate limitations and can support higher-impact land uses, including cropping and intensive grazing, provided appropriate management measures are implemented to prevent land and environmental decline.

From a review of the Draft State Significant Agricultural Land (SSAL) Map, the Project Site contains areas of SSAL to the north and west. However, there is no identified SSAL within the area proposed for the BESS infrastructure (Department of Primary Industry, 2021). Whilst there are areas of mapped Biophysical Strategic Agricultural Land (BSAL) within the Project Site. There is no BSAL mapped land within the area proposed for the BESS infrastructure (Figure 6-11).

The Project Site spans two landscape profiles (Dairyville and Megan). The Dairyville landscape consists of level to gently undulating alluvial terraces and floodplains formed from Quaternary alluvium, with slopes generally less than 5% and elevations up to approximately 190 m. Soils within this area are typically deep, moderately well to well drained, and dominated by Alluvial Soils, deep structured sands, and structured Brown Earths (DLWC (Dairyville) 1999). The Megan landscape comprises rolling to steep hills formed from Late Carboniferous metasediments, with slopes of 5–20% and elevations up to around 317 m. Soils in this area are moderately deep to deep, well drained, and include Red and Brown Earths, Podzolics, and, in wetter areas, well-drained Krasnozems (DLWC (Megan) 1999).

Current land use within the Development Area predominately includes grazing and native vegetation and the existing Coffs Harbour Transgrid 330 kV Substation. Implementation of the Project will transition this land to electricity generating works; however, surrounding areas will continue to support existing rural and environmental land uses. Following decommissioning, land conditions are expected to revert to a form consistent with pre-Project land capability. The Development Area is zoned RU2 Rural Landscape under the Coffs Harbour LEP, and the EIS will assess the potential loss of agricultural land and any implications for agricultural productivity on adjoining properties.

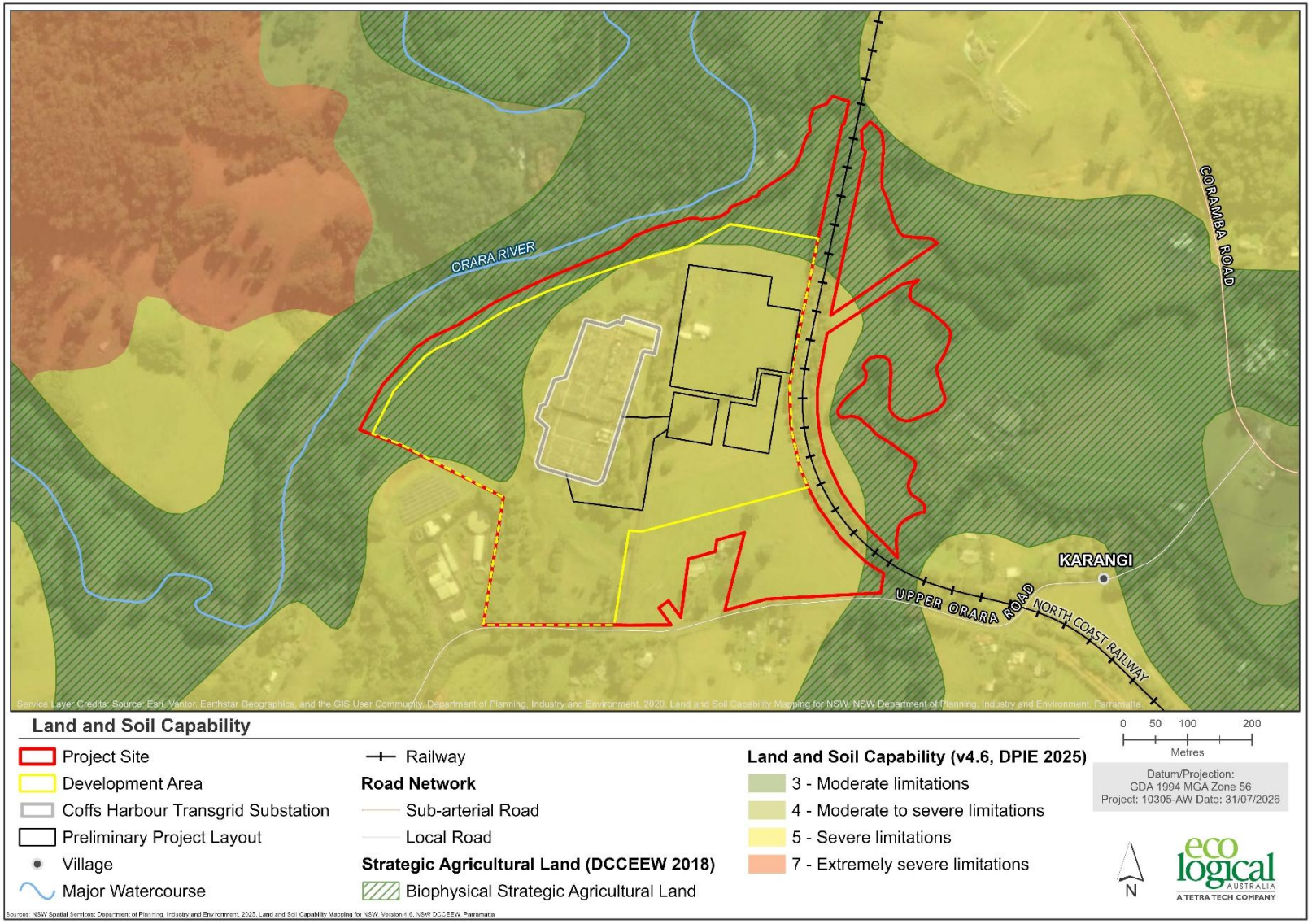

Figure 6-11 Land and Soil Capability

6.11.2. Potential Impacts

The following impacts upon agricultural land and soils have been considered as having potential to occur during the construction, operation and decommissioning of the Project:

- Soil disturbance and erosion
- Soil compaction from machinery and vehicle movements
- Temporary loss of agricultural land within the Development Area
- Alteration of soil profiles due to excavation
- Changes to natural drainage patterns
- Sediment runoff into nearby waterways
- Loss of native vegetation
- Spread of weeds or soil-borne pathogens
- Changes to surface runoff and infiltration during operation
- Minor constraints on agricultural activities on adjoining land
- Soil disturbance during decommissioning
- Residual changes to soil structure or drainage following reinstatement.

6.11.3. EIS Assessment Approach

A Preliminary Site Investigation (PSI) will be undertaken during the EIS phase to review historical land uses, existing contamination reports and relevant regulatory databases to identify any potential contamination risks. This assessment will be prepared in accordance with the *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land* (NSW EPA, 2020), the *National Environment Protection Measure* (Assessment of Site Contamination) (NEPC, 2013), and other applicable guidance. Should the PSI identify areas requiring further investigation, a Detailed Site Investigation (DSI) may be progressed, noting that the extent of investigation may be constrained by dense vegetation in parts of the Site. Where required, appropriate measures to manage potential contamination risks will be identified.

The EIS will also assess potential impacts of the Project on surrounding land uses, including residential, agricultural and grazing areas. This will include the preparation of a Land Use Conflict Risk Assessment (LUCRA) to evaluate the potential for interactions between the Project and adjacent land uses.

Best-practice soil and erosion mitigation measures will be incorporated into the Project, consistent with *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) and *Volume 2A – Construction* (Landcom, 2004). Management of potential contamination sources will be addressed within the EIS, including commitments to rehabilitate the Site at the end of the Project's life to ensure suitability for an appropriate post-project land use.

6.12. Social

RPS was engaged by the Applicant to prepare a preliminary social assessment providing an early-stage overview of the Project's social context, potential social impacts and opportunities, and key considerations for the EIS SIA. This chapter has been prepared by RPS.

This initial assessment has been prepared in accordance with the *Social Impact Assessment Guideline* (DPHI, 2026c) and is proportionate to the Project's scoping stage.

The social scoping assessment:

- identifies potential social impacts across the eight social impact categories outlined in the guideline
- defines the Project's social locality
- provides a high-level overview of the existing social environment
- identifies key issues and groups likely to require further assessment during the EIS phase.

The assessment draws on desktop review, available technical information, demographic and socio-economic data and engagement outcomes available at the time of writing. Further assessment and engagement will be undertaken during the EIS phase to refine the understanding of potential impacts, affected groups and management responses. This assessment has been prepared to support the scoping phase of the Karangi BESS project and inform the future SIA.

The assessment has been undertaken in accordance with the *Social Impact Assessment Guideline* (DPHI, 2026c) and informed by the accompanying Technical Supplement, including the SIA scoping worksheet methodology. The scoping process involved identifying potential social impacts across the eight social impact categories outlined in the guideline, considering likely affected groups, cumulative and combined impacts, preliminary assessment levels, and indicative data and engagement requirements for the EIS phase.

Potential impacts have been identified across the following categories:

- way of life
- community
- accessibility
- culture
- health and wellbeing
- surroundings
- livelihoods
- decision-making systems.

The assessment has been informed by:

- desktop review of publicly available demographic and socio-economic data
- review of available project information and technical studies
- review of engagement outcomes undertaken to date
- professional review of potential social impact pathways associated with the Project.

The level of assessment is proportionate to the Project's scoping stage and is intended to identify key social issues, affected groups and priorities for further assessment during the EIS phase. The assessment will continue to be refined through the EIS process as additional technical information and engagement outcomes become available.

6.12.1. Existing Environment

6.12.1.1. Social Locality

The social locality describes the area within which people are likely to experience social impacts associated with the Project. The extent and nature of social impacts are expected to vary depending on proximity to the Project, the type of impact and how different groups experience impacts during construction and operation.

The social locality for the Project has been defined based on:

- the location and scale of the Project
- the likely distribution of potential social impacts
- proximity to the Project site and associated infrastructure
- transport and access connections
- workforce, service and accommodation relationships
- engagement outcomes and local context.

The social locality includes:

- nearby landholders and residents surrounding the Project site
- the Karangi locality
- residents and communities along key access routes
- the broader Coffs Harbour LGA
- Aboriginal stakeholders and communities with connections to Country and the Project area.

Primary Social Locality – Karangi

Karangi is identified as the primary social locality as it is the area most likely to experience direct near-site impacts during construction and operation. Residents and landholders closest to the Project site are expected to experience the greatest direct impacts associated with visual change, construction activity, noise, traffic movements and environmental change.

Karangi is a rural locality west of Coffs Harbour characterised by rural-residential land uses, environmental features and surrounding infrastructure, including nearby electricity transmission and water supply infrastructure.

Potential impacts within Karangi are likely to relate to:

- visual amenity and landscape character
- environmental and bushfire risks
- construction impacts
- changes to local character

- trust and transparency
- housing and accommodation availability
- traffic and road safety

Localised Impact Areas – near the Project Site and Access Route

Some impacts are likely to be experienced more locally by nearby landholders, road users and residents along key access routes. These areas form part of the social locality due to their proximity to construction traffic routes and temporary construction activities. Impacts in these areas are expected to be temporary and intermittent and may relate to construction traffic, access movements, temporary construction disturbance, noise, dust and changes to visual amenity.

Potential impacts in these areas may include:

- temporary traffic disruption
- road safety impacts
- construction disturbance
- changes to visual amenity during construction and operation.

Secondary Social Locality – Coffs Harbour LGA

The broader Coffs Harbour region provides the primary service, employment and accommodation base relevant to the Project and may therefore experience indirect impacts associated with workforce demand, service use and regional economic activity.

Potential regional-level impacts may relate to:

- workforce participation
- local economic activity
- housing and accommodation availability
- cumulative development pressures
- demand on regional services and infrastructure

Aboriginal Social Locality

The Project Site is located on Gumbaynggirr Country. Aboriginal social impacts are not confined to suburb or local government boundaries and may relate to broader cultural, social and spiritual connections to Country.

The Aboriginal social locality includes Aboriginal stakeholders, organisations and communities with cultural and community connections to the Project area, including the Coffs Harbour and District LALC. Potential impacts may relate to cultural heritage, connection to Country, environmental values and broader cultural wellbeing.

The social locality will continue to be refined during the EIS phase as additional technical studies, engagement outcomes and understanding of impact pathways become available.

6.12.1.2. ABS Data

Australian Bureau of Statistics (ABS) geographic areas have been used to characterise the demographic and socio-economic profile of communities within the social locality.

These geographic areas are used to support baseline descriptions and comparisons, but do not define the full extent of social impacts, which are also influenced by impact pathways and how different groups and locations experience impacts.

The social locality will continue to be refined during the EIS phase as additional engagement outcomes, technical studies and project information become available.

The ABS geographic areas used in this assessment are summarised in Table 6-8.

Table 6-8: ABS geographic area

Geography Type	Location Name	Area Code
Suburb	Karangi	SAL12080
Region	Coffs Harbour	LGA11800
State	New South Wales	STE1

6.12.1.3. Social Environment

The Project's social locality includes a mix of rural-residential land, environmental areas and surrounding utility, transport and regional service infrastructure within and around Karangi.

The locality includes several surrounding environmental features and recreational areas, including Orara East Nature Reserve, Orara West Nature Reserve, Ulidarra National Park, Coramba Nature Reserve, the Orara River and Karangi Dam. These features contribute to the area's rural and environmental character and may influence how nearby communities experience changes associated with the Project. The Project is located on Gumbaynggirr Country.

Karangi has a relatively small rural population and a workforce that is strongly represented in construction-related industries. The broader Coffs Harbour region provides the primary service, employment and accommodation base relevant to the Project.

Several infrastructure and development projects are also occurring within the broader region, including the Coffs Harbour Bypass and existing regional electricity infrastructure identified in Section 2.4.4 of the Scoping Report. These projects may contribute to cumulative change and will continue to be considered during the EIS phase.

Key transport connections relevant to the Project include Coramba Road and Upper Orara Road, which support access between Karangi, surrounding localities and the broader Coffs Harbour region.

Demographics

The population of Karangi in 2021 was 515 people. Population decline was recorded between 2016 and 2021, in contrast to population growth within both the Coffs Harbour LGA and NSW.

The locality has a relatively older population profile compared with NSW, with people aged 65 years and over comprising 22.5% of the population. This may influence how some impacts are experienced, particularly regarding traffic, access, construction disturbance and perceptions of change. First Nations people comprise 4.9% of the Karangi population.

The workforce profile in Karangi includes a relatively high proportion of workers employed in construction-related industries compared with regional and state benchmarks. Housing within Karangi is predominantly detached housing, with high levels of private vehicle reliance and home ownership. Demographic, vehicle ownership and housing indicators for the social locality are summarised in Table 6-9. The demographic and housing characteristics of the social locality may influence how impacts are

experienced, particularly in relation to traffic and access changes, perceptions of rural character, housing availability and workforce-related demand during construction.

Table 6-9: Demographic, vehicle ownership and housing in the social locality 2021

Indicator		Karangi	Coffs Harbour	NSW
Population	(no.)	515	81,248	8,097,062
Population growth since 2016	(%)	12.1	+11.3	+8.2
First Nations population	(%)	4.9	6.8	4.1
Older persons (65+)	(%)	22.5	19.9	17.1
Very young children (0-4)	(%)	4	5.3	5.9
Median age	(years)	44	43.6	39
Most common employment industry		Construction (21.5%)	Healthcare and social assistance (19.2%)	Healthcare and social assistance (14.4%)
Households without a private vehicle	(%)	0	5.3	9
Separate houses	(%)	93.9	75.7	65.6
Most common housing tenure type		Mortgage (44.2%)	Own outright (37.3%)	Renting (32.6%)

ABS, 2021 Census All persons QuickStats: Karangi; ABS, Data by Region: Coffs Harbour LGA; ABS, Data by Region: NSW

Culturally and linguistically diverse community members

The proportion of Culturally And Linguistically Diverse (CALD) residents within Karangi and the broader Coffs Harbour LGA is lower than the NSW average, based on the proportion of residents born overseas and those who speak a language other than English at home, see Table 6-10. While extensive language-specific engagement materials are unlikely to be required, engagement activities should continue to be accessible and inclusive.

Table 6-10: CALD community members in the social locality 2021

Indicator	Karangi	Coffs Harbour	NSW
Born overseas	11.4%	15.1%	28.3%
Speaks a language other than English at home	3.8%	9.2%	26.6%

ABS, TableBuilder: Karangi – 2021 Country of birth of person; ABS, TableBuilder: Karangi – 2021 Speaks a language other than English at home; ABS, Data by Region: Coffs Harbour LGA; ABS, Data by Region: NSW

Socio-Economic Disadvantage

The ABS Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-Economic Disadvantage (IRSD) provides an indication of relative socio-economic disadvantage based on factors including income, employment and educational attainment.

Karangi is within the 8th decile of the IRSD, indicating a relatively low level of socio-economic disadvantage compared with many other areas across Australia. The Coffs Harbour LGA is within the 5th decile, indicating socio-economic conditions generally consistent with the national average.

Potential social impacts may be experienced differently by different groups within the social locality, including lower income households, unemployed people, older residents and socially isolated households. Socio-economic indicators for the social locality are summarised in Table 6-11.

Potential impacts may not be experienced uniformly across the social locality, particularly among lower-income households, older residents, and socially isolated groups.

Table 6-11: Socio-economically disadvantaged groups in the social locality 2021

Indicator	Karangi	Coffs Harbour	NSW
Households in social and community housing	Data not available	Data not available	3.8%
Lone-person households	18.7%	27.5%	25%
Low-income households (equivalised total household income <$499 per week)	16.2%	19.9%	15.8%
Unemployment rate	8%	5.3%	4.9%

ABS, TableBuilder: Karangi – 2021 Equivalised Total Household Income; ABS, 2021 Census All persons QuickStats: Karangi; ABS, Data by Region: Coffs Harbour LGA; ABS, Data by Region: NSW; ABS, SEIFA: Index of Relative Socio-Economic Disadvantage (IRSD)

6.12.1.4. Community Values

Community Values and features

Karangi is characterised by a rural landscape, environmental features, and dispersed rural-residential land uses. The locality includes surrounding national parks, waterways and recreational areas, including Orara East Nature Reserve, Orara West Nature Reserve, Ulidarra National Park, Coramba Nature Reserve, the Orara River and Karangi Dam. These features contribute to the area's environmental and rural character.

The Project site is also located near existing utility and infrastructure uses, including electricity transmission infrastructure, water supply infrastructure and the nearby railway corridor associated with the broader regional network.

Early engagement identified several recurring themes relevant to the social locality, including:

- protection of rural character and visual amenity
- traffic and road safety
- environmental values and water quality
- bushfire risk
- community trust and access to information about the Project.

These themes have informed the identification of potential social impacts and priorities for further assessment during the EIS phase.

An overview of the community values and features for the Project's social locality is provided in Table 6-12. These local characteristics and community values have informed the identification of preliminary social impacts and priorities for further assessment during the EIS phase.

Table 6-12: Community values and features of the social locality

Value/Feature	Description
Local amenity and character	Karangi is a rural locality approximately 10 km west of Coffs Harbour, characterised by rural-residential land uses, environmental areas, grazing land and surrounding utility and transport infrastructure. Early engagement identified visual amenity, landscape character and changes to local character as key community themes. The Project site is located near existing infrastructure, including the Coffs Harbour Transgrid 330 kV Substation, water supply infrastructure associated with Karangi Dam and the nearby railway corridor.
Access and connectivity	Coramba Road and Upper Orara Road provide key transport connections between Karangi and the surrounding localities, including Coffs Harbour. Access and road safety were identified as key considerations during early engagement, particularly in relation to

Value/Feature	Description
	construction traffic and local road conditions. Some community members also identified benefits associated with energy reliability and infrastructure investment.
Environmental features	The social locality includes surrounding environmental areas and waterways, including Orara East Nature Reserve, Orara West Nature Reserve, Ulidarra National Park, Coramba Nature Reserve, the Orara River and Karangi Dam. Early engagement identified environmental values, water quality and biodiversity as important community considerations.
Community cohesion	Karangi is a small rural community with strong connections to the broader Coffs Harbour region. Community infrastructure and recreational areas within the surrounding locality support social interaction and community activity. Early engagement identified mixed views regarding the Project, with some community members expressing concern regarding potential impacts, while others identified potential local and regional benefits.

Community Infrastructure

Community infrastructure within and surrounding the social locality includes schools, childcare centres, recreational areas, community facilities and regional health services.

The closest community infrastructure to the Project includes Karangi Public School, Karangi Dam and surrounding recreational areas. Broader regional infrastructure and services are located within the Coffs Harbour LGA.

Some nearby community infrastructure may be sensitive to changes in traffic, visual amenity and construction activity associated with the Project.

Potential impacts relevant to community infrastructure are likely to relate primarily to:

- traffic and access changes
- construction disturbance
- temporary increases in workforce-related demand during construction.

Community infrastructure within approximately 10km of the Project is detailed in Table 6-13.

Table 6-13: Project Site and surrounds – Community Infrastructure

Service Type	Facility/Location	Distance from Project Site	Relevance
Education	Karangi Public School	~1 km	Located near the Project area and may be sensitive to temporary changes in traffic, noise and construction activity.
	Upper Orara Public School	~7 km	
	Coramba Public School	~7 km	
	Narranga Public School	~10 km	
	Orara High School	~10 km	
	Tyalla Primary School	~10 km	
Childcare	Country Cubs Preschool & Long Day Care	~6 km	Childcare centres within the surrounding locality may experience temporary changes in traffic conditions and workforce-related demand during construction.
	Jodie's Family Day Care	~8 km	
	Little Pioneers Early Learning Centre	~8 km	
	Cow & Koala Child Care and Preschool	~8 km	
	Brayside Community Preschool	~10 km	
	Dandelion Family Day Care	~10 km	
	Lilly Pilly Early Learning Centre	~10 km	
Aged care	RFBI Coffs Harbour Masonic Village	~10 km	

Service Type	Facility/Location	Distance from Project Site	Relevance
	Catholic Healthcare St Joseph's Aged Care	~10 km	Regional aged care facilities may be sensitive to changes in traffic and access during construction.
Health and disability services	Baringa Private Hospital	~10 km	Regional health services may experience limited workforce-related demand during construction.
Utilities and regional infrastructure	Karangi Dam and associated water supply infrastructure	~1 km	Regional water supply infrastructure that also provides community recreation opportunities, including walking tracks and a viewing platform. The area may be sensitive to changes in visual amenity, traffic and construction activity.
Open space, parks and reserves	Cochranes Creek Swimming Hole	~3 km	Recreational and environmental areas that contribute to local amenity, recreation and access to open space.
	Orara East Nature Reserve	~7 km	
	Orara West Nature Reserve	~7 km	
	Ulidarra National Park	~7 km	
	Coramba Nature Reserve	~9 km	
	West Coffs Reserve District Park	~9 km	
	Austin Park Beryl Street	~10 km	
	Westside Park	~10 km	
	Coffs Creek Swimming Hole	~10 km	
Recreation/sport	Coffs Harbour Pistol Club	~5 km	Local recreational and sporting facilities may experience temporary increases in use associated with workforce activity during construction.
	Orara Valley Football Club	~6 km	
	HWH Riding School and Stables	~8 km	
	Sporting Shooters Association of Australia, Coffs Harbour	~10 km	
Community and cultural	Upper Orara Hall	~5 km	Community facilities that support local gatherings, events and social interaction. Some facilities may also support future engagement activities associated with the Project.
	Coramba Community Hall	~7 km	
	St Theresa's Church	~6 km	
	St Paul's Anglican Church	~7 km	
	Living Hope Church	~9 km	

Where relevance is not separately described, facilities within the same category are likely to experience similar impact pathways.

6.12.1.5. Social Scoping Insights

Engagement undertaken to date has informed the identification of key community values, concerns and priorities relevant to the Project and the future SIA.

Recurring themes identified through early engagement include:

- protection of rural character and visual amenity
- traffic and road safety
- environmental values and water quality
- bushfire risk and emergency management

- trust, transparency and access to information about the Project.

Some community members also identified potential local and regional benefits associated with employment, infrastructure investment and energy reliability. These themes have informed the identification of preliminary social impacts, affected groups and priorities for further assessment during the EIS phase.

In addition to Project-specific impacts, the assessment has considered the potential for cumulative impacts associated with nearby infrastructure and development activity within the broader region, including existing regional electricity transmission infrastructure, the Coffs Harbour Bypass and other regional infrastructure projects identified in the Scoping Report. Potential cumulative impacts may relate to traffic movements, workforce demand, community perceptions of change and broader pressures on regional services and infrastructure.

Potential impacts relating to decision-making systems may include community perceptions regarding procedural fairness, transparency and opportunities to participate in the assessment process. Early engagement identified the importance of clear communication, access to information and ongoing engagement throughout the Project assessment process. These issues will be explored further during the EIS phase, including how different groups may experience and respond to consultation and decision-making processes.

6.12.2. Potential Impacts

A preliminary assessment of potential social impacts and opportunities associated with the Project has been undertaken to inform the scoping phase and guide the future EIS SIA.

The assessment has been used to:

- identify likely social impacts and opportunities across the social locality
- identify groups that may experience impacts differently
- inform priorities for further assessment during the EIS phase
- identify opportunities for project refinements and impact management
- inform future engagement activities.

Engagement undertaken to date has informed the identification of key community values, concerns and areas of interest relevant to the Project. A summary of the preliminary social impacts identified is provided in Table 6-14. Further detail is provided in the SIA Scoping Worksheet in the Appendix F.

Table 6-14: Summary of preliminary impact assessment

Category	Preliminary Impact	Potentially affected groups
Positive impacts		
Livelihoods	The Project may provide opportunities for local workforce participation and skills development during construction and operation, depending on workforce requirements.	Local workforce
	An influx of construction workers may generate temporary demand for local goods, services, and accommodation.	Local businesses
	Construction activities may generate short-term employment and economic activity within the broader regional economy.	Local workforce and businesses
	Operation and maintenance of the Project may provide limited ongoing employment opportunities.	Local workforce
Negative impacts		

Category	Preliminary Impact	Potentially affected groups
Accessibility	Construction traffic may temporarily affect local road conditions, access and road safety, including along local roads and school bus routes.	Local residents, road users and the school community
Community	The Project may influence community perceptions and social cohesion where views regarding the Project differ or where impacts and benefits are perceived to be unevenly distributed	Local residents and community groups
Culture	Construction activities involving ground disturbance may impact Aboriginal cultural heritage values and connections to Country.	Gumbaynggirr people and other Aboriginal community members
Decision-making systems	Community concern may arise where there are differing views regarding the Project or perceptions regarding consultation, transparency and distribution of impacts and benefits.	Local residents, community groups and stakeholders
Health and wellbeing	Community concern regarding bushfire risk associated with the Project may affect feelings of safety and wellbeing, particularly within a rural setting with existing bushfire exposure.	Local residents and nearby landholders
	Construction dust and increased traffic movements may temporarily affect local air quality, health, comfort and amenity.	Nearby residents and vulnerable groups
	Increased construction traffic may elevate road safety risks for local road users, including near Karangi Public School.	Local residents, road users and the school community
	Noise and vibration from construction activities may affect health, comfort and wellbeing, particularly for vulnerable groups.	Nearby residents and vulnerable groups
	Noise and vibration during operation may affect health, comfort and wellbeing, particularly for vulnerable groups	Nearby residents and vulnerable groups
Livelihoods	Construction vehicle movements may increase the risk of weed spread and biosecurity impacts, potentially affecting agricultural activities, environmental values and surrounding land uses.	Nearby landholders
	Visual changes associated with the Project may affect how the surrounding rural locality is experienced by nearby residents and road users.	Nearby residents and road users
Surroundings	Visual changes associated with the Project may affect landscape character and visual amenity within the surrounding locality.	Nearby residents, road users and surrounding communities
	Changes to environmental conditions (e.g. pollution, impacts on waterways, biodiversity and hazardous materials) may affect how the surrounding environment is experienced and valued by nearby communities.	Local community
Way of life	Construction workforce demand may temporarily increase pressure on local services, including healthcare, emergency services and childcare.	Local residents and service providers
	Construction workforce demand may affect housing availability, rental affordability and accommodation capacity, influencing access to housing for local residents.	Local residents, renters and accommodation providers

6.12.2.1. Preliminary assessment of social impacts

A SIA Scoping Worksheet (Appendix F) has been prepared to identify impact pathways, affected groups and the proposed level of assessment for each impact. The worksheet supports a proportionate approach to the SIA.

Summary of assessment levels

Based on the preliminary assessment process, impacts have been grouped according to the proposed level of assessment during the EIS phase:

- Detailed assessment is proposed for:

- traffic and road safety, due to the sensitivity of local road networks, nearby school access and elevated community concern regarding construction traffic and safety
- noise and vibration, due to the proximity of nearby rural-residential receivers and the potential for impacts during construction and operation
- environmental and biodiversity-related social impacts, due to the importance of environmental values, waterways and surrounding landscape features to the local community and how changes to these values may influence community wellbeing and perceptions of environmental change
- Aboriginal cultural impacts, due to the potential for impacts to cultural heritage values and connections to Country associated with ground disturbance and landscape change.

- Standard assessment is proposed for:
  - visual amenity, due to the potential for localised impacts to landscape character and rural amenity
  - housing availability and affordability, due to the potential for temporary workforce-related demand during construction
  - demand for services, due to the potential for temporary increases in demand on local and regional services and infrastructure
  - safety risks, including bushfire-related concerns and perceptions of environmental risk
  - dust and air quality, due to the temporary nature of construction impacts and the proximity of nearby residents
  - community cohesion and perceptions of change, due to differing community views regarding the Project and the distribution of impacts and benefits.
- Minor assessment is proposed for:
  - local employment and business opportunities
  - increased demand for local goods and services.

These assessment levels reflect the potential scale of impacts, the sensitivity of affected groups and the level of community interest identified during the scoping process.

6.12.2.2. Distribution of impacts

Potential impacts are expected to be experienced differently across the social locality:

- nearby residents and landholders are more likely to experience direct impacts such as traffic, noise, dust, visual change and construction disturbance
- the Karangi locality is more likely to experience broader community impacts, including perceptions of change, community cohesion and environmental and bushfire risks
- the broader Coffs Harbour LGA is more likely to experience regional benefits and cumulative effects, including employment and economic activity
- Aboriginal stakeholders may experience impacts that are not spatially confined, particularly in relation to cultural values and connections to Country.

The distribution of impacts and affected groups will be further examined during the EIS phase. The likely cumulative projects are highlighted in Section 2.4.4.

6.12.2.3. Preliminary management and project refinements

Several opportunities to avoid, minimise or manage potential social impacts will continue to be considered as the Project progresses through detailed assessment and design.

Potential measures and project refinements that may be considered during the EIS phase include:

- ongoing community and stakeholder engagement throughout the assessment process
- traffic and road safety management measures during construction
- management of construction timing, noise, dust and access impacts
- workforce management measures, including consideration of accommodation and service demand
- consideration of visual screening and site layout refinements
- protection of environmental and waterway values
- community benefit and local participation opportunities.

These measures will continue to be refined through the EIS phase as additional technical information and engagement outcomes become available.

6.12.3. EIS Assessment Approach

A SIA will be prepared as part of the EIS in accordance with the NSW Social Impact Assessment Guideline for State Significant Projects (DPHI, 2026c). The SIA will further assess the potential social impacts and opportunities associated with the Project and identify proportionate measures to avoid, minimise, manage or enhance social outcomes. The assessment will:

- refine the social locality and further assess the potential social impacts identified during scoping
- further develop the social baseline, including demographic, housing and socio-economic characteristics, and identify vulnerable or priority groups
- undertake targeted engagement with affected and interested stakeholders, including residents, landholders, businesses, Traditional Custodians and service providers
- assess social impacts across construction, operation and decommissioning, including cumulative and distributional impacts
- identify opportunities for project refinements and proportionate management responses relevant to the scale and nature of impacts identified
- consider community values, perceptions and procedural fairness in the assessment and engagement process.

The SIA will continue to be informed by technical studies, engagement outcomes and ongoing project development throughout the EIS phase.

This approach will ensure the assessment remains proportionate and focused on the social impacts most relevant to the local and regional community.

6.13. Other Environmental Factors

The EIS will address several issues identified in Table 6-15, however detailed assessments are not proposed as the issues identified can be readily defined, assessed and mitigated using well recognised approaches. These matters will be addressed in the EIS to an appropriate degree of detail and investigation.

Table 6-15: Other Environmental Factors

Matter	Comment
Air Quality and Dust	A standard assessment will be completed in accordance with relevant NSW Guidelines. It is unlikely the Project would impact the air quality of the region. However, standard mitigation and measures will be identified within the EIS to manage dust generated by vehicles and machinery.
Climate Change	Climate change projections for the operational phase of the Project show the potential for an increase in operational risks, associated extreme weather events. These issues will be considered as part of the design development for the Project. Direct climate risks may include increased frequency and severity of extreme rainfall events, increased average temperatures and frequency of heatwaves and increased severity and frequency of bushfires.
Waste	Currently the Project Site generates agricultural and general municipal/household waste. Further, there will be waste generated from the existing Coffs Harbour Transgrid 330 kV Substation. The EIS will consider the waste streams to be generated by the Project during all phases. The construction and decommissioning phases will generate the most waste from but not limited to: • equipment packaging • excavations • domestic waste • The operational phase will generate minimal waste likely only municipal waste from on-site maintenance staff. All waste produced by the Project will be classified, handled and managed in accordance with the Waste Classification Guidelines – Part 1 Classifying Waste (NSW EPA, 2014) and Resource Recovery Orders and Exemptions issued by EPA guided by the Waste Classification Guidelines Part 1: Classifying waste and Resource Recovery Orders and Exemptions issued by NSW EPA.

6.14. Matters Requiring No Further Assessment

In line with the SSD Guidelines, Table 6-16 outlines matters for which no further assessment or justification is required, as the Project is either not in proximity to these matters or they are not applicable to the proposed development.

Table 6-16: Matters that require no further assessment in the EIS

Matter	Justification
Air – Gases (greenhouse)	While the Project does not generate electricity, it is a critical enabler of greenhouse gas (GHG) emission reductions within the National Electricity Market (NEM). By storing surplus renewable energy and discharging it during periods of peak demand, the BESS directly displaces the need for dispatchable fossil-fuel generation (such as gas and coal peaking plants). The operational emissions avoided by this time-shifting capability are anticipated to heavily offset the embodied carbon associated with the manufacturing and construction of the BESS infrastructure.
Access – port, airport and rail facilities	The Project does not involve the development of, nor does it affect access to, port, airport, or rail infrastructure.
Amenity – odour	Due to the nature of the proposed development, the Project would not generate odorous emissions.
Hazards and Risks – coastal hazards, land movement, dam safety	The Project is not located within, or in proximity to, a coastal setting. It does not pose a risk of land movement and does not involve the construction, operation, maintenance, or decommissioning of a dam.
Social – decision-making systems	The Project would not impact decision-making systems and would be undertaken in accordance with all relevant regulatory and governance frameworks.

7. Conclusion

This Scoping Report has outlined the proposed Karangi BESS and established the relevant planning and statutory context for the Project, which is currently at an early stage of development. The Report has been prepared to inform and request the SEARs, which will define the scope and content of the EIS to support the SSD application.

The EIS will assess the construction, operation, decommissioning, and rehabilitation of the Project Site and will address all key environmental, social, and economic issues identified through consultation with State and Commonwealth agencies. The EIS will be supported by detailed specialist technical studies prepared by suitably qualified experts.

The Project has been declared SSD under the Planning Systems SEPP and the EP&A Act. Preliminary biodiversity investigations have been undertaken; however, further targeted surveys will be completed to confirm potential impacts on MNES. A referral to the Commonwealth DCCEEW will be made once impacts are fully characterised, and the Project will be assessed in accordance with the NSW-Commonwealth Bilateral Agreement, if required.

Overall, the Project represents is a strategically significant piece of energy infrastructure that supports the transition toward a cleaner, more resilient national energy system. The operation of the Karangi BESS will deliver the following key outcomes and benefits:

- Firming Capacity and Renewable Energy Integration: The project would store excess wind and solar generation and release it when required. The Project would deliver firm, dispatchable capacity during evening peak demand
- Network Reliability and Security: The project would assist in maintaining grid stability as ageing coal-fired generation retires
- Decarbonisation and Policy Alignment: By enabling greater use of renewable energy, the Project would contribute to State and Federal emissions reduction objectives
- Substantial Economic Stimulus: Delivering 120–180 full-time equivalent jobs during construction and ongoing operational employment, generating demand for local goods and services as well as increasing employment and diversification in the regional economy, helping to attract further industrial and commercial investment
- Wholesale Cost Savings: The Project would help reduce wholesale electricity price volatility placing downward pressure on consumer electricity prices
- Community Benefit-Sharing: Establishing a targeted, long-term Community Benefit Program that will provide sustained support for local initiatives, infrastructure, training, events, and small businesses throughout the Project's operational life.

The Karangi BESS is well aligned with regional, State, and Commonwealth planning and energy policy objectives and has the potential to deliver significant environmental, economic, and social benefits. The SEARs will guide the preparation of a robust and comprehensive EIS to ensure that potential impacts are appropriately assessed and managed and that the Project's benefits are realised in a sustainable and responsible manner.

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Appendix A Scoping Summary Table

Level of Assessment	Matter	Cumulative Impact Assessment	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
Detailed	Landscape and Visual	Yes	DPHI	• *Large-Scale Solar Energy Guidelines* (DPHI, 2024b) • *Large-Scale Solar Energy Guideline Technical Supplement for Landscape Character and Visual Impact Assessment* (DPHI, 2024c) • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b) • *Dark Sky Planning Guidelines* (DPHI, 2023))	Section 6.3
Detailed	Noise and Vibration	Yes	DPHI and EPA	• *Noise Policy for Industry* (NPfI) (EPA, 2017) • *Interim Construction Noise Guideline* (ICNG) (DECC, 2009) • *Road Noise Policy* (DECCW, 2011) • *Assessing Vibration: A Technical Guideline* (DECC, 2006) • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b)	Section 6.4
Detailed	Biodiversity	Yes	DPHI, NSW DCCEEW and Commonwealth DCCEEW	• *Biodiversity Assessment Method* (DPE, 2022) • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b)	Section 6.5
Detailed	Traffic and Transport	Yes	TfNSW and Council	• *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b)	Section 6.6
Detailed	Aboriginal Heritage	Yes	LALCs, RAPs and Heritage NSW	• *NSW National Parks and Wildlife Act 1974* • *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010a) • *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) • *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW* (DECCW, 2010b) • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b)	Section 6.7
Standard	Historic Heritage	Yes	Heritage NSW and Council	• *Statements of Heritage Impact Guidelines* (DPE, 2022)	Section 6.8

Level of Assessment	Matter	Cumulative Impact Assessment	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
				• *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI 2026b)	
Standard	Groundwater and Surface Water	Yes	NSW DCCEEW and Water NSW	• *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (DPI, 2013) • *Policy & Guidelines for Fish Habitat Conservation and Management* (DPI, 2013) • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b) • *NSW Flood Risk Management Manual* (DPE2023a) • *Managing Urban Stormwater: Soils & Construction* (Landcom, 2004) • *Controlled Activities – Guidelines for Riparian Corridors on Waterfront Land* (DCCEEW, 2025) • *Water Sharing Plan for Clarence River Unregulated and Alluvial Water Sources 2016* (NSW, 2016a) • *Water Sharing Plan for North Coast Fractured and Porous Rock Groundwater Sources 2016* (NSW, 2016b)	Section 6.9
Detailed	Social and Economic	Yes	DPHI and Council	• *Social Impact Assessment Guideline* (DPHI, 2026c) • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b)	Section 6.12
Detailed	Bushfire	Yes	RFS and Fire and Rescue NSW	• *Planning for Bushfire Protection Guidelines* (NSW RFS, 2019) • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b)	Section 6.10.1
Detailed	Hazards and Risks	Yes	DPHI, RFS and FRNSW	• *Resilience and Hazards SEPP 2021* (NSW Government, 2021) • *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis' and Multi-level Risk Assessment* (DoP, 2011). • *Hazardous Industry Advisory Paper No. 4, 'Risk 6 Criteria for Land Use Safety Planning* (DoP, 2011) • International Commission on Non-Ionizing Radiation Protection (ICNIRP) *Guidelines for limiting exposure to*	Section 6.10.2

Level of Assessment	Matter	Cumulative Impact Assessment	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
				Time-varying Electric, Magnetic and Electromagnetic Fields • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b)	
Standard	Soils and Agriculture	Yes	DPHI, EPA and Council	• *Land Use Conflict Risk Assessment Guide* (DPI, 2011) • *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2026b) • *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land* (NSW EPA, 2020) • *National Environment Protection Measure* (Assessment of Site Contamination) (NEPC, 2013)	Section 6.11
Standard	Waste	No	DPHI and Council	• *Waste Classification Guidelines Part 1 Classifying Waste (DECCW, 2009)*	Section 6.13

Level of Assessment

- **Detailed Assessment: The Project has the potential to cause significant impacts on the matter, including cumulative effects. This level of assessment requires comprehensive studies and investigations undertaken by qualified technical specialists.**
- **Standard Assessment: The Project is not expected to cause significant impacts on the matter, including cumulative effects.**
- **No further Assessment: The Project is expected to have no impact or only negligible impacts on the matter, and any such minimal effects cannot be meaningfully assessed.**

Appendix B Community Engagement and Stakeholder Plan (RPS, 2026)

COMMUNITY AND STAKEHOLDER ENGAGEMENT PLAN – KARANGI BESS

CSEP KARANGI BESS NSW
12 May 2026

rpsgroup.com

Document status

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Marina Draper 12 May 2026

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We acknowledge the Gadigal People of the Eora Nation throughout Australia 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 Avenis Energy Pty Ltd on behalf of AE BESS 12 Pty Ltd as Trustee for AE BESS 12 Unit Trust ('the Applicant') to deliver community and stakeholder engagement activities as part of the scoping phase for the Karangi Battery Energy Storage System (BESS) ('the Project') located approximately 11 km west of Coffs Harbour, NSW.

This CSEP outlines a comprehensive engagement strategy aimed at consulting with the community and stakeholders throughout the project lifecycle.

It identifies the interests and concerns for key stakeholders and how the Applicant will engage with them throughout the scoping report phase for the Project.

It also outlines the engagement and communications approach including a program of activities which will be updated and reviewed in alignment with project milestones.

1.1 Acronyms

Acronyms	Description
ABS	Australian Bureau of Statistics
ARTC	Australian Rail Track Corporation
APP	Australian Privacy Principles
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
AEMO	Australian Energy Market Operator
BESS	Battery Energy Storage Systems
CBD	Central Business District
CSEP	Community and Stakeholder Engagement Plan
DNSP	Distributed Network Service Provider
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
IEA	International Energy Agency
IAP2	International Association of Public Participation
ICNIRP	International Commission on Non-Ionizing Radiation Protection
mG	milligauss
NSW	New South Wales
NECF	National Energy Customer Framework
NPP	National Privacy Policy
NEM	National Energy Market
PPA	Power Purchase Agreement
Planning Systems SEPP	*State Environmental Planning Policy (Planning Systems) 2021*
RAF	Rapid Assessment Framework
SEARS	Secretary's Environmental Assessment Requirements
SSD	State Significant Development

2 PROJECT OVERVIEW

2.1 Project objectives and scope

The Applicant is proposing to develop a 240 MW BESS located 11 km northwest of Coffs Harbour Town Centre, in Karangi, NSW. The Project would connect into the adjacent Transgrid 330kV substation on Casuarina Lane.

Karangi is located in the rural west area of Coffs Harbour, an area comprising Brooklana, Bucca, Coramba, Lowanna, Nana Glen, Ulong, Upper Corindi and Upper Orara, as well as the Coffs Harbour City portions of Barcoongere, Dirty Creek, Halfway Creek and Sherwood.

The Project would have an estimated capacity of up to 240 MW, including a 4-hour storage duration and 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 renewable energy sources continue to grow.

The Project Site covers an area of approximately 39.4 ha with a 22 ha development footprint within the Project Site which is currently being used for agricultural purposes as well as containing the Transgrid substation.

Should the Project proceed, it 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:

- Store surplus renewable energy and dispatch it when needed, helping to support greater renewable energy use.
- Support emissions reductions by enabling more renewable energy to be deployed
- Respect and adapt to the environmental limitations specific to the site
- Provide grid support services and reliable firm power.

This CSEP covers the Scoping Report phase, which is the 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	Karangi BESS
Address	The project is located off Casuarina Lane, Karangi, NSW
Applicant	Avenis Energy Pty Ltd on behalf of AE BESS 12 Pty Ltd as Trustee for AE BESS 12 Unit Trust
Council	Coffs Harbour LGA
Total indicative area	Project Site: 39.4 ha Development Footprint: 22 ha
Land use	Farmland and Utility infrastructure
Owners	Private (one) Crown Lands - Transgrid
Capacity	240 MW / 960 MWh

2.2 Project maps

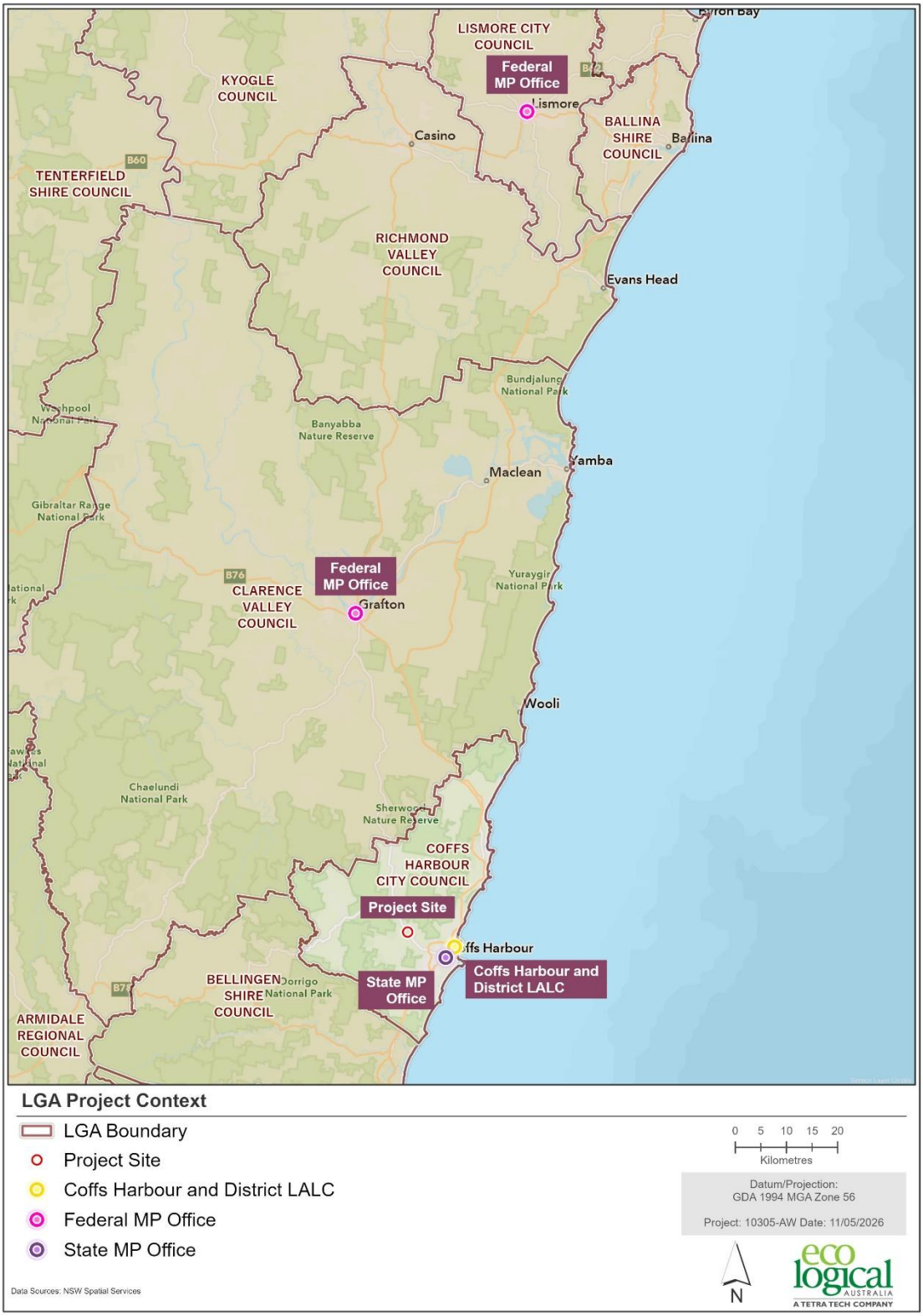

Figure 1: Map of Project location in the context of the LGA

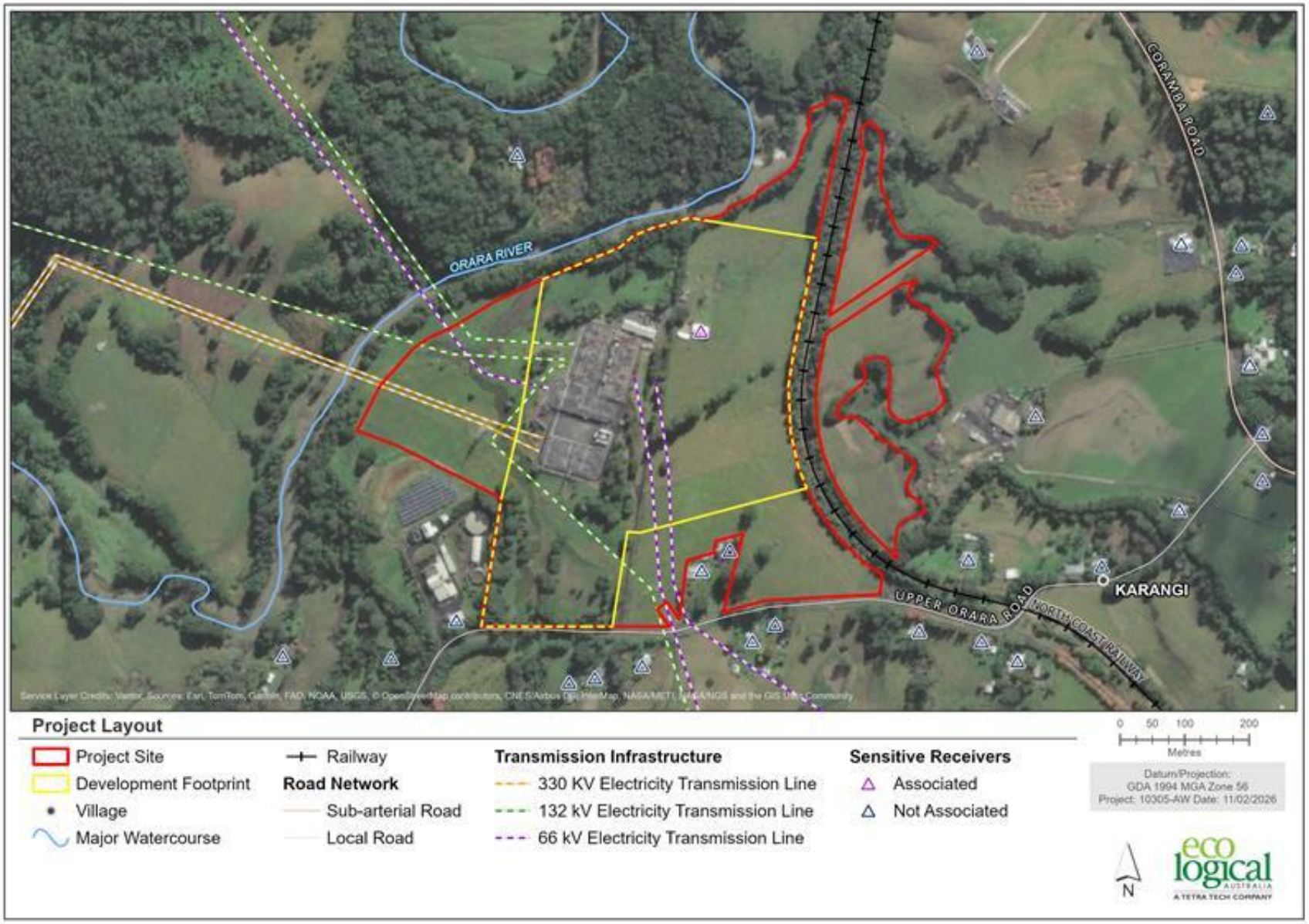

Figure 2 : Map of proposed Project location

2.3 Applicable legislation, policy and codes

Federal and state government regulations require all major infrastructure projects to undergo environmental assessment before approval is considered.

The Project will likely be classified as 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) and must meet specific guidelines.

The approach that the Applicant will take to communications and engagement is informed by the regulatory requirements and engagement guidelines outlined below (Table 2).

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 Project 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.
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 2026	The Department and the Applicant are both required to engage with the community, councils and government agencies on SSD 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. The Applicant 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 2025 DPHI 2025	This guideline assists applicants 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.

Title	Description
Cumulative Impact Assessment Guidelines for State Significant Projects DPHI 2026	This guideline ensures that the cumulative impacts of multiple projects are considered during the planning process. Requires applicants 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 2025	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 engagement activities.
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.

2.5 Assessment process

The development costs of this Project are expected to exceed $30 million, qualifying it as an 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 engagement 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.

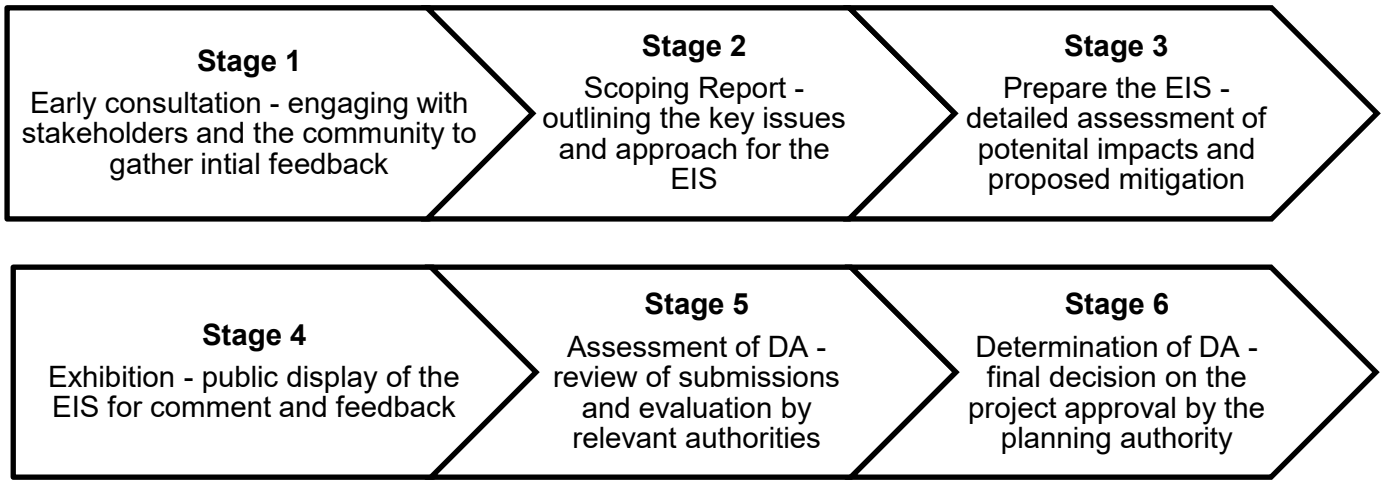

Figure 3 NSW Government SSDA assessment

2.6 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 below outlines the anticipated timings of the assessment process for this project.

Table 3: Project indicative timings

Phase	Proposed dates/timings
Preparation of Scoping Report	February – May 2026
Submit Scoping Report and Request SEARS[1]	May 2026
Prepare EIS and completion of technical assessments	May - November 2026
Submit EIS and Public Exhibition of DA	End November 2026
Respond to submissions	Early 2027
Project determination	2027
If approved:	
Pre-Construction	Late 2027
Construction and commissioning	2028
BESS operational	Late 2028

[1] Secretary's environmental assessment requirements (SEARs)

3 COMMUNITY PROFILE

This section outlines the broad characteristics of the Coffs Harbour Local Government Area (LGA) and provides a comparison snapshot for the area of Karangi.

The Coffs Harbour LGA is a coastal regional centre with an older-than-average population, a strong Anglo Australian-Australian ancestry profile, and a mix of family and retirement households. According to the 2021 Australian Bureau of Statistics (ABS) Census QuickStats[2] for the LGA, the population is around 78,700 people with a median age of 44 (higher than the NSW median of 39). The LGA also has a higher proportion of Aboriginal and Torres Strait Islander people (around 5 - 6% of the population) than the NSW average, and the top reported ancestries are English and Australian[3].

Household size averages about 2.4 people, median weekly household income is approximately $1,360–$1,440, and housing tenure shows a balance of owned and rented dwellings consistent with a regional city. The labour force in the Coffs Harbour LGA is largely comprised by health, education, retail and tourism.

Karangi differs from the broader Coffs Harbour LGA in several socioeconomic characteristics. With approximately 515 residents at the 2021 Census, Karangi is a small, relatively prosperous, car dependent semirural community with a higher median household income and larger average household size than the Coffs Harbour LGA. Karangi's labour force is characterised by a strong presence of technicians, trades and professionals, together with higher rates of fulltime employment. Public transport use is negligible, with most residents driving to work. A

3.1 High level condensed community profile:

The community profile of Coffs Harbour and Karangi against NSW in 2021 as per the ABS Community Census data is presented in Table 4.

Table 4: Community Census data reflecting Coffs Harbour and Karangi against NSW - 2021

Indicator	Karangi	Coffs Harbour LGA	NSW
Population	515	78,759	8,072,163
Median age	44	44	39
Aboriginal and Torres Strait Islander people	4.9% (Aboriginal and/or Torres Strait Islander)	5.6% (Aboriginal and/or Torres Strait Islander)	3.4% (Aboriginal and/or Torres Strait Islander)
Sex distribution (Female / Male	49.8% / 50.2%	51.7% / 48.3%	50.6% / 49.4%
Country of birth			
Australia	74.0%	78.4%	65.4%
Overseas	26.0%	21.6%	34.6%
Language			
Households where a non-English language is used	Predominantly English only at home (low linguistic diversity)	9%	Higher linguistic diversity overall
Population that speaks only English at home	Predominantly English only at home (majority of residents)	91%	~68.5%
Languages other than English spoken at home (Top five)			
1	German 1.0%	Punjabi 2.3%	Mandarin 3.4%

[2] Source Profile.id: https://profile.id.com.au/coffs-harbour/highlights?WebID=10

[3]Source Profile.id: https://profile.id.com.au/coffs-harbour/highlights?WebID=10

2	Spanish 1.0%	Kurdish 0.5%	Arabic 2.8%
3	Thai 1.0%	Mandarin 0.5%	Cantonese 1.8%
4	Japanese 0.6%	German 0.4%	Vietnamese 1.5%
5	— (no further languages with notable % in Karangi)	Spanish 0.3%	Hindi 1.0%
Housing tenure			
Owned outright	38.7%	37.3%	31.5%
Owned with mortgage	44.2%	29.6%	32.5%
Private renting	14.9%	29.4%	32.6%
Housing costs			
Median mortgage repayment ($/monthly)	$1,630	$1,733	$2,167
Median rent ($/weekly)	$310	$375	$420
Highest education level attained			
Years 10 to Year 12	24.1%	29.5%	29.3%
Bachelor's degree and above	17.0%	18.2%	27.8%
Certificate III and IV	21.1%	20.6%	15.0%
Employment status			
Full time	53.2%	50.2%	55.2%
Part time	33.5%	38.3%	29.7%
Unemployment rate	Reported above LGA average (small-area rate)	5.3%	Varies by region (state average differs)
Workforce participation rate	Higher than LGA (small area)	~56%	Varies by region (state average higher than some regional areas)
Employment by industry (Top five)			
1	Site preparation services - 5.8%	Hospitals (except psychiatric hospitals) - 5.5%	Hospitals (except psychiatric hospitals) - 4.2%
2	Hospitals (except psychiatric hospitals) - 5.8%	Other social assistance services - 3.7%	Supermarket and grocery stores - 2.5%
3	Supermarket and grocery stores - 3.7%	Aged care residential services - 3.0%	Other social assistance services - 2.4%
4	Local government administration - 3.7%	Supermarket and grocery stores - 2.8%	Primary education - 2.1%
5	Other heavy & civil engineering construction - 2.9%	Primary education - 2.6%	Health, aged care and education sectors feature strongly across the state
Personal Family Household	$1,899	$1,363	$1,829

3.2 Cumulative impacts

Several largescale and long duration projects are occurring across the Coffs Harbour LGA and immediate surrounds. Most importantly, the Coffs Harbour bypass and regional Pacific Highway upgrades, together with major residential estates, utility modifications and a proposed film studio development, all of which have the potential to interact with the Project.

When considered alongside local social characteristics (smaller community scale in Karangi, high car dependency, and limited public transport), the primary cumulative impact pathways likely to affect the Project are increased heavy vehicle and construction traffic on local routes, concurrent noise and dust from overlapping works, greater demand for local accommodation and trades, pressure on utilities and services, and amplified community consultation fatigue. These interactions mean project timing, traffic management, noise mitigation and direct engagement with Aboriginal stakeholders and affected neighbours should be prioritised. Refer to Table 5 for the screening list of nearby major projects and an initial assessment of their potential cumulative impacts.

Table 5:Upcoming projects with projected impacts and risk level

Project name	Proponent / organisation	Project type / status	Locality (approx. distance)	Indicative construction timing / status	Potential cumulative impacts to Karangi / neighbouring properties	Risk level
Coffs Harbour Bypass (Pacific Highway bypass)	Transport for NSW / Ferrovial-Gamuda JV	State Significant Infrastructure - under construction / major contractor active	Karangi regional area - 0–3 km	Active construction. Major works through 2024–2027; open to traffic late 2026; final completion late 2027	Direct and sustained construction impacts (noise, vibration, dust); heavy vehicle movements and changed local access; removal of vegetation buffers increasing noise / visual exposure; contractor compounds and workforce movement; major overlap potential with local projects and community disruption.	Medium
Pacific Highway (corridor upgrades / remaining works on Woolgoolga–Ballina program and related highway works)	Transport for NSW	State Significant Infrastructure - staged upgrades / some works complete, others active or modified	Regional corridor (multiple locations along Pacific Hwy) - major sections 5–60 km	Staged program; many sections completed, some ongoing works and modifications through 2024–2026	Region-wide heavy vehicle / freight changes, detours and staged works can shift traffic onto local arterials; elevated baseline of construction traffic in the region increases cumulative impacts for Karangi (traffic, road safety, dust).	Medium
Large residential estates and subdivisions (Glades Estate, North Boambee and similar SSDs)	Private developers	State Significant Development - approved / staged construction	Surrounds / northern Coffs growth areas - ~5–15 km	Staged construction following approvals; multi-year staging (TBD by stage)	Increased commuter trips, construction traffic using haul routes that may be the same as routes to/from Karangi, heightened demand on utilities and local services, temporary workforce accommodation pressures.	Medium
Coffs Harbour Cultural & Civic Space (Central	City of Coffs Harbour / State partners	State Significant Development -	Coffs Harbour city - ~8–12 km	Post-approval; staged construction (TBD—multi-year)	CBD construction causing local truck movements and short-term disruption; indirect impacts on Karangi via altered	Low–Medium

Business District (CBD) redevelopment)		approved / construction staged			travel to services, events and potential changes to city parking/transport patterns.	
Coffs Harbour Marine Precinct works and harbour maintenance (dredging / upgrades)	City of Coffs Harbour / Transport for NSW (maritime)	Major works / ongoing maintenance programs	Coffs Harbour - ~10–12 km	Programs and seasonal maintenance windows (dredging windows seasonal; various dates)	Coastal and marine environmental effects; limited direct impacts on Karangi except through tourism, fisheries and regional environmental interactions; minor transport impacts for marine logistics.	Medium (environmental)
Lakes Estate modifications (powerline / utility works)	Developer / utility authority	SSD Modifications / utility works - determined	Surrounds (estate areas near Coffs) - ~8–15 km	Utility works scheduled as packages; timing depends on program (TBD)	Short-term utility construction, possible service interruptions, localised heavy vehicle movements on connecting roads. When concurrent with larger projects adds to cumulative local disruption.	Medium
Affordable housing and other mid-scale SSDs / modifications across Coffs LGA	Various developers / Council	SSD / modifications / assessment	Various suburbs in Coffs LGA - distances vary (2–25 km)	Mix of approved and proposed projects; timing varies by project (TBD)	Multiple smaller construction programs increase aggregate demand for trades, accommodation and transport; contribute to cumulative construction noise/traffic and potential consultation fatigue.	Low–Medium
Local road upgrades and intersection improvement works (TfNSW / Council)	Transport for NSW / City of Coffs Harbour	Infrastructure upgrades / minor SSI or local works	Various (local roads linking to Karangi) - 0–30 km	Rolling short-duration works scheduled across multiple years (2024–2027)	Short-term traffic management, detours and lane restrictions on routes to Karangi; can amplify delays when overlapping high-impact projects.	Low

4 STAKEHOLDER IDENTIFICATION AND ANALYSIS

4.1 Stakeholder mapping and categories

The likely stakeholders have been grouped into categories based on their stakeholder type or role. They have then been further categorised based on their level of **interest**, **influence**, and the potential **impact** of the project on them.

In summary, *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.

The analysis outlined in Table 6 has been drafted with input gained from the Stakeholder workshop held on 4 February with Avenis Energy, RPS and Ecological Australia.

Table 6: Stakeholder categories

Stakeholder category	Interest/influence/impact	Engagement aims
Local Residents and Property Owners (including directly adjoining neighbours)	High interest High impact High influence	• To inform and educate the broader community about the project. • To identify and proactively manage potential impacts for directly adjoining neighbours immediately. • To proactively address amenity concerns (visual, noise, property values, insurance). • To identify and manage any community concern early in the process • To proactively communicate about the benefits
Local Aboriginal Communities and Agencies	Variable interest High influence Potential cultural impact	• To actively show respect and acknowledge their role as custodians of the land we work on • To proactively identify any potential impacts • To acknowledge custodianship and identify cultural values and potential impacts where relevant • To identify and manage any issues of concern early in the process
Council and associated bodies	High interest High impact High influence	• To engage council early • To provide formal briefings early in the process and keep them informed • To proactively identify any potential impacts • To manage risk of opposition from within council staff or councillors • To identify and manage any issues of concern early in the process
State and Federal Government Agencies	High interest High impact High influence	• To brief regulators and relevant agencies early (planning / transport / water energy) • To provide timely technical information to meet statutory requirements • 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
Elected Officials (Local Government and State MPs)	High interest High impact	• To inform and brief MPs and key state members early to manage political risk

	High influence	• To provide clear talking points and timely updates • To build advocates for the project • To enable their staff to direct questions to us if received
Business Owners and Operators	High interest Moderate impact Variable influence	• To inform and educate the business community about the project • To proactively identify any potential impacts • To identify employment or supplier opportunities • To identify and support any access, timing and traffic • To use local economic benefits to support local goodwill
Environmental Groups and Community Organisations	High interest Moderate impact Moderate influence	• To inform and educate the broader community about the project. • To identify and manage any community concern early in the process • To provide transparent technical information relevant to environmental concerns • To provide an opportunity to build trust and brand recognition, potentially through partnerships
Educational and Healthcare Institutions	Moderate-High interest Low-moderate impact Moderate influence	• To inform and educate health and educational representatives about the project. • 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
Local Media	Moderate interest Moderate impact Moderate influence	• To proactively provide relevant and timely information • To manage narrative and reduce misinformation • To provide a clear point of contact and spokesperson for queries about the project
Internal Stakeholders	High interest High impact High influence	• To align internal communications and commitments (e.g. land agreements, benefit options, site boundary, timeline) • To ensure one source of truth for public messaging and approvals coordination • To build advocates for the project within the business and the community
Utilities, Emergency Services, Transport	High interest High impact High influence	• To proactively identify any potential impacts on their operation or assets • To coordinate on safety, access, technical constraints and emergency planning • To identify opportunities to coordinate work delivery or share resources
Heritage / cultural heritage authorities (Heritage NSW)	High interest Moderate impact Moderate influence	• To proactively identify any potential constraints and required studies • To integrate heritage findings into design and communications where relevant

Local road users / broader community (non-adjacent neighbours, road users)	High interest Variable impact Low influence	• To inform and educate local road users and the broader community about the project. • To proactively provide information and community notifications about construction timing and traffic management • To ensure communications are distributed using a range of channels • To provide accessible methods to receive feedback
External advocates / renewable action groups	High interest Variable impact Variable influence	• To monitor regional renewable action groups as potential amplifiers • To provide clear technical evidence and engagement opportunities to avoid issues escalation and foster information sharing / education.
Local agricultural associations and water users	Low-moderate interest Low impact Low influence	• To advise and consult on water management and any potential impacts to agricultural land. • To provide technical detail on water sourcing and management.

4.2 Stakeholder analysis

The analysis below outlines the key interests, potential concerns and the best methods of engagement for each stakeholder group (Table 7).

A comprehensive list of site-specific stakeholders is available in Appendix A.

Table 7: Stakeholder matrix analysis

Stakeholder group	Interests	Potential concerns	Engagement methods
Local residents and property owners (including directly adjoining neighbours)	Property devaluation, noise, visual impact, local benefit sharing, local job opportunities.	Uncertainty regarding property valuation, lack of trust, disruption during construction, long-term environmental impacts. Potential sensitive receivers (nursing homes, daycares etc).	Direct mail, 1 to 1 meetings, webpage updates, informational brochures, FAQs, maps, information sessions, online forums.
Local Aboriginal Communities and Agencies: • Coffs Harbour and District Local Aboriginal Land Council (CH&D LALC) • Jagun elders • Garby elders • Gumbaynggir Wenonah Head Aboriginal Corporation	Preservation of cultural heritage, protection of sacred sites, community benefits.	Potential disturbance of culturally significant sites, lack of consultation.	Face-to-face meetings, project point of contact (1800 number), involvement in heritage assessments, collaboration on community benefits.
Council and associated bodies: • City of Coffs Harbour • GM / Mayor, Planning team	Compliance with local planning regulations, economic development, community satisfaction.	Public opposition, project alignment with town planning objectives and Council's strategic plan.	Regular briefings, community updates/eNewsletters, formal submissions, joint public forums.
State and Federal Government Agencies: • Department of Planning Housing and Infrastructure (DPHI) • Department of Climate Change, Energy, the Environment and Water • Department of Crown Lands • Transport for NSW • Water NSW • Fire and Rescue NSW • NSW Police	Regulatory compliance, land title, project alignment with state and federal objectives.	Adherence to statutory requirements, potential public backlash. Potential impacts to their own operations or assets.	Formal submissions, regular updates, compliance reporting, working group/s.

Elected officials (local government and state MPs) • State Member - Gurmesh Singh MP – Nationals • Federal Member - Pat Conaghan	Project milestones, community issues and concerns, community benefits, opportunities	Potential public backlash, lack of advocacy or support for project.	Notification letters, regular briefings, stakeholder workshops, community updates eNewsletters.
Business owners and operators • Coffs Harbour Chamber of Commerce	Economic opportunities, local hiring, partnership potential. Wayfinding opportunities.	Impact on local commerce, traffic disruptions during construction.	Business roundtables, targeted newsletters, stakeholder workshops.
Environmental groups and community organisations • Upper Orara Progress Association	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. Customer impacts including bill and access; excessive impacts of customer and/or community groups.	Environmental impact workshops, public exhibitions, factsheets, FAQs, collaboration on sustainability and community benefit initiatives.
Educational and healthcare institutions	Educational partnerships, research opportunities, community engagement.	Likely limited direct impact but interested in educational and environmental initiatives. Impacts to service and access.	Community updates, eNewsletters, promoting consultation opportunities through institution communications.
Local media	Public consultation opportunities; project timeline, funding and negotiables.	Lack of access to information in public interest.	Regular updates through newsletters and website. Site visits and interviews, if appropriate.
Internal stakeholders	Business case approval including financials; coordination across business unit; strategic alignment. Workforce planning.	Lack of alignment to strategy, project delivery delays. Impacts to existing assets or other projects.	Internal working groups, regular updates through governance structures.
Utilities, emergency services, transport: • Australian Rail and Track Corporation (ARTC) • Transgrid • Essential Energy • State Emergency Services • Rural Fire Services	Coordination of project delivery, sharing of resources	Traffic impacts, service and access disruptions, emergency management procedures	Working group, project updates, online consultation via email and teleconferencing

4.3 Engagement activities and outcomes

The Applicant has had initial discussions with near neighbours about the Project and has also engaged in more than 60 direct conversations with individual stakeholders. In addition, 65 community members attended the information sessions held as part of the early consultation process. Overall, these activities form part of a broader engagement effort that has reached over 1,194 people through direct contact, newsletters, and community updates.

Table 8 captures the engagement activities and outcomes documented by the Applicant and notifications/invitations to engage throughout scoping report phase.

Table 8: History of engagement

Stakeholder	Date	Details
Potentially impacted property owners		
Near-neighbours	9 March 2026 17 March 2026 26 March 2026	• Pre-arranged meetings one-on-one on the resident's property.
Residents located on the following roads close to the site: • Upper Orara Road • Coramba Road • Mastons Road • Hartley Road	13 March 2026	• Notification letter • Community newsletter – letterbox drop • Invitation to attend information session • Access to 1800 number and email for ongoing Project communications.
Near neighbours (2km radius)		
Residents located on the following roads close to the site: • Upper Orara Road • Coramba Road • Mastons Road • Hartley Road	March 2026	• Community newsletter – letterbox drop • Invitation to attend information up session • Access to 1800 number and email for ongoing Project communications.
Surrounding businesses (6km radius)		
All businesses (commercial, industrial and retail) located on the following streets: • Upper Orara Road • Coramba Road • Mastons Road • Hartley Road • Mount Browne Road • Jacaranda Drive • Boambee Link Road • Fridays Creek Road • North Island Loop Road • South Island Loop Road • Dairyville Road • Dry Creek Road • Orara Way • Eastern Dorrigo Way • East Bank Road	March 2026	• Community newsletter – letterbox drop • Invitation to attend information session • Access to 1800 number and email for ongoing Project communications.

• Moses Close • Bennetts Road • Businesses on the outskirts of Coffs Harbour		
Community infrastructure (6km radius)		

• Education
  • Karangi Public School
  • Upper Orara Public School
  • Coramba Public School
  • Country Cubs Preschool & Long Day Care
  • Jodie's Family Day Care
• Recreational/sport clubs
  • Coffs Harbour Pistol Club
  • Orara Valley Football Club
• Community and cultural
  • Upper Orara Hall
  • Coramba Community Hall
  • St Theresa's Church
  • St Paul's Anglican Church
  • Dhammaduta Meditation Centre
	March 2026	• Community newsletter – letterbox drop
		• Invitation to attend community information drop-in sessions
		• Meetings at community information drop-in sessions
		• Access to 1800 number and email for ongoing Project communications.

Members of Parliament		
Mr Gurmesh Singh, MP (State), Member for Coffs Harbour	16 February 2026 – letter via email 11 March 2026 (in-person meeting)	• Letter issued via email 16 February 2026 • 11 March in-person meeting.
Mr Kevin Hogan, MP (Federal), Member for Page	26 February 2026 – letter via email 17 March 2026 (Teams meeting)	• Letter issued via email 26 February 2026 • 17 March Teams meeting.
Local Government		
City of Coffs Harbour Council	16 February 2026 – letter via email 11 March 2026 (in-person meeting at the GMs Office)	• Letter issued via email 16 February 2026 • Pre-DA meeting held on 11 March 2026 • Shared community newsletter via email 17 March.
Surrounding residential community (within 6-7km)		
Surrounding residential community across the following areas: • Boambee, Coramba, Dairyville, Karangi, and Upper Orara	13 March 2026	• Community newsletter – letterbox drop • Invitation to attend community information drop-in sessions • Access to 1800 number and email for ongoing Project communications.
Industry and Business Groups		
Coffs Harbour Chamber of Commerce – Garth Shpperlee, Executive Officer	16 February 2026 – letter via email 11 March 2026 (in-person meeting)	• Email – Notification on proposed project in the region. Invitation to meet and discuss proposed Project (in March 26) • Pre-DA meeting held on 11 March 2026.

Sensitive receivers (Education facilities) (4km)		
Karangi Public School	24 March 2026	• Attendance at community information sessions • Access to 1800 number and email for ongoing Project communications • Principal attended community information sessions.
Upper Orara River Land Care Group	17 March 2026	• Email - Notification about proposed Project and invitation to meet Project team.
First Nations stakeholders		
CH&D LALC – CEO Chris Spencer	16 February 2026 11 March 2026 (in-person meeting)	• Email - Notification about proposed Project and invitation to meet Project team week commencing 9 March 2026 • In-person meeting to introduce the Project.
Jagun elders – Uncle Tony Perkins	16 February 2026 12 March 2026 (in-person meeting)	• Email - Notification about proposed Project and invitation to meet Project team week commencing 9 March 2026 • In-person meeting to introduce the Project.
Garby elders – Aunty Deborah Dootson	16 February 2026 letter via email	• Email - Notification about proposed Project and invitation to meet Project team week commencing 9 March 2026.

5 ENGAGEMENT APPROACH

This engagement approach aims to involve the community and stakeholders throughout the scoping stage of the Karangi BESS project.

The approach is aligned to the International Association of Public Participation's (IAP2) Public Participation Spectrum. The Spectrum is widely used and well recognised as a guideline for formulating a best-practice approach to stakeholder and community engagement.

5.1 Guiding principles

This CSEP is guided by the following principles:

- **Inclusiveness**: Engaging a broad spectrum of stakeholders, including vulnerable and hard-to-reach groups.
- **Transparency**: Clear communication regarding project details, timelines, and impacts.
- **Responsiveness**: Timely and thoughtful responses to community feedback and concerns.
- **Accountability**: Ensuring the engagement process is measurable, and outcomes are shared with the community.

5.2 Engagement objectives

The engagement objectives for the Project are presented in Table 9.

Table 9: Engagement objectives

Objective	How	Actions and measures
Raise project awareness and bridge renewables knowledge gap	• Provide community with a single source of truth (dedicated webpage, public facing collateral) • Prepare a suite of informative collateral and FAQs to take to stakeholder meetings, briefings, information sessions • Reinforce educational messages in all communications and touch points	• Publish webpage • Design and publish information boards for display at information sessions • Publish FAQs on webpage • Provide links to reputable sources on Avenis webpage • Document download statistics / visits to website • Minimal media / resident enquiries
Identify and understand local issues, concerns and misconceptions	• Carry out targeted one-to-one meetings with key stakeholders (local state and federal members; council; near neighbours; Crown Lands-to-one meetings • Hold broader community information sessions.	• Complete stakeholder discussions / briefings • All stakeholder interactions are recorded in the Stakeholder Consultation spreadsheet • Execute two information sessions with broad community representation. •
Foster transparency and build trust between the project team and the community	• Providing landholders, members of the community and other stakeholders with timely and relevant information about the proposed project. • Provide clear call to action on all communications with website / 1800 number for enquiries.	• Regular cadence to project updates, aligned to project milestones and timeline • Consistency in spokespeople and project team interaction with community and stakeholders • Visits to website, document downloads, calls to 1800 number.

Objective	How	Actions and measures
Ensure meaningful stakeholder involvement in the decision-making process	• Identifying internal and external stakeholders with issues or interests in the project and providing them with consistent messages about the project and opportunities to be heard • Demonstrate transparency through accurate engagement reporting.	• 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 • Community representatives and key stakeholders agree that their feedback is considered and has impacted project outcomes • Publish engagement reports and updates in a timely manner (i.e. or as outlined in state planning requirements)
Address community concerns and integrate feedback into project development	• Clearly documenting communication to and from landholders and other community stakeholders	• All stakeholder consultation is recorded in the appropriate consultation platform with 24 hours • Clear evidence stakeholder feedback is included in project documentation and decision making • Stakeholders are clear on the project negotiables and non-negotiables – feedback is primarily shared on negotiable aspects and/or recognises the non-negotiables
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 • Timely engagement reporting published on website.

5.3 Participation level

During the Project, different levels of participation will be required depending on the stakeholder group and the activity. The engagement approach is aligned to the IAP2 Spectrum as outlined below (Table 10).

However, due to statutory and site requirements, some aspects of the Project are non-negotiable and cannot be influenced by stakeholders or community members. Feedback from the workshop held on 4 February 2026 also confirmed that the negotiable elements of the project, as outlined in Section 5.7, are very limited.

These parameters dictate the level of consultation, according to the IAP2 framework is limited to Consult.

Table 10: Participation level

Inform	Consult	Involve	Collaborate	Empower
Provide balanced and objective information to assist understanding of the problem, opportunities 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.

Provide clear, accessible information via the Project website, social media, newsletters and public notices	Gather stakeholder feedback to inform the scoping report phase through 1/1 key stakeholder meetings and briefings. Seek feedback through surveys, community meetings, public exhibitions, and online comment portals.	N/A	N/A	N/A

5.4 Approach to First Nations engagement

The project will openly and transparently engage with First Nations stakeholders. The Applicant 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 Project area lies within the Coffs Harbour LGA, where Aboriginal and Torres Strait Islander people make up approximately 5.6% of the population, with Karangi recording approximately 4.9% at the 2021 Census. The Karangi locality is on the country of the Gumbaynggirr people, who are the recognised Traditional Custodians of the Coffs Coast and hinterland and who maintain continuing cultural, social and spiritual connections to land, water and sea country in the region. Local representative bodies such as the Coffs Harbour and District LALC and neighbouring regional Aboriginal organisations play a key role in cultural heritage, land management and community welfare matters.

Our approach will build on our existing relationships with LALC and establishing new relationships with other community groups (refer to Table 11).

Table 11: First Nations stakeholder mapping

Stakeholder	Potential Interest	Reason for engaging	Current relationship
CH&D LALC	• Interest: Variable; may be interested in matters affecting their lands and members.	• LALCs have the right to be consulted about developments on traditional lands; to identify cultural values and potential impacts; to ensure project outcomes consider community priorities.	Not yet fully engaged. LALC interest is variable and should be confirmed.
Jagun elders	• Interest: Likely interested in cultural and land matters affecting their Country.	• Elders provide cultural knowledge and guidance on how development should be located, designed and managed on Country.	Level of formal engagement not yet established.
Garby elders	• Interest: Likely interested in cultural and land matters affecting their Country.	• Elders provide cultural knowledge and guidance and advise on cultural heritage and acceptable practices.	Engagement approach to be confirmed.
Traditional Owners (general, unnamed groups in the area)	• Interest: Potentially high where cultural values or sites are present; interest may vary by group.	• Need to be consulted on how they want development on their traditional lands to be designed and constructed; to acknowledge custodianship.	Not yet engaged as a cohort in a confirmed way; Need to check interest and preferred approach.
LALCs that cover the project area (generic)	• Interest: Variable; some LALCs show less interest in developments than might be expected.	• To identify and manage cultural heritage issues; ensure consent and appropriate cultural protection; seek community outcomes.	Not yet engaged. Team to confirm appetite before proceeding.
First Nations community groups (regional community groups and smaller organisations)	• Interest: High for groups feeling under-represented; may be moderate for others.	• Some smaller community groups do not feel represented through LALCs and larger organisations; need to ensure engagement reaches a broad group of First Nations stakeholders.	Not yet engaged; recommend including a broad cross-section beyond formal LALCs.

Elders and knowledge holders	• Interest: High where cultural matters are affected.	• To provide cultural advice, validate cultural heritage processes and guide appropriate protocols for site works and design.	Some relationship with elders. Engagement and recognition protocols to be developed.
Native title representatives and claimants (if applicable)	• Interest: High where native title or claims are relevant.	• To ensure legal and cultural requirements are met and to address land tenure and rights matters.	Unknown. Need to identify if any claims are present.

5.5 Engaging hard-to-reach stakeholders

Karangi is a very small, semirural locality with a population of 515 people. Households are dispersed and there is a heavy car dependency and little public transport use. These locality factors mean people without regular private transport, (some older residents, people with a disability, and low-income households who may not always have access to a vehicle) can be physically isolated from face-to-face events.

At the LGA scale, the median age is 44 with a lower proportion of residents with a high education degree. This may affect preferred communication channels and the type/level of technical information that will be useful. Coffs Harbour also has a higher Indigenous population share (Coffs LGA 5.6%; Karangi 4.9%), meaning genuine First Nations engagement must be resourced and culturally appropriate. Finally, household income in the Coffs LGA is lower than the NSW median (median weekly household income Coffs LGA ≈ $1,363 v NSW ≈ $1,829), which may create barriers to digital access for some households and limit participation in consultations that rely solely on online tools.

5.6 Engaging with 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, state and federal members, 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 stakeholder briefings and early engagement, 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.

5.7 Negotiables and non-negotiables

Project negotiables and non-negotiables identify what stakeholders can and cannot influence at each stage of the project. They help to determine levels of engagement and the appropriate communications and engagement tools required to meaningfully engage with the community and stakeholders (refer to Table 12).

Table 12: Project Negotiables and Non-negotiables

Negotiable	Non-negotiable
Acquisition of additional properties	Location of BESS
Colour scheme	Capacity
Community benefits package / funding (could be considered at later engagement stages)	Size
Noise reduction mitigations for neighbours (e.g. double glazing)	Timing of planning and development and approvals process
Visual impact mitigations	

Screening locations	
Traffic control	
Local employment and procurement	
Local procurement	
Orientation of infrastructure (negotiable within ecological and technical parameters)	

5.8 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 Avenis 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 Engagement schedule – scoping 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, Crown Lands and other agencies) • Business owners and operators (immediately impacted)	• Briefings (formal and informal) for Government Authorities, and other key local landowners • Letters to key stakeholders • Meetings with landowners • Informative educational collateral, i.e. factsheets FAQs, community updates • Interactive online tools including website update, 1800 number and project email address

			• Environmental groups and community organisations (targeted) • Internal stakeholders • Utilities, Emergency Services, Transport (immediately impacted)	
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	• DPHI to publicly exhibit DA • DPHI to notify and advertise public exhibition (copies made available at Councils and	• All stakeholders	• Public Exhibition minimum 28 days - *DPHI to lead*

	• Minimise objections during exhibition	Service NSW centres) • DPHI to hold information / briefing sessions with community (as required)		
Phase 4: Submissions Report				
Response 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				

We propose that Avenis Energy reviews these preliminary recommendations and provides input to ensure alignment with organisational priorities, available resources and project goals.

6 KEY MESSAGES

6.1 Who is Avenis Energy?

- Avenis Energy is dedicated to developing utility-scale battery energy storage projects, and large-scale renewable energy projects that deliver clean, green energy into the transmission network, reducing reliance on fossil fuels and helping minimise the impacts of climate change.
- Avenis prides itself on working closely with landowners, near neighbours, key stakeholders and the wider communities where our projects are proposed.
- The Avenis team has significant experience in the industry across all elements of the development cycle, from site selection, planning and permitting to engineering, construction and operation.
- The team has been working together since 2018 and is solely dedicated to the Australian market, with a proven track record of developing high quality community sensitive projects.

6.2 Project description

- Avenis Energy is proposing to construct and operate a 240MW BESS located 11 km northwest of Coffs Harbour Town Centre, in Karangi, NSW.
- The Project will connect into the adjacent TransGrid Coffs Harbour Substation to import and export electricity onto the transmission network.
- The purpose of the development is to assist the national electrical grid at times of peak demand and during adverse network operation, ensuring stability of supply.
- The project is designed for an operational lifespan of up to 35 years. After which time the site may either be decommissioned and restored to its original use as freehold land, or the utility will be upgraded and repurposed, subject to future energy requirements, landowner agreements, and lasting approvals.

6.3 Project benefits

Overall, the Project serves to:

- Deliver a utility-scale BESS that provides stability, reliability, and capacity of the electricity grid
- Support the transition to renewable energy generation by providing firming, load-shifting, and essential grid-forming services.
- Assist in meeting the urgent and ongoing energy demand in the national and NSW electricity markets.
- Contribute to lowering carbon dioxide (CO_2 emissions and reducing overall environmental impact
- Respect and adapt to the environmental limitations specific to the site

Avenis is dedicated to making long-term investments in the regions and communities where we operate. Meaningful engagement with the local community is a key priority, ensuring that our project delivers both economic and social benefits.

The insights gathered from our community engagement work will help shape community benefit programs that create positive, lasting value for the local area.

Additional benefits may include:

- potential upgrades to roads and intersections
- creating a range of employment opportunities, from skilled positions to manual labour jobs, with the workforce potentially tallying 180 at the peak of construction.
- boosting the local economy by creating job opportunities, both directly through construction and operational roles and indirectly through supply chain demands.

- increased economic activity through demand for building / construction equipment; uplift for hotels and restaurants benefiting from visiting workers and project staff.
- providing affordable, zero-emissions electricity to support the region's energy needs.

6.4 Project impacts

Visual impact

- The installation of a BESS will inevitably have some effect on the visual landscape; however, the BESS modules are unlikely to produce any glare or reflections.
- As part of the development application process, an independent technical assessment is undertaken to evaluate visual impact.
- If necessary, screening measures, such as vegetation or artificial barriers, can be implemented to minimise any potential impacts

Traffic and construction

- Construction will only commence once the necessary planning approvals are in place.
- Before construction begins, a construction traffic management plan will be implemented to effectively manage and mitigate any potential impacts.
- As part of the planning permit process, an independent traffic and transport assessment will be conducted.
- Construction traffic will primarily access the development site via Casuarina Lane.
- During the estimated 18-month construction phase, vehicle types will range from light commercial vehicles to 26-meter B-Doubles.

Safety

- A dedicated 24/7 contact will be provided during construction and operation.
- The Project will also be continuously monitored by remote CCTV.
- No outages expected during the construction phase. Once the BESS is operational, it will help to increase the grid stability and reduce outages.

6.5 What is a BESS?

A BESS is a system that stores electrical energy using a collection of batteries. It captures power from various generation sources on the transmission network including solar and wind. The system helps mitigate the intermittency of these sources by offering backup power to overcome network constraints, including adverse weather conditions and limited grid capacity.

BESS plays a vital role in supporting the broader use of decentralised energy sources and infrastructure, helping to minimise the risk of widespread power outages.

6.6 Further information

- We want to engage openly and transparently about the Karangi BESS project. If you would like to share your feedback or find out more, please visit our website at avenisenergy.com.au or contact our team on 1800 827 221.
- For more information visit: avenisenergy.com.au

7 COMMUNICATIONS TOOLS AND PROTOCOLS

The following tools and protocols have been identified through the stakeholder analysis and current best practise. These tools will be reviewed regularly to ensure they are meeting the engagement objectives and targeted measures (Table 14).

7.1 Communications tools

Table 14: Communication tools

Method	Purpose and frequency	Scoping phase
1800 number and project email	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 quarterly or at every key project milestone.	☑
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.	☑
Advertisements	Print and virtual advertisements to be used to for broad community outreach, including announcing community information sessions.	☑
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 summary of project progress and milestones. Plain English summary of technical information. Raise awareness of opportunities for further information or providing feedback.	☑
A0 Project boards	Display boards with project footprint, site location, visual project descriptors used for community drop-in / information sessions.	☑
Property maps	Targeted mapping to identify and support conversations about property features and/or upcoming works.	☑
Social media	Provide regular project progress updates and news to the general community. Managed by Social media team.	
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.	☑

7.2 Resource allocation

Personnel: A dedicated community engagement team, including a project manager, and communication and engagement specialist.

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.

7.3 Protocols and procedures

RPS will operate in accordance with Avenis Energy's processes by drafting all external communications, which Avenis Energy will review, approve, and publish on their website in alignment with their privacy policy. Internal communications will be managed by Avenis Energy according to their protocols. All handling of personal or sensitive information during engagement and communication activities must comply with Avenis 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 Avenis Energy's guidelines, with RPS submitting access requests for approval, and Avenis Energy is responsible for liaising with landowners to obtain consents and set access conditions.

7.4 Summarised responsibility for communication protocols

RPS is responsible for drafting external communications, planning and coordination of community information sessions while Avenis Energy leads key stakeholder and near neighbour initial engagement, 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).

Table 15: Protocol management roles and responsibilities

Activity	Role 1	Role 2
Drafting Communications and Stakeholder Engagement Plan	• RPS	• Review Avenis Energy
Enquiries and complaints management	• Avenis Energy	• RPS
Internal communications	• Avenis Energy	• N/A
Media management	• Avenis Energy	• N/A
Government liaison	• Avenis Energy	• RPS/ELA
Privacy policy management	• Avenis Energy	• N/A
Land and property access	• Avenis Energy and Ecological Australia	• N/A
Drafting near neighbour notification letters	• Avenis Energy	• N/A
Drafting FAQ	• Avenis Energy	• N/A
Drafting communications collateral (A0 boards / community newsletter	• RPS	• Review Avenis Energy
Organisation and support key stakeholder meetings	• RPS	• Supported by Avenis Energy
Lead planning and execution of Community Information Session	• RPS	• Avenis Energy
Near neighbour meetings	• Avenis Energy	• Supported by RPS and ELA if required
Community letter box drop	• RPS	• N/A
Establish 1800 number for project	• RPS	• Supported by Avenis Energy
1800 number and project email	• RPS	• Avenis Energy
Engagement outcomes summary report	• RPS	• Supported by Avenis Energy and ELA

7.5 Privacy

Avenis Energy Pty Ltd (ACN 662 243 987), with its registered office at Suite 2, Level 10, 52 Alfred St, Milsons Point, NSW 2061 is committed to providing quality services to you and this policy outlines our ongoing obligations to you in respect of how we manage your Personal Information.

We have adopted the Australian Privacy Principles (APPs) contained in the Privacy Act 1988 (Cth) (the Privacy Act). The National Privacy Principles (NPPs) govern the way in which we collect, use, disclose, store, secure and dispose of your Personal Information. A copy of the Australian Privacy Principles may be obtained from the website of The Office of the Australian Information Commissioner at www.oaic.gov.au

8 RISK ANALYSIS AND MITIGATION

8.1 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 Avenis Energy. The risk likelihood and severity post-mitigation should be validated and adjusted in collaboration with Avenis 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 (near neighbours / community and environmental groups/clubs/communities) through: Continuous and clear engagement Preparation of documentation Collateral (fact sheets / FAQs, community updates) 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.

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.
Asset owner conflicts	Potential impacts to or constraints from Transgrid, Essential Energy, ARTC, TfNSW, WaterNSW and other asset owners affecting design or timing.	Low	Moderate	Early technical engagement and briefings with utilities and transport agencies; capture requirements and integrate into design; log constraints and agreed mitigation actions.
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.

9 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 (Table 17).

9.1 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
Raise project awareness and bridge renewables knowledge gap	Provide community with purposeful communications that inform and educate about the BESS project and planning process.
Identify and understand local issues, concerns and misconceptions	Early engagement meetings and briefings with key stakeholders carried out pre-Scoping Report. Record and address concerns raised in Engagement Summary in the Scoping Report.
Foster transparency and build trust between the project team and the community	Regular cadence to Project updates, aligned to Project milestones and timeline. Consistency in spokespeople and project team interaction with community and stakeholders.
Ensure meaningful stakeholder involvement 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 (i.e. written correspondence, in-person meetings and community sessions).
Address community concerns and integrate feedback into project development	Provide feedback to key stakeholders through the engagement feedback loop process. Transparently record engagement interactions through engagement reporting and summary within the Scoping Report.
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

9.2 Continuous Improvement

Feedback from stakeholders will be regularly reviewed to refine the engagement strategy. This will occur at least at Scoping Report and EIS phases. Regular internal reviews will ensure the strategy remains aligned with Project goals and community expectations.

10 ENGAGEMENT APPROACH – 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 in Table 18.

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	• Inform and educate key stakeholders and broader community • 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	• Factsheet / FAQs • 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 (including Engagement Summary)	• Letterbox drop (newsletter) • Community information session (advertised via newsletter) • Meetings with neighbours (Avenis Energy to lead) • Stakeholder briefings (key stakeholders and identified community groups) •

11 ENGAGEMENT ACTION PLAN

Table 19 outlines the planned community and stakeholder engagement activities to be carried out during the scoping phase of the Project.

Table 19 Planned community and stakeholder engagement activities

Engagement activity	Objective	Stakeholders	Method	Timing	Responsibility
Draft Community and Stakeholder Engagement Plan	Establish structure, fit-for-purpose engagement approach aligned to planning pathway and project objectives.	Project team, approval authority, community and key stakeholders	Desktop research, internal workshop	6 – 16 February 2026	RPS – Lead Avenis - Support
Establish communication channels	Provide accessible, transparent contact points for enquiries and feedback (1800 number)	Community, landowners, businesses	1800 number, dedicated email, website	16 February 2026	RPS – Lead 1800 number Avenis – Lead email and web
Ongoing management of 1800 number and enquiry register	Capture, respond to, triage and record stakeholder enquiries and issues through scoping phase to lodgement of Scoping Report	All stakeholders	Enquiry management, system and response protocols	17 February – 14 April 2026	RPS – Lead Avenis - Support
Draft project collateral including newsletter, Power Point presentation, ads and display boards	Ensure clear, consistent messaging about the project need, location, approvals, planning process and how to have input	Community, near neighbours, land owners, key stakeholders	Printed newsletter to be distributed to local community, presentation deck for stakeholder meetings and display boards printed for community sessions	13 – 19 February 2026	RPS – Lead Avenis - Support
Meetings with key stakeholders	Provide early, tailored information to stakeholders with high interest and high impact	City of Coffs Harbour Council State MP Mr Gurmesh Singh Federal MP Member for Cowper Mr Pat Conaghan Coffs Harbour and District LALC Jagun elders / Garby elders / Gumbaynggir Wenonah Head Aboriginal Corporation Coffs Harbour Chamber of Commerce	One-on-one meetings (in person where possible)	10 – 12 March 2026	RPS – Lead Avenis - Support
Distribution of community newsletter	Ensure the local community receives direct project information and is invited to	Residents and businesses within defined boundary in the area of the Project site	Physical letter distribution via mail carrier or similar	9 – 12 March 2026	RPS – Lead Avenis - Support

	upcoming community information sessions				
Advertising in local newspaper (print and digital)	Introduce project and notify community of upcoming community information sessions and engagement opportunities	Broader local community	Advertisements to appear in the Coffs Coast News of the Area	9 – 23 March 2026	RPS – Lead Avenis - Support
Community information sessions (x 2 – one AM session and one PM session)	Provide an accessible forum for information sharing and feedback during scoping phase	Local residents, businesses, community groups	Drop-in sessions at local venue	w/c 23 March 2026	RPS – Lead Avenis - Support

Appendix A Frequently asked questions

A.1 General

Who is delivering the project?

Avenis Energy is proposing to deliver the project. They are dedicated to developing utility-scale battery energy storage projects, and large-scale renewable energy projects that deliver clean, green energy into the transmission network, reducing reliance on fossil fuels and helping minimise the impacts of climate change. Avenis prides itself on working closely with landowners, near neighbours, key stakeholders and the wider communities where our projects are proposed.

The Avenis team has significant experience in the industry across all elements of the development cycle, from site selection, planning and permitting to engineering, construction and operation. The team has been working together since 2018 and is solely dedicated to the Australian market, with a proven track record of developing high quality community sensitive projects.

What is proposed?

Avenis Energy is proposing to construct and operate a 240MW Battery Energy Storage System (BESS) located 11 km northwest of Coffs Harbour Town Centre, in Karangi, NSW. The Project will connect into the adjacent TransGrid Coffs Harbour Substation to import and export electricity onto the transmission network. The purpose of the development is to assist the national electrical grid at times of peak demand and during adverse network operation, ensuring stability of supply.

What is a BESS?

A BESS is a system that stores electrical energy using a collection of batteries. It captures power from various generation sources on the transmission network including solar and wind. The system helps mitigate the intermittency of these sources by offering backup power to overcome network constraints, including adverse weather conditions and limited grid capacity.

BESS plays a vital role in supporting the broader use of decentralised energy sources and infrastructure, helping to minimize the risk of widespread power outages.

The technology of the battery units is relatively similar to the kind of battery you have in your phone

Why is this Project needed?

The project would support the national electricity network during peak times and during adverse network operation, ensuring stability of supply.

NSW aims to cut emissions by 70% by 2035 (compared to 2005 levels) while expanding renewable energy generation. This initiative is expected to create 6,300 construction jobs and 2,800 ongoing positions in regional Australia. Additionally, it will help lower electricity costs by approximately $130 per year for households and $430 for small businesses while reducing carbon emissions by around 90 million tons (NSW Government, 2020). As of 2024, renewable energy accounts for 53% of NSW's electricity mix, including large-scale solar, rooftop solar, wind, hydro, and biomass power (Energy NSW, 2024).

How does the Development Application process work?

Given the significant potential that the development has in contributing to the clean energy transition and climate action targets of the state, the BESS proposal is considered as a State Significant Development (SSD) by the NSW Department of Planning, Housing and Infrastructure (DPHI).

At the early stage of the development application process, a Scoping Report is submitted to DPHI that helps to determine which technical assessments will be included within the Environmental Impact Statement (EIS). Following the submission of the Scoping Report and evaluation by DPHI, Secretary Environmental Assessment Requirements (SEARs) will be issued, outlining required assessments and considerations for the EIS.

Once SEARs are supplied, EIS reporting commences. An EIS is a very in-depth document that outlines specialist assessments and contains detailed planning information regarding the development. Following

completion and lodgement of the EIS document with the DPHI, the Minister for Planning will decide whether to issue a development approval.

You can learn more about the SSD process on the NSW Government's Department of Planning website.

Who approves the project?

The Minister for Planning will determine whether to grant development approval, under NSW SSD Process. A decision will likely be made within 12 months following submission of the EIS.

When will construction commence and how long will it take?

The construction timeline depends on several factors, including securing a planning permit, selecting a construction company, obtaining grid connection approval, negotiating a Power Purchase Agreement (PPA), and completing the Financial Close process. Once contractors are appointed, construction is expected to take approximately 18 months.

The construction timeline depends on several factors, including securing a planning permit, selecting a construction company, obtaining grid connection approval, negotiating a Power Purchase Agreement (PPA), and completing the Financial Close process. Once contractors are appointed, construction is expected to take approximately 18 months.

How long will this project operate for? What happens after that?

The project is designed for an operational lifespan of up to 35 years. After this period, the site may either be decommissioned and restored to its original use as freehold land, or the utility will be upgraded and repurposed, subject to future energy requirements, landowner agreements, and lasting approvals.

A.2 Design considerations

What does a BESS look like?

BESS utilities comprise of a series of units that resemble 20-foot shipping containers. This modular configuration is based on site parameters, system capacity and storage duration.

A.3 Technical

Why Karangi?

Selecting an appropriate site for a BESS requires careful evaluation of several key factors, such as access to the electricity grid, existing land use, potential environmental impacts, and existing infrastructure.

In this case, the site was chosen due to its proximity to the TransGrid Coffs Harbour Substation and surrounding environment, which make it well-suited for the development.

Coffs Harbour is growing as a regional hub, and this role is reflected in its strategic position within the state's transmission network. This utility would serve as a critical storage hub along the backbone of New South Wales's 330kV transmission network, reinforcing the region's importance in maintaining energy reliability and stability.

Will there be any visual impact?

The installation of a BESS will inevitably have some effect on the visual landscape; however, the BESS modules are unlikely to produce any glare or reflections. As part of the development application process, an independent technical assessment is undertaken to evaluate visual impact. If necessary, screening measures — such as vegetation or artificial barriers — can be implemented to minimise any potential impacts. The proposed site is already well shielded by surrounding trees, but Avenis remains committed to working closely with the local community to address any concerns, questions or suggestions.

Will there be any noise impact?

Like all utility developments, BESS facilities may generate noise during operation. However, as part of the development application process, an independent technical assessment will be undertaken to evaluate noise levels, any potential impacts, and provide clear mitigation measures to be incorporated into the BESS design to meet the regulatory requirements for noise emission.

A.4 Technical

What type of battery units will be used?

The equipment manufacturer is yet to be finalised; however, the manufacturer will be a global recognised leader in battery research and development. The Project will incorporate the latest technology available at the time of construction, ensuring high performance and reliability. Furthermore, the manufacturer will be well-positioned to provide ongoing technological updates to the equipment as needed.

How high will the battery units be?

The BESS units are typically the size of a 20-foot shipping container and will be installed on low-lying foundations; as such, the units are not expected to exceed 5.5m above the natural ground level. It is expected that the project area will be at the same height or lower than other existing features in the landscape.

How will construction traffic be managed?

Construction traffic will primarily access the development site via Casuarina Lane. During the estimated 18-month construction phase, vehicle types will range from light commercial vehicles to 26-meter B-Doubles. As part of the planning permit process, an independent traffic and transport assessment will be conducted. Before construction begins, a construction traffic management plan will be implemented to effectively manage and mitigate any potential impacts. Construction will only commence once the necessary planning approvals are in place.

Will there be electricity outages during construction?

No outages expected during the construction phase. Once the BESS is operational, it will help to increase the grid stability and reduce outages.

Are there health risks associated with EMF's from a BESS?

Electromagnetic fields (EMFs) naturally exist in the environment, with electric fields occurring in the Earth's atmosphere and static magnetic fields generated by the planet's core. EMFs are also produced whenever electricity is used, including in household appliances such as refrigerators and microwaves.

Daily exposure to low-frequency EMFs from common electrical devices is not considered a risk to human health (NSW Government, 2022). For reference, the EMF levels of a kitchen stove range from 2 to 30 milligauss (mG), while a hairdryer emits between 1 and 70 mG. standing at the edge of a transmission powerline easement typically exposes a person to 10–50 mG, whereas directly underneath a transmission powerline, levels range from 20 to 200 mG.

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has established a human exposure limit of 2,000 mG (NSW Government, 2022). The EMF levels produced by a BESS are generally lower than those of household appliances and remain undetectable beyond the site boundary.

Technical and engineering authorities, including the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), have found no evidence of adverse electromagnetic radiation effects associated with large-scale battery storage systems.

A.5 Environmental

Do batteries increase fire risk?

The Project will not increase the risk of bushfires in the area. The BESS design will fully comply with the latest regulatory guidelines and requirements for BESS utilities, including provisions for clearance, accessibility, firefighting water supply, and firebreak buffer zones.

Avenis will collaborate with relevant fire service agencies to establish clear access requirements for the BESS in the event of a bushfire in the area, or a fire within the facility. Before construction commences, site-specific Emergency Management Plans will be developed to address fire prevention and response strategies during construction, operation, and decommissioning.

Avenis remains committed to working with the RFS to ensure the final design meets all required safety standards and best practices.

How will fire risk be managed onsite?

The likelihood of an onsite fire is very low. However, the proposed battery units are designed with multiple layers of protection to prevent onsite fires. Each unit will be equipped with advanced detectors, such as heat and carbon monoxide sensors, to identify abnormalities and automatically initiate a shutdown if needed. Additionally, these systems will send real-time alerts to our control room, where the battery units are continuously monitored, allowing for a swift response to any potential issues. Additionally, built-in fire suppression systems, including dry pipe and inert gas systems, are in place to extinguish any internal fires. A buffer zone around each battery unit will further help to prevent the spread of fire.

We will also work closely with fire authorities to ensure that all safety protocols are established and clearly understood in the unlikely event of an emergency.

Are state fire authorities consulted on projects and plans?

Planning legislation in every jurisdiction outline that the relevant fire authority must be consulted and given the opportunity to make recommendations on management plans and mitigation measures. This is mutually beneficial as it ensures expert insights are incorporated into the design and operation of the facility.

Is the site affected by flooding?

An independent assessment will evaluate hydrology and address risk and mitigation measures, as required. The BESS facility will be sited outside of the flood zone.

Is there a contamination risk?

The BESS components will be equipped with spill containment measures, including plates, bunding, spill trays, and absorbents. In the unlikely event of a spill, these measures will ensure that any substance will be fully contained.

Are batteries recyclable?

Battery circularity is becoming increasingly important as demand for lithium-ion batteries continues to grow. The EPO report notes that recycling is already taking place, with production scrap currently making up most of the recycling feedstock, and that economies of scale and innovation are helping to lower costs and improve recycling efficiency. The Battery Circularity report (2026) also highlights the potential for recycling to recover critical materials and support a more resilient battery supply chain.

CSIRO is actively involved in supporting lithium-ion battery recycling through research on metal and material recovery processes, new battery materials development, and fostering a circular economy for battery reuse and recycling.

Australia's lithium battery recycling industry, though in its early stages, is already demonstrating progress towards a cleaner and more sustainable future, with operational recycling facilities like Envirostream in Victoria. This demonstrates that Australia already has emerging recycling capability, even though domestic processing capacity is still developing.

A.6 Social and economic

How will Coffs Harbour benefit from the Project?

We intend to work with local product suppliers and service providers, which will boost the local economy by creating job opportunities, both directly through construction and operational roles and indirectly through supply chain demands. Local businesses will also benefit from increased demand for building materials, equipment, plant hire, and other ongoing goods and services. Hotels and restaurants will also benefit from visiting workers and project staff. This economic activity could stimulate growth, support small businesses, and enhance community prosperity.

How many jobs will be created during construction of the Project?

The project will create a range of employment opportunities, from skilled positions to manual labour jobs, with the workforce potentially tallying 180 at the peak of construction. Prioritising qualified local contractors is a key focus for Avenis in the development of the Project.

How many jobs will be available during operations of the Project?

Avenis Energy envisage 4 permanent roles for the operation of the project. Maintenance contracts would also be required and would likely be met by local contractors, including plant hire, fence repair, road grading, etc.

What other benefits will the community receive?

Avenis is dedicated to making long-term investments in the regions and communities where we operate. Meaningful engagement with the local community is a key priority, ensuring that our project delivers both economic and social benefits.

The insights gathered from our community engagement work will help shape community benefit programs that create positive, lasting value for the local area.

Additional benefits may include potential upgrades to roads and intersections, and the provision of affordable, zero-emissions electricity to support the region's energy needs.

Will neighbouring insurance premiums be impacted by the development?

Based on available information, there is no indication that the development of energy infrastructure will have a direct impact on neighbouring insurance premiums. As confirmed by the Insurance Council (May 2024), there have been no reported cases where their members have been denied coverage or have had increased premiums solely due to the presence of energy infrastructure on a property or nearby.

The Clean Energy Council similarly highlights that any adjustments to insurance premiums are unlikely to be directly tied to clean energy developments. Instead, rising insurance costs are largely driven by broader factors, including the escalating frequency and costs of natural disasters, inflation affecting building and vehicle repair expenses, the increasing value of homes and vehicles, and higher operational costs for insurers.

Will there always be a contact onsite in case of emergency?

A dedicated 24/7 contact will be provided during construction and operation. The Project will also be continuously monitored by remote CCTV.

Furthermore, the Operations Manager, and other staff members will be stationed near the Project.

How can local suppliers get in touch?

Email us at: karangi@avenisenergy.com.au

Appendix B References

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Appendix C Preliminary Visual Impact Assessment (Moir Studio, 2026)

Karangi BESS

Preliminary Visual Impact Assessment

We at Moir Studio acknowledge the traditional custodians of the lands and waters of Australia - most notably the Awabakal Nation in which our office resides and the Gumbaynggirr Nation, on whose traditional land this Project resides. As a practice, we recognise First Nations' ongoing contribution to Country and deep spiritual connection to Place. We pay our respects to Elders both past and present.

Karangi BESS

Preliminary Visual Impact Assessment

Prepared for
Eco Logical Australia

Project Number
2964

Revision	Date	Author	Checked	Comment
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01	30/04/26	RS	AR	Draft
02	01/05/26	RS	AR	Draft
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Glossary of Terms

Associated Dwelling
A dwelling on privately owned land on which the owner has reached an agreement with the Applicant about the Project and management of impacts

Cumulative Visual Impact
The combined effects of multiple projects on the visual catchment in which the Project is proposed over time.

Geographical Information Systems (GIS)
A system that captures, stores, analyses, manages and present data link to specific locations. This spatial data is linked to a digital database.

Landscape
All the visible features, including landform, vegetation, buildings and infrastructure, contained within a holistic area.

Landscape Character and Visual Impact Assessment
A technical assessment to identify and assess the potential visual effects resulting from the Project on the landscape, individual receivers and on the overall visual amenity of the region in which the Project is sited.

Mitigation Measures
Potential strategies or actions implemented to minimise or offset the adverse visual impacts of the Project.

Non-Associated Dwelling
Any neighbouring party in proximity to a proposal that has not agreed to a neighbour agreement for the Project.

Photographic Survey & Fieldwork
A systematic process of collecting visual data in the form of photographs and surveys taken from various viewpoints within the Study Area to document the existing visual conditions.

Preliminary Visual Impact Assessment
A desktop evaluation to identify potential visual effects from the Project on the landscape, individual receivers and on the overall visual amenity of the region in which the Project is sited.

The Project
The proposal and associated infrastructure that would allow energy generation and storage.

Project Site
The area that encompasses all properties hosting the Project.

Secretary's Environmental Assessment Requirements (SEARs)
Secretary's Environmental Assessment Requirements (SEARs) outlines the environmental assessment requirements for State Significant Projects. The SEARs will normally include specific requirements for landscape character and visual impact assessments.

Study Area
The geographical region or area under consideration in the preparation of a PVIA.

Viewpoint
A specific location from which a view or landscape is observed. A viewpoint location is the geographic location or physical position (in GPS format) where the viewpoint was captured.

Visual Impact
The observable and measurable change in the visual catchment caused by the Project. This is determined by considering the visual sensitivity and magnitude of change.

Visual Magnitude
The degree of visual change resulting from the Project, including but not limited to the size, scale, compatibility and duration of effect.

Visual Receivers
Individuals and / or defined groups of people who have the potential to be affected by the Project.

Visual Sensitivity
The susceptibility of a landscape or visual resource to absorb impacts from a Project, land use change or the introduction of a new element into the landscape.

Zone of Visual Influence (ZVI) | Viewshed Mapping
The extent of landscape area from which the Project can potentially be theoretically viewed based on topography alone..

Abbreviations

AILA
Australian Institute of Landscape Architecture

BESS
Battery Energy Storage System

DEM
Digital Elevation Model

DPHI
Department of Planning, Housing and Infrastructure

EIS
Environmental Impact System

kV
Kilovolt

LCVIA
Landscape Character and Visual Impact Assessment

LEP
Local Environment Plan

LGA
Local Government Area

NPWS
National Parks and Wildlife Service

NSW
New South Wales

PVIA
Preliminary Visual Impact Assessment

SEARs
Secretary's Environmental Assessment Requirements

SSD
State Significant Development

VSM
Viewshed Map

ZVI
Zone of Visual Influence

1.0 Introduction

1.1 Introduction

Eco Logical Australia has commissioned Moir Studio on behalf of Avenis Energy Pty Ltd (the Proponent) to prepare a Preliminary Visual Impact Assessment (PVIA) for the proposed Karangi Battery Energy Storage System (BESS) referred to hereafter as 'the Project'.

This PVIA supports a request to the NSW Department of Planning, Housing and Infrastructure (DPHI) for the Secretary's Environmental Assessment Requirements (SEARs). The SEARs will inform the preparation of an Environmental Impact Statement (EIS) for the Project, *pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act)*. The purpose of this report is to provide a preliminary desktop evaluation of potential visual impacts on sensitive public and private receivers.

The Proponent is seeking development consent for the construction, operation and decommissioning of a BESS facility and associated infrastructure. The Project is located in Karangi approximately 11km northwest of the Coffs Harbour CBD within The City of Coffs Harbour Local Government Area (LGA). (Refer **Figure 01**).

In lieu of formal guidelines governing landscape character and visual impact assessments of BESS developments in NSW, Moir Studio has elected to refer to the methodologies set out in the DPHI "*Large Scale Solar Energy Guideline*" (hereafter referred to as 'the Guideline') and its associated "*Technical Supplement for Landscape and Visual Impact Assessment*" (hereafter referred to as 'the Technical Supplement'). The Guideline and Technical Supplement provide comprehensive guidance and tools for assessing, evaluating, and mitigating visual and landscape impacts, representing best-practice conditions for such assessments. Given that the scale and unit size of a BESS is similar to those of a solar development, their terminology and assessment frameworks have been incorporated into this PVIA to ensure a robust evaluation.

1.2 Professional Experience

Moir Studio is a professional design practice and consultancy specialising in Landscape Architecture, Urban Design and Landscape and Visual Impact Assessment. Our team has extensive experience undertaking PVIAs for large-scale infrastructure and renewable energy projects. In the context of our knowledge and with guidance from the Guideline and the Technical Supplement, we have developed methodologies to ensure a comprehensive and qualitative assessment of the Project. Our relevant experience includes:

- Wagga Wagga North BESS
- Deniliquin BESS
- Armidale BESS
- Kingswood BESS

Figure 01 Regional Context
Basemap Source: ESRI 2026

2.0 Study Method

2.1 Study Method

The following is a summary of the Study Method undertaken for the preliminary visual impact assessment for this Project.

2.1.1 Project Overview

Provide an overview of the aspects of the Project and the parameters against which the assessment is based.

2.1.2 Landscape Character Assessment

Perform a preliminary desktop assessment of the existing landscape features and visual sensitivity conditions to provide a baseline against which the potential visual impacts of the Project can be assessed.

2.1.3 Define the Study Area

Determine the Project Study Area and identify private receivers and public viewpoints for assessment.

2.1.4 Viewshed Mapping

Viewshed mapping is used to identify areas from which the Project could be visible. This process eliminates the need to assess viewpoints within the Study Area that has no line of sight to the Project.

2.1.5 Summary and Next Steps

Summary of the key findings of the PVIA and the next steps to be undertaken during the Project EIS phase.

2.2 Relevant Guidelines & Framework

2.2.1 AILA Guidance Note for Landscape & Visual Impact Assessment 2018

The Australian Institute of Landscape Architects (AILA) developed Guidance Notes for preparing Landscape Character and Visual Impacts Assessments (LVIAs). This document provides a practical framework for the practice of LVIA among Registered Landscape Architects. The PVIA process follows the best practice guidelines outlined in the Guidance Notes, which cover terminology, principles, and methodology.

2.2.2 The City of Coffs Harbour - Coffs Harbour Local Environmental Plan 2013

The Proposed Development is located within The City of Coffs Harbour LGA where the Coffs Harbour Local Environmental Plan (LEP) 2013 applies.

2.2.3 Department of Planning, Housing and Infrastructure - Large Scale Solar Energy Guideline and Technical Supplement for Landscape Character and Visual Impact Assessment 2024

Moir Studio has elected to refer to the methodologies set out in the DPHI "*Large Scale Solar Energy Guideline"* and its associated "*Technical Supplement for Landscape and Visual Impact Assessment*" in the preparation of this PVIA. The Guideline and Technical Supplement are applied to large-scale solar energy projects that are declared as a state significant developments (SSDs) and is used to inform the preparation of the Project EIS for assessment by the DPHI. Given that the scale and unit size of a BESS is similar to those of a solar development, their terminology and assessment frameworks have been incorporated into this PVIA to ensure a robust evaluation.

3.0 Project Overview

3.1 The Project

The Proponent is proposing the construction, operation and decommissioning of a BESS facility and associated infrastructure at 50 Casuarina Lane, Karangi, NSW.

The Project includes a 240MW, 4-hour storage BESS consisting of the following components (Refer to **Figure 02** for layout):

- Approximately 200 BESS containers.
- Power conversion units, transformer and substation.
- Connection to the existing Transgrid - Coffs Harbour Substation via underground or overhead cabling.
- Security fencing and lighting.
- Temporary laydown and site establishment areas.

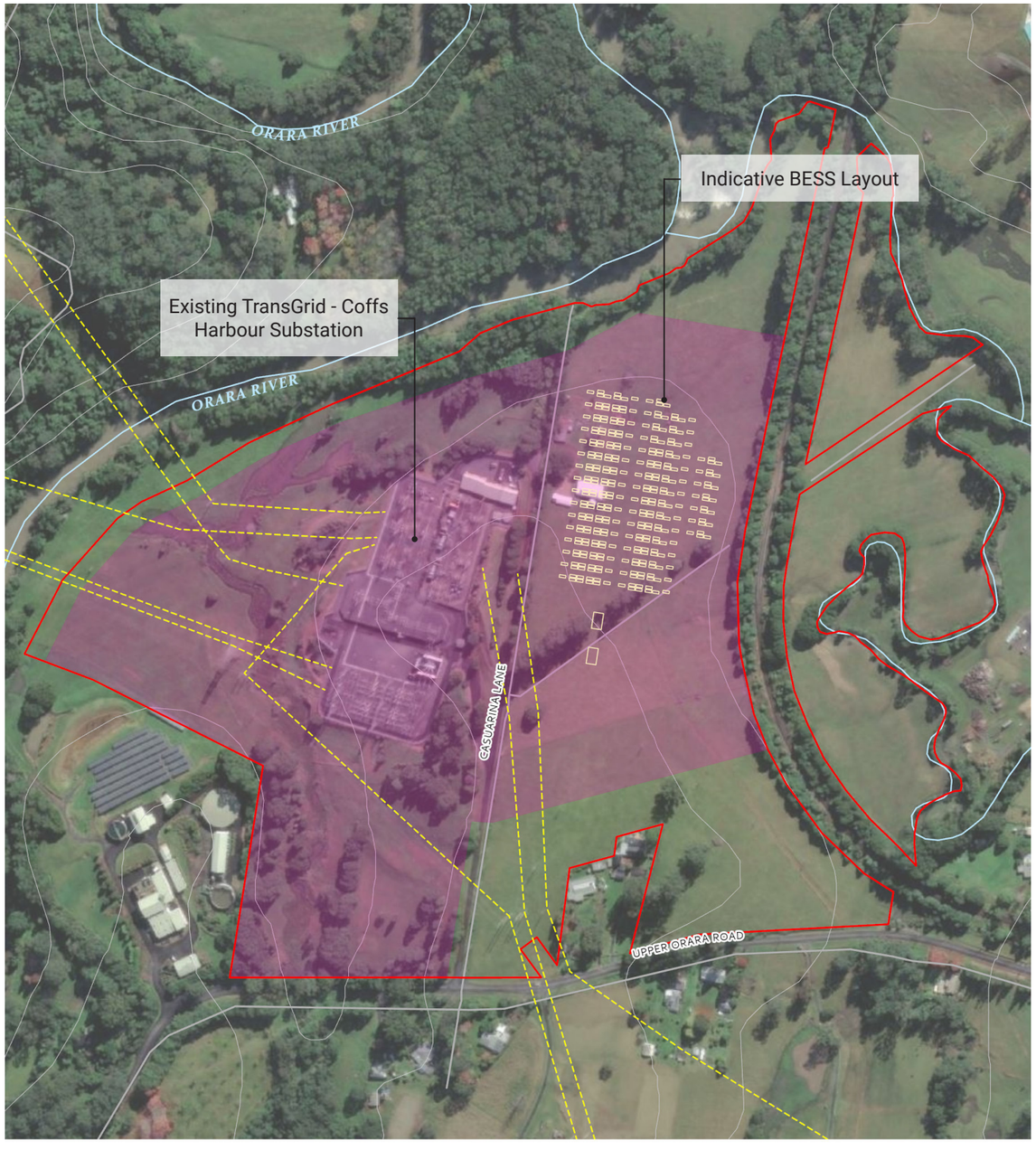


Figure 02 Project Layout
Basemap Source: ESRI 2026

4.0 Landscape Character Assessment

4.1 Landscape Character Assessment Overview

In accordance with the Technical Supplement, *"Landscape Character is an objective assessment of the physical and visual attributes of the landscape."*

The following provides a high level desktop analysis of the existing landscape character within 2km of the Project Site Boundary (the Study Area). The assessment will be further refined during the Project EIS phase through fieldwork and ground truthing.

4.2 Planning and Development

4.2.1 Land Zoning

The Project is located within The City of Coffs Harbour LGA where the Coffs Harbour LEP 2013 applies. Land Zoning within the Study Area consists of RU2 Rural Landscape, RU3 Forestry, C2 Environmental Conservation and W1 Natural Waterways. The Preliminary Development Footprint is solely located within land zoned as RU2.

4.2.2 Land Use

Land Use within the Study Area, as defined by land use mapping published by the NSW Government in 2017 predominantly comprises of agricultural land use practices including Grazing Modified Pastures, Grazing Native Vegetation and Other Minimal Use. Within the Project Site existing Land Use practices consist of Utilities (TransGrid Susbtation) and transport, Grazing Native Vegetation, and Grazing Modified Pastures.

4.2.3 Transport and Infrastructure

The Project Site benefits from established local road connections, with Casuarina Lane providing direct vehicle access and linking to Upper Orara Road and Coramba Road, which support movement within the wider Coffs Harbour regional road network. The North Coast railway line traverses the Project Site in a north-south alignment. The line is the primary rail route in the Mid North Coast and Northern Rivers regions of NSW and forms a major part of the Sydney to Brisbane rail corridor servicing both freight and passenger trains. The TransGrid - Coffs Harbour Substation is a 330kV substation located within the Project Site Boundary and adjacent to the Preliminary BESS Layout. The substation serves as a critical regional hub, hosting a network of existing transmission lines with capacities of 66kV, 132kV, and 330kV. Connection from the Project to the substation is proposed via either overhead or underground cabling. The nearby Karangi Dam and Karangi Water Treatment Plant are notable local features that form part of the surrounding rural/forest landscape.

4.3 Landscape Features

The Project is located in the 'Orara Valley', a region notable for historic agricultural activities, rolling pastoral landscapes, water features and linkage to protected landscapes such as national parks, conservation areas and state forests.

4.3.1 Topographic Conditions

The Study Area is defined by a valley formation with predominantly cleared undulating pastoral land transitioning to densely vegetated slopes and ridges that surround the rural valley.

4.3.2 Hydrological Conditions

The Orara River is a perennial stream of the Clarence River catchment and a notable water feature within the broader Orara Valley. The river defines the north to north east boundaries of the Project Site. Located to the southwest of the Project, the Karangi Dam is a major off steam dam supplying drinking water to the broader region and includes public viewing areas.

4.3.3 Vegetation

Vegetation within the Study Area occurs in fragmented patches across undulating pastoral landscapes, transitioning into dense stands on steep slopes, ridgelines, and along riparian corridors, as well as road and rail easements. The dominant vegetation formations comprise Wet Sclerophyll Forests and Rainforests. Within the Project Site, vegetation is primarily characterised by scattered remnant communities and linear vegetated corridors located between existing pastures.

4.3.4 Protected and Managed Landscapes

A portion of the Orara East State Forest is situated within the Study Area. Owned and managed by the Forestry Corporation of NSW, the broader state forest is recognised as a significant recreational and tourism destination within the Coffs Harbour region, and includes a network of walking trails, scenic lookouts, and public facilities. However, within the Study Area, there are no notable recreational assets or formal infrastructure associated with the State Forest.

Key Landscape Features

Refer to Section 4.0

LEGEND

- Study Area (2km from Project Site Boundary)
- Project SIte
- Preliminary BESS Layout
- Development Footprint
- Existing Transmission Line
- Railway
- Arterial Road
- Local Road
- Watercourse
- Contour
- Local High Point
- State Forest
- National Park

Figure 03 Key Landscape Features
Basemap Source: ESRI, 2026

5.0 Study Area

5.1 Study Area

For the purposes of this report, a Study Area of **2km** from the Project Site Boundary has been established. The visual baseline assessment has been undertaken within the Study Area, where the scenic quality of the landscape character with the Study Area will be determined to understand the visual sensitivity (Refer to **Section 4.0**)

The following is an overview of the preliminary selection process for private receivers and public viewpoints.

5.1.1 Private Receivers

Within 2km of the Project Site Boundary a total of 135 Non-associated Dwellings (private receivers) have been identified.

Receiver locations for Non-associated Dwellings is demonstrated in **Figure 04**.

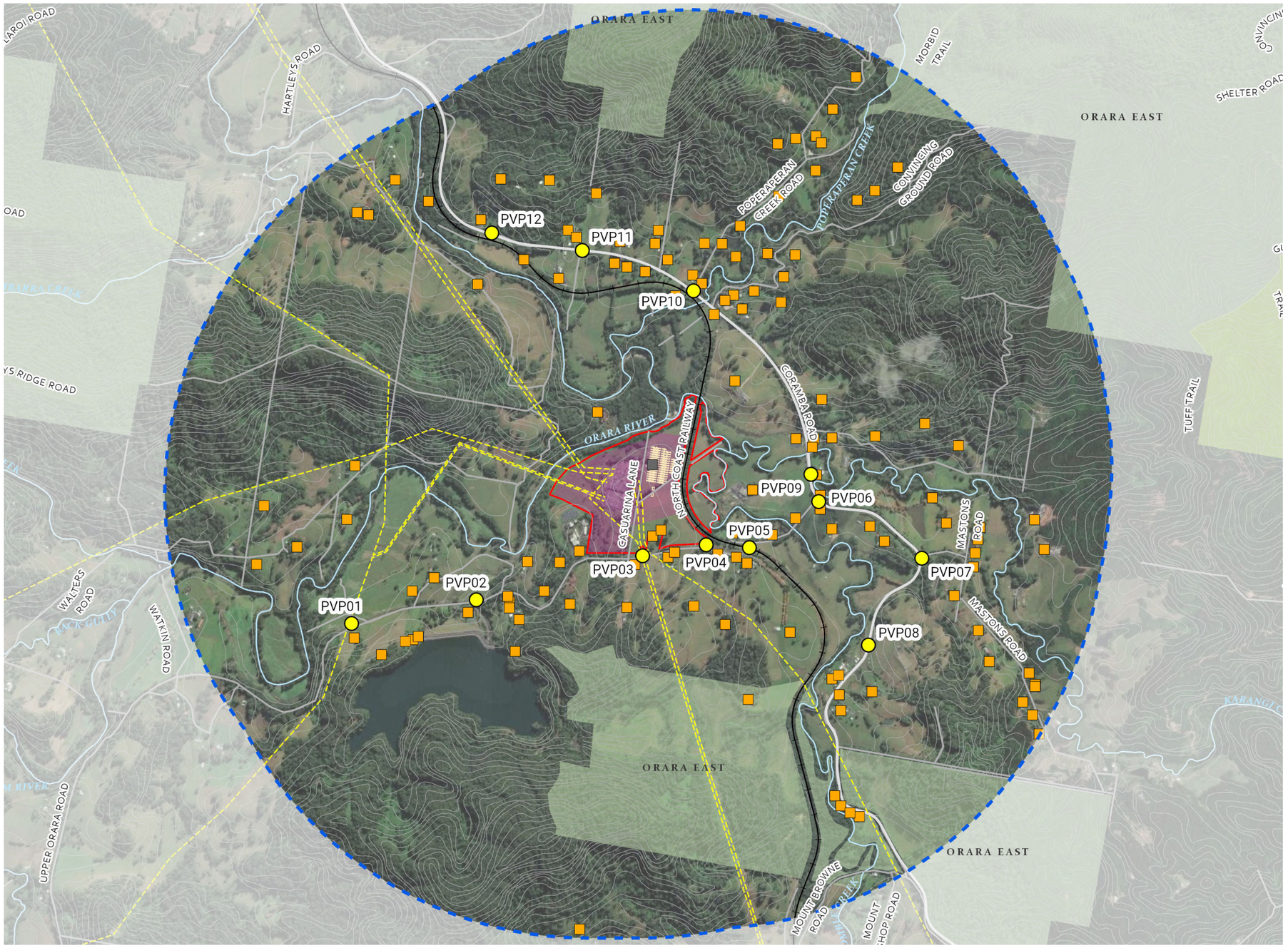
5.1.2 Public Viewpoints

Representative viewpoint locations were selected for roads and rail crossings within 2 km of the Project Site Boundary, focusing on worst-case-scenario views identified through viewshed mapping in **Section 6.0** as well as desktop analysis of screening elements such as vegetation and structures.

Receiver locations for public roads and rail receptors have been demonstrated in **Figure 04** and summarised in **Table 01**. The location of these representative viewpoints will be refined in the Project EIS phase through ground truthing exercises.

Public viewpoints identified within 2 km of the Project Site Boundary		
Viewpoint ID:	Location	Distance to Project Site Boundary (m)
PVP01	Upper Orara Road	1228
PVP02	Upper Orara Road (entry point to Karangi Dam)	624
PVP03	Upper Orara Road	14
PVP04	Upper Orara Road	8
PVP05	Upper Orara Road	214
PVP06	Upper Orara Road and Coramba Road Intersection	493
PVP07	Coramba Road and Mastons Road Intersection	1072
PVP08	Coramba Road	995
PVP09	Coramba Road	439
PVP10	Coramba Road	539
PVP11	Coramba Road	937
PVP12	Coramba Road	1269

Table 01 Summary of Public Viewpoints



Study Area

Refer to Section 5.1

LEGEND

- Study Area (2km from Project Site Boundary)
- Project SIte
- Preliminary BESS Layout
- Development Footprint
- Potential Viewpoint Location
- Associated Dwelling
- Non-associated Dwelling
- Existing Transmission Line
- Railway
- Arterial Road
- Local Road
- Watercourse
- Contour
- State Forest
- National Park

Figure 04 Study Area
Basemap Source: ESRI, 2026

6.0 Viewshed Mapping

6.1 Viewshed Mapping Overview

An initial visibility assessment was undertaken utilising viewshed mapping (VSM). The VSM is a desktop analysis derived from a Digital Elevation Model (DEM) and represents a theoretical worst-case scenario by considering topography only. The analysis excludes any potential screening effects from vegetation, buildings, or other land-cover elements. Its primary purpose is to efficiently identify areas and receivers that are topographically screened and therefore unlikely to require further, more detailed visual impact assessment.

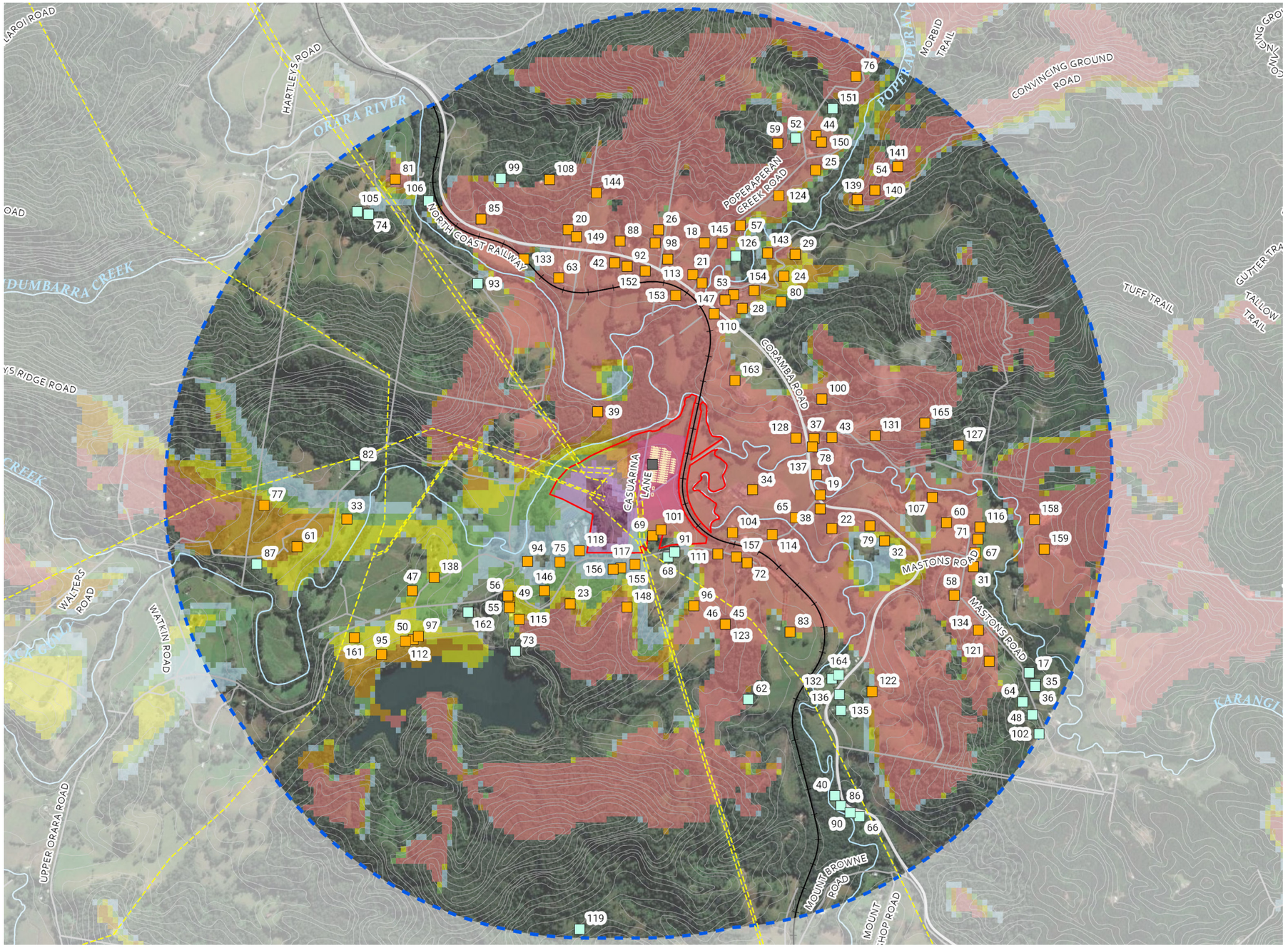
Viewshed mapping has been undertaken in **Figure 05** to identify receivers with potential visibility of the Preliminary BESS Layout. For the purposes of this assessment, a series of observer points were generated to represent the spatial distribution and maximum height of the Preliminary BESS Layout only. Each observer point was assigned a height of 4.5 m to reflect the maximum height of double-stacked BESS modules. The viewshed analysis then determines whether a direct line of sight exists between these observer points and receiver locations, assuming a receiver eye height of 1.5 m and accounting only for terrain elevation as represented by the DEM.

The resulting viewshed output is displayed using a graduated, percentage-based scale to indicate the extent of project visibility, with each class representing the proportion of observer points (i.e. the Preliminary BESS Layout) that are theoretically visible from a given location. Higher values therefore indicate areas with potential visibility to a greater proportion of the Preliminary BESS Layout based on topographic conditions alone.

6.2 Summary of Viewshed Mapping

The following provides a summary of the viewshed assessment conducted in **Figure 05**. The viewshed map indicates that based on topography alone:

- A total of 135 Non-associated Dwellings were identified within 2km of the Project Site Boundary. Of these 135 Non-Associated Dwellings, a total of 106 have a theoretical line of site to the Preliminary BESS Layout.
- Sections of Coramba Road has a theoretical line of sight to the Preliminary BESS Layout.
- Majority of Upper Orara Road has a theoretical line of sight to the Preliminary BESS Layout.
- Areas of elevated topography to the north of the Project Site has a theoretical line of sight to majority of the Preliminary BESS Layout.
- Undulating topography screens views to the south of the Project Site.



Viewshed Mapping

Refer to Section 6.2

LEGEND

- Study Area (2km from Project Site Boundary)
- Project SIte
- Preliminary BESS Layout
- Development Footprint
- Associated Dwelling
- Non-associated Dwelling with no line of sight to the Project
- Non-associated Dwelling with a theoretical line of sight to the Project
- Existing Transmission Line
- Railway
- Arterial Road
- Local Road
- Watercourse
- Contour

VIEWSHED LEGEND

- 1% - 20% of the Project Visible
- 20% - 40% of the Project Visibile
- 40% - 60% of the Project Visible
- 60% - 80% of the Project Visibile
- 80% - 100% of the Project Visibile

Figure 05 Viewshed Mapping
Basemap Source: ESRI, 2026

7.0 Cumulative Impact Assessment

7.1 Overview of the Cumulative Impact Assessment

The occurrence of large-scale renewable energy projects within a region has the potential to alter the perception of the overall landscape character irrespective of being viewed in a single viewshed, as these projects could become part of the existing landscape. It is essential to determine whether the effect of multiple projects and other major infrastructure within the region would combine to become the dominant visual element, altering the perception of the general landscape character. Therefore the visual assessment process should consider the potential cumulative impacts of the Project.

In accordance with the DPHI's Cumulative Impact Assessment Guidelines for State Significant Projects (DPHI, 2022) the area chosen to assess relevant cumulative impacts from other developments should not be unnecessarily large or include areas where the cumulative impacts are likely to be negligible, relative to the baseline condition of the relevant Project.

7.2 Existing Energy Infrastructure

The TransGrid - Coffs Harbour Substation is a 330kV substation located within the Project Site Boundary and adjacent to the Preliminary BESS Layout. The substation serves as a critical regional hub, hosting a network of existing transmission lines with capacities of 66kV, 132kV, and 330kV. Connection from the Project to the substation is proposed via either overhead or underground cabling.

Due to their relatively large scale, the substation and its radiating transmission lines are established elements within the existing landscape character. The introduction of additional electrical infrastructure must be evaluated cumulatively, assessing the integration of new components into existing electrical infrastructure features and potential changes to the overall visual magnitude and landscape character of the immediate area.

8.0 Summary and Next Steps

8.1 Summary of Findings

The following provides an overview of the key findings of the Project PVIA:

- A preliminary landscape character assessment determined that the Project Site and Study Area is characterised by undulating pastoral landscape within a valley formation and is primarily zoned RU2 Rural Landscape under the Coffs Harbour LEP 2013.
- Notable infrastructure identified within the Study Area includes: the TransGrid Coffs Harbour Substation and associated high-voltage overhead transmission lines, the North Coast Railway Line and the Karangi Dam and associated Water Treatment Plant.
- A Study Area of 2km from the Project Site Boundary was established, within this Study Area:
    - 12 Potential Public Viewpoints have been identified for further assessment representing views from arterial and local roads.
    - 135 Non-Associated Dwellings (private receivers) were identified.
- The viewshed analysis indicates that there is potential to view portions of the Preliminary BESS Layout from all directions and up to 106 Non-associated dwellings have a theoretical line of site based on topography alone.
- There are a number of sealed roads within 2km of the Project Site Boundary that have a theoretical line of sight to the Preliminary BESS Layout.
- A desktop assessment of nearby energy projects and renewables identified the TransGrid - Coffs Harbour Substation and existing electrical infrastructure network requires consideration in the cumulative impacts of the Project in the landscape character and visual impact assessment.

8.2 Next Steps

Following the submission of the Project Scoping Report and receipt of the Project SEARs, a Landscape Character and Visual Impact Assessment (LCVIA) will be prepared. This assessment will be prepared in reference to the Guideline and the Technical Supplement to address landscape and visual impacts to surrounding residences, key locations, significant and scenic vistas and public road corridors.

The preparation of the LCVIA will involve the following stages:

1. Landscape Character Assessment & Baseline Analysis

- Supplement desktop assessments of the existing landscape conditions and development controls with fieldwork. This includes the combination of baseline panoramic photography with drone imagery to provide a comprehensive overview of the existing landscape character and sensitivity.
- Conduct a landscape character assessment to identify potential impacts.

2. Visual Impact Assessment

- Apply specialised tools to the 106 Non-associated Dwellings identified as having a theoretical line of sight to the Preliminary BESS Layout and refine the selection requiring further assessment.
- Assess baseline photography captured at the location of 12 potential public viewpoints and assess potential impacts from the representative locations.
- Prepare photomontages and/ or wireframe diagrams to public and private receivers requiring further assessments and accurately portray the extent of project visibility and existing screening measures.

3. Night Lighting

- Assess the potential impacts of project night lighting measures on the landscape character and sensitive receivers and provide measures to mitigate potential impacts in accordance with the "Dark Sky Planning Guideline".

4. Mitigation Recommendations

- Develop on-site or off-site mitigation strategies in response to assessment outcomes and community consultation. The purpose of the mitigation strategies will be to ensure the Project is integrated into the existing landscape and to mitigate identified visual impacts to an acceptable level.

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Appendix D Biodiversity Constraints Assessment (Biosis, 2026)

25 February 2026

Jeremy Moore
Project Development Manager
Avenis Energy Pty Ltd
1 Margaret Street
Sydney NSW 2000

Dear Jeremy.

Preliminary ecological constraints assessment for a proposed Battery Energy Storage System in Karangi near Coffs Harbour, NSW
Project no. 42111

Overview

Biosis Pty Ltd (Biosis) was commissioned by Avenis Energy to complete a preliminary constraints assessment to describe the ecological values and constraints associated with the areas proposed for the Battery Energy Storage System (BESS) (the project) in the locality of Karangi, approximately 8.5 kilometres west of the Coffs Harbour Central Business District in New South Wales (NSW) (study area), see Figure 1 in Appendix 1. Biosis understands that this ecological assessment informs the early stages of feasibility and will assist with informing the final design, as well as detailed avoidance and minimisation strategies for the project's Biodiversity Development Assessment Report (BDAR).

The scope of this assessment is to identify high level constraints and describe biodiversity values within the study area following preliminary desktop assessment and initial field investigations to inform early designs and the project scoping report, the latter being prepared by Ecological Australia (ELA). This preliminary ecological assessment allows for detailed avoidance and minimisation strategies for the project's Biodiversity Development Assessment Report (BDAR).

Background

The study area encompasses approximately 31 hectares and is divided centrally by Casuarina Lane. The majority of the site comprises highly disturbed agricultural land primarily used for grazing and improved pasture. This landscape is interspersed with scattered paddock trees and linear strips of remnant native vegetation or planted vegetation consistent with local plant community types. Exotic tree species are also scattered throughout the study area, occurring within exotic grasslands and along roadside verges.

Patches of native vegetation are present along the boundaries of the study area, adjoining Casuarina Lane, Upper Orara Road to the south, and the Orara River to the north. Higher quality remnant vegetation occurs predominantly outside the study area, with vegetation within the site generally exhibiting low to moderate condition.

A preliminary Land Category Assessment has been undertaken in the study area, and the study area features likely Category 1 Exempt Land, Category 2 Regulated Land, Category 2 Regulated Land (sensitive) and Category 2 Regulated Land (vulnerable).

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The study area is within the Coffs Harbour Local Government Area (LGA) and is largely zoned as RU2: Rural Landscape and C2: Environmental Conservation under the Coffs Harbour Local Environmental Plan (LEP) 2013. The study area is bordered by land zoned as RU2, C2, and is near land zoned as W1: Natural Waterways, comprising the Orara River to the northwest. The study area occurs within the Coffs Coast and Escarpment Interim Biogeographical Regionalisation for Australia (IBRA) sub region.

The study area is located adjacent to the Biodiversity Values Map (BV Map) (OEH 2019) near the north-eastern boundary, however this BV Map area is associated with the Orara River and is outside of the study area.

Objectives

The objective of this assessment is to investigate, via detailed desktop analysis, preliminary field investigation and literature review, the key risks to biodiversity associated within the project. These risks may constrain some areas of the study area from development or require additional and/or more detailed investigation or consultation which should therefore be prioritised. The results are to inform the early development of layouts and to support early consultation with agencies and key stakeholders. The primary objectives of this assessment are:

- Provide a general description and history of the study area.
- Summarise relevant legislation, approval pathways and risks associated with the project.
- Undertake background research of relevant databases, aerial imagery, and other publicly available information sources.
- Following rapid field assessment, describe Plant Community Types (PCTs) and potential for Threatened Ecological Communities (TECs) within the study area.
- Identify ecosystem credit species and species credit species associated with the PCTs within the study area.
- Outline of locations that would avoid and minimise impacts on biodiversity values by identifying:
  - Areas suggested as 'very high or no go' zones or areas unlikely to be approved.
  - High constraints and priority areas for further investigation.
  - Moderate constraints and likely to be manageable with standard mitigation.
  - Low constraints and most suitable for development, minimal assessment cost and time.
- Provide recommendations and advise on opportunities, constraints and avoid and minimise principles.
- Provide details on the requirements for further assessment, timing and likely costs.

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Method

Background research

Prior to completing the field investigation, information provided by Avenis Energy as well as other key information was reviewed, including:

- Australian Government Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW) Protected Matters Search Tool for matters protected by the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) BioNet Atlas of NSW Wildlife, for entities listed under the *Biodiversity Conservation Act 2016* (BC Act).
- The NSW Department of Primary Industries (DPI) Spatial Data Portal for *Fisheries Management Act 1994* (FM Act) listed threatened species, populations and communities.
- NSW DPI WeedWise database for *Biosecurity Act 2015* (Biosecurity Act) listed priority weeds for the Coffs Harbour LGA within the North Coast Local Land Services (LLS) region.
- NSW Vegetation Information System mapping, including:
  - NSW State Vegetation Type Map C2.0.M2.2 (NSW DCCEEW 2025a).
- Fine-scale mapping of the Coffs Harbour Local Government Area 2012. VIS_ID 4189 (Office of Environment and Heritage 2012). Including the following reports to inform the fine-scale mapping:
  - Coffs Harbour LGA fine-scale vegetation mapping project report (OEH 2012a).
  - Coffs Harbour LGA fine-scale vegetation mapping vegetation community profiles (OEH 2012b).
- Biodiversity Values Map (BVM) (NSW DCCEEW 2026).
- Aerial photography and topographic information.

The implications for the project were assessed in relation to key biodiversity legislation and policy including:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- *Environmental Planning and Assessment Act 1979* (EP&A Act).
- *Biodiversity Conservation Act 2016* (BC Act).
- *Local Land Services Act 2013* (LLS Act).
- *Water Management Act 2000* (WM Act).
- *Biosecurity Act 2015* (Biosecurity Act).
- *Coffs Harbour Development Control Plan 2015* (DCP).
- *Coffs Harbour Local Environment Plan 2013* (LEP).

Biodiversity constraints mapping method

To assess the constraints of native vegetation cover and habitat within the study area, areas were identified and mapped into the five categories outlined in Table 1 below and shown in Appendix 1 Figure 3. Landscape features and mapped biodiversity values present outside the study area were considered to ensure the influence of any values beyond the site were captured.

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Table 1 Framework and hierarchy of constraints

Constraint category	Definition	BESS and general infrastructure constraint value
Very High/No Go areas (Constraint score – 5)	These are areas that should be avoided and if not, may seriously affect regulatory approval of the project (i.e., regulators may require significant redesign to reduce impacts).	• Remnant NSW listed and Commonwealth listed TECs in high condition, noting no Commonwealth TECs have been identified in the study area. • PCT 3021 in high condition likely occurs adjacent to the study area, however, is not within the study area. Note that this does not appear on Figure 3 and is not explored further in this report.
High Constraint (Constraint score – 4)	These are areas that should be avoided if possible and will require justification in a Biodiversity Development Assessment Report (BDAR) if they cannot be avoided. Likely to result in areas that will generate high biodiversity credit per hectare requirements that require offsetting. Some smaller impacts would be considered acceptable.	• Areas of Vulnerable regulated land, including Orara River. • 40-metre buffer as per Guidelines for riparian corridors on waterfront land (DPE 2022) from the top of bank of Orara River (6th order). • Remnant NSW listed TECs: – PCT 3021_Moderate. – PCT 3959_Moderate. – PCT 3959_Low. • 25-metre buffer of remnant NSW listed TECs in high or moderate condition. – PCT 3021_Moderate. – PCT 3959_Moderate. • Non-TEC PCTs in High or Moderate condition: – PCT 3020_Moderate. – PCT 3161_Moderate. – PCT 3167_Moderate.

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Constraint category	Definition	BESS and general infrastructure constraint value
Moderate Constraint (Constraint score – 3)	Suitable for development. These areas do not necessarily need to be avoided but will generate a moderate biodiversity credit per hectare that requires offsetting.	• 25 m buffer of remnant NSW listed TECs in low condition: – PCT 3959_Low. • 20 m buffer of waterways including unnamed watercourses of study area (1st order). • Non-TEC PCTs in Low, Derived, Planted or Scattered Tree condition: – PCT 3020_Low. – PCT 3020_Planted. – PCT 3020_Scattered Trees. – PCT 3161_Low. – PCT 3161_Planted. – PCT 3161_Derived. – PCT 3167_Low.
Low Constraint (Constraint score – 2)	Best suited for development. These areas will generate low biodiversity credits per hectare that requires offsetting.	• Urban Native/Exotic vegetation that is not consistent with a PCT. • Non-PCTs in Scattered Tree condition: – Scattered Tree Camphor Laurel over exotic understory.
Negligible Constraint (Constraint score – 1)	Best suited for development. These areas are unlikely to generate biodiversity credits (i.e., exotic/cultivated/irrigated areas) and outside of prescribed impacts, do not require assessment under the Biodiversity Assessment Method (BAM).	• Non-native vegetation or areas likely to meet the definition of Category 1 land and where prescribed impacts are considered negligible: – Exotic dominated grasslands (paddocks and pasture grass).

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Preliminary field investigations

A preliminary field investigation of the study area was undertaken on 19 November 2024 by Jessica Chapman (Botanist). An additional field investigation was conducted in November 2025 after the receipt of new designs for the study area from Avenis Energy. During both field investigations, vegetation within the study area was surveyed using the random meander technique (Cropper 1993) over 5 person hours. The methodology included survey via vehicle and on foot, identifying the dominant plant species (native or non-native) and observations of habitat when encountered. Targeted surveys have also been conducted in January 2026 for threatened flora and fauna species. An overview of the field surveys conducted to date is included in Table 2.

Table 2 Summary field survey undertaken to date

Dates	Survey type	Objective
19 November 2024	Flora	Preliminary PCT verification and constraints
26-27 November 2025	Flora	Revised vegetation mapping following study area amendments
	Fauna	Targeted fauna surveys – Diurnal birds Large stick nets and hollow bearing trees
26-29 January 2026	Flora	Summer flora surveys Initial BAM plots Land category mapping and IGGAM transects Threatened flora transects
	Fauna	Summer fauna surveys Remote camera trapping Microbats surveys – Ultrasonic and HARP Spotlighting Call playback Funnel Trapping Pitfall Trapping

General classification of native vegetation in NSW used in this report is based on the classification system in Keith (2004), which uses three groupings of vegetation: vegetation formation, vegetation class and vegetation type, with vegetation type the finest grouping. The grouping referred to in this report is PCT as defined by the BAM (DPIE 2020).

Appropriate PCTs were selected based on species composition and structure, known geographical distribution, landscape position, underlying geology, soil type, and any other diagnostic features.

A habitat-based assessment was completed to determine the presence of suitable habitat for threatened species. The total list of threatened species considered included those previously recorded (NSW DCCEEW 2025b) or predicted to occur (DCCEEW 2025) within 5 kilometres, in addition to those that would be required to be assessed, were a BDAR to be prepared. The latter list was generated by establishing a preliminary BAM Calculator (BAM-C) case and entering the PCTs mapped within the study area.

This total list was then filtered according to species descriptions, life history, habitat preference and soil preference to determine those species most likely to be present within the study area.

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Land category assessment

In order to pre-emptively exclude highly utilised and/or modified areas from assessment under the BC Act, a review of land categorisation under the LLS Act was undertaken. This assessment clarifies the native vegetation management and land use regime of the study area and where applicable to do so, the potential for land to be mapped as 'Category 1 exempt land'. Land mapped or determined as Category 1 - Exempt land is not required to be assessed under the BAM, with the exception of prescribed impacts. Note, the land category assessment (LCA) does not remove the requirement to address matters under the EPBC Act.

A detailed LCA and review of desktop vegetation mapping to PCT was undertaken to inform the extent of the area subject to assessment under the BAM and BC Act, as well as preliminary PCT mapping and field validation. This was then compared to the Native Vegetation Regulatory Map (NVR Map) as well as the review of historical imagery from 1990 to present, where available (Figure 1).

Site-based floristic assessment was undertaken to verify the presence or absence of the CEEC, critically endangered plants and other Category 2 – Regulated land criteria, in order to confirm at the site scale, whether the criteria for Category 1 - Exempt land are met. The method applied followed both stage 2 and stage 3 of the Interim Grassland and other Groundcover Assessment Method (IGGAM). Biosis understands this approach is consistent with regulatory expectations during the transitional period, allowing survey data to be collected in a scientific and objective manner to determine the conservation value of grasslands and ground cover. Six transects were collected in areas considered to be Category 1 - Exempt land as well as six BAM plots. Both methods when analysed determined that land assessed met the conditions of low conversation grasslands, and can remain as Category 1 - Exempt land.

Limitations and assumptions

Biodiversity constraints outlined above are based on preliminary field assessment and desktop assessment of best available spatial mapping data, and therefore may be subject to refinement following collection of more detailed ground validated data. Preliminary field data collection to date was undertaken by rapid assessment only. Some areas directly adjacent to the study area (informed the context for the study area) were not adequately field verified (due to inaccessibility), and therefore, the precautionary principle applied accordingly to areas where desktop assessment and data may have been unclear or conflicting. Constraints mapping contained herein is based on modelled interpretation of this data using the rulesets outlined in

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Table 1 above using a GIS processing model, and no substantial interpretation of aerial imagery has been undertaken to determine any inconsistencies between the existing datasets and observable on-ground conditions. The above presented constraints relate to biodiversity values and related approvals only, and do not consider other environmental assessment requirements such as cultural heritage values, flooding or geotechnical constraints.

Results

The study area is located approximately 8.5 kilometres west of Coffs Harbour in NSW, in an area of multiple land uses including livestock grazing, cropping, rural residential and environmental conservation and management.

Regional soil landscape mapping indicates that the study area occurs on the Clarence - Richmond Alluvial Plains Mitchell landscape (Mitchell 2002). The Clarence – Richmond Alluvial Plains occurs in wide valleys, channels, floodplains, terraces and estuaries of the Clarence and Richmond Rivers and other coastal streams on Quaternary alluvium. This landscape occurs at an elevation of 0 metres to 50 metres above sea level with local relief of 15 metres. This landscape occurs as deep brown earths and structured brown clay on floodplains, and terrace with yellow texture-contrast soil containing ironstone concretions. Characteristic flora species of the Clarence – Richmond Alluvial Plains have been extensively cleared historically.

The Nymboida Great Escarpment Mitchell landscape (Mitchell 2002) occurs extensively in the locality in close proximity to the study area. This landscape occurs as ranges, peaks and steep escarpments with high waterfalls and deep gorges on main streams at a general elevation of 400 metres to 1400 metres above sea level with a local relief of 500 metres. Soils vary from shallow, gritty sandy loam through red and yellow earthy gradational profiles, to deep siliceous sands and loams on valley floors. Vegetation varies with aspect, elevation and soil quality.

Existing environment

Large areas within the study area have undergone intense modification due to historical clearing practices for livestock grazing. East of Casuarina Lane, most of these highly modified areas of exotic grassland and pasture grasses are currently used for grazing of cattle and occur generally in the centre of the property. Some native and exotic trees occur throughout the paddocks, as either scattered singular trees or low-quality patches with exotic understorey. West of Casuarina Lane in the study area, an existing TransGrid substation is positioned in the central north of the property. The area around the substation is also heavily cleared and disturbed, with small patches of native vegetation scattered amongst exotic grassland and ascetical plantings.

Across the entirety of the site, native vegetation generally exists in a modified state and is largely limited to the boundaries and fence lines of the study area, including along the North Coast Railway in the east, the Orara River in the north, the Upper Orara Road in the south and Casuarina Lane through the centre of the study area. Patches of native vegetation are subject to high levels of woody weed invasion of Camphor Laurel *Cinnamomum camphora* and Small-leaved Privet *Ligustrum sinense* which often dominate the midstory. Higher quality patches of native vegetation occur directly adjacent to the study area in road reserves and in the north along the Orara River.

Scattered trees can act as movement corridors between larger patches of vegetation for raptors, owls, woodland birds and flying mammals, and can provide refuge and food sources for mammals such as Koalas and small marsupials. Retained scattered trees would require a tree protection zone (TPZ) to sufficiently buffer the tree from root damage. The size of this buffer is dependent on tree size, generally diameter at breast height (DBH) x 12.

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Approximately 15.8 hectares of the study area is identified as Category 1 – Exempt Land, approximately 13.7 hectares equates to Category 2 – Regulated Land within the study area. Category 2 – Regulated Land (Vulnerable) in the study area is approximately <0.01 hectares and includes vegetation along the Orara River to the north of the study area (largely outside of study area and unlikely to be impacted by the proposed works). Approximately 1.22 hectares of Excluded Land occurs in the study area.

Plant Community Types

Prior to the field investigation, Biosis confirmed that various native vegetation communities have been mapped within the study area or immediate surrounds (DPE 2023). These include:

- PCT 3020 Northern Hinterland River Oak sheltered Forest.
- PCT 3021 Northern Lowland Subtropical Rainforest.
- PCT 3160 Lower North Turpentine-Tallowwood-Grey Gum Forest.
- PCT 3161 Mid North Hinterland Wet Forest.
- PCT 3167 Northern Hinterland Blackbutt-Forest Oak Wet Forest.
- PCT 3174 Northern Turpentine-Brush Box Wet Forest.
- PCT 3248 Northern Blackbutt-Turpentine Shrub Forest.
- PCT 3252 Northern Hinterland Grey Gum-Mahogany Grassy Forest.
- PCT 3574 Northern Lowland Sandstones Dry Open Forest.
- PCT 3959 Coast Sands *Baumea articulata* (Jointed Twig-rush) Sedgeland.
- PCT 3967 Northern Lower Floodplain Eleocharis Wetland.

A key focus of the field investigations was to assess the presence or absence of the above PCTs and once confirmed, compare against the final determinations of any associated TECs to determine presence or absence. Of the PCTs listed above, five were confirmed within the study area following the preliminary field investigations:

- PCT 3020 Northern Hinterland River Oak Sheltered Forest.
- PCT 3021 Northern Lowland Subtropical Rainforest.
- PCT 3161 Mid North Hinterland Wet Forest.
- PCT 3167 Northern Hinterland Blackbutt-Forest Oak Wet Forest.
- PCT 3959 Coast Sands *Baumea articulata* Sedgeland.

The five ground-truthed PCTs recorded in the study area occur in several broad condition states and respective vegetation zones for each were mapped in accordance with the BAM. The condition states of zones observed in the study area are defined below:

- Moderate condition: Areas of sparse-moderate canopy cover, some native midstorey (low diversity), predominantly native groundcover with low to moderate native diversity, high woody weed cover.
- Low condition: Areas of sparse canopy cover, no native midstory, high woody weed cover, predominantly exotic understorey with low percentage cover of scattered native understory species.
- Derived: Areas of no native canopy, some native midstory, predominantly native ground cover and low-moderate woody weed cover.

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- Scattered Trees: Areas of remnant canopy species with cleared midstory and exotic understory.
- Planted: Areas of sparse canopy cover that has been planted consistent with the local PCT, no native midstory, predominantly exotic understorey with low percentage cover of scattered native understory species.
- Exotic grassland: Non-native understory vegetation dominated by grasses.
- Exotic trees: Non-native canopy vegetation
- Cleared: Historically cleared area consisting of buildings, roads or bare ground with no remaining vegetation.

The zones consistent with a PCT recorded in the study area are:

- PCT 3020 Northern Hinterland River Oak Sheltered Forest:
  - PCT 3020_Moderate.
  - PCT 3020_Low.
  - PCT 3020_Scattered Trees.
  - PCT 3020_Planted.
- PCT 3021 Northern Lowland Subtropical Rainforest:
  - PCT 3021_Moderate.
- PCT 3161 Mid North Hinterland Wet Forest:
  - PCT 3161_Moderate.
  - PCT 3161_Low.
  - PCT 3161_Derived.
  - PCT 3161_Planted.
- PCT 3167 Northern Hinterland Blackbutt-Forest Oak Wet Forest:
  - PCT 3167_Moderate.
  - PCT 3167_Low.
- PCT 3959 Coast Sands *Baumea articulata* Sedgeland:
  - PCT 3959_Moderate.
  - PCT 3959_Low.

A summary of ground validated PCTs and vegetation in the study area is provided below in Table 3 and these vegetation zones are shown on Figure 2.

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Table 3 Summary of ground validated PCTs within the study area

PCT/vegetation community	Description	Area in study area (ha)	Vegetation class	Associated BC Act TEC	Associated EPBC Act TEC
3020 – Northern Hinterland River Oak sheltered Forest	**Structure:** Mid – tall forest **Upper stratum:** Dominated by exotic species Camphor Laurel *Cinnamomum camphora* and native canopy is River Oak *Casuarina cunninghamiana* subsp. *cunninghamiana*. Red Ash *Alphitonia excelsa*, Red Cedar *Toona* ciliata, Moreton Bay Fig *Ficus macrophylla* subsp. *macrophylla* and Hoop Pine *Aracauria cunninghamii* were also present. **Mid stratum:** Blackwood *Acacia melanoxylon*. **Ground stratum:** Greater Brown Sedge *Carex brunnea*, Kidney Weed *Dichondra repens*, Bracken *Pteridium esculentum* and *Lomandra hystrix*. **Occurrence**: generally, in the north western boundary of the study area, near Orara River.	Vegetation zones: Moderate: 0.60 ha Low: 0.09 ha Planted: 0.05 ha Scattered Trees: 0.02 ha Total: 0.76 ha	Eastern Riverine Forests	N/A	N/A
3021 - Northern Lowland Subtropical Rainforest	**Structure:** Tall – very tall dense rainforest **Upper stratum:** Includes exotic species Camphor Laurel, and native species Hairy-leaved Bolly Gum *Neolitsea dealbata*, Maiden's Bush *Sloanea australis*, Yellow Carabeen *Sloanea woollsii*, and Steelwood *Sarcopteryx stipata*. **Mid stratum:** Slender Treefern *Cyathea cunninghamii*, Narrow-leaved Palm Lily *Cordyline stricta*, Steelwood and Bird's Nest Fern *Asplenium australasicum*. **Ground stratum:** Spiny-headed Mat-rush *Lomandra longifolia*, *Lomandra hystrix*, *Commelina cyanea*.	Vegetation zones: Moderate: 0.20 ha Total: 0.20 ha	Subtropical Rainforests	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	Lowland Rainforest of Subtropical Australia

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PCT/vegetation community	Description	Area in study area (ha)	Vegetation class	Associated BC Act TEC	Associated EPBC Act TEC
	Occurrence: Directly adjacent to the Orara River at the north end of Casuarina Lane. It is important to note that occurrences of this PCT in the study area are much lower quality compared to other areas adjacent on the Orara River. Occurrences of this PCT in the study area lack native woody species diversity and therefore only represent the BC Act TEC, not the EPBC Act TEC associated with this PCT.				
3161 – Mid North Hinterland Wet Forest	**Structure:** Extremely tall, sclerophyll open forest **Upper stratum:** Dominated by exotic species Camphor Laurel, remnant canopy includes Flooded Gum *Eucalyptus grandis* and Sydney Blue Gum *Eucalyptus saligna*. Tallowwood *Eucalyptus microcorys* was recorded infrequently. **Mid stratum:** Dominated by exotic species Small-leaved Privet *Ligustrum sinense* and native species include White Dogwood *Ozothamnus diosmifolius*, Bangalow Palm *Archontophoenix cunninghamiana*, Sweet Pittosporum *Pittosporum undulatum* and Blackwood. **Ground stratum:** Spiny-headed Mat-rush *Lomandra longifolia*, *Lomandra hystrix*, *Commelina cyanea*. **Occurrence**: In various conditions through the study area.	Vegetation zones: Moderate: 0.52 ha Low: 0.84 ha Planted: 0.27 ha Derived: 0.37 ha Total: 2.0 ha	North Coast Wet Sclerophyll Forests	N/A	N/A

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PCT/vegetation community	Description	Area in study area (ha)	Vegetation class	Associated BC Act TEC	Associated EPBC Act TEC
3167 – Northern Hinterland Blackbutt-Forest Oak Wet Forest	**Structure:** Very tall to extremely tall, sclerophyll forest **Upper stratum:** Some occurrences of exotic species Camphor Laurel, remnant canopy includes Blackbutt *Eucalyptus pilularis*. **Mid stratum:** Dominated by exotic species Small-leaved Privet *Ligustrum sinense* and native species include Bangalow Palm, Sweet Pittosporum and Blackwood. **Ground stratum:** Spiny-headed Mat-rush *Lomandra longifolia*, *Lomandra hystrix*, *Commelina cyanea*, *Centella* species. **Occurrence**: In various conditions through the study area.	Vegetation zones: Moderate: 0.03 ha Low: 0.24 ha Total: 0.27 ha	Northern Hinterland Wet Sclerophyll Forests	N/A	N/A
3959 – Coast Sands *Baumea articulata* Sedgeland	**Structure:** A very tall freshwater sedgeland occurring in closed depressions. **Ground stratum**: Includes herbaceous and sedge vegetation fringing waterways or waterbodies including *Cyperus*, *Baumea* and *Ludwigia* species. Weedy species are prevalent along fringing vegetation due to weed ingress from surrounding exotic grassland areas.	Vegetation zones: Moderate: 0.45 ha Low: 0.04 ha Total: 0.49 ha	Coastal Freshwater Lagoons	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	N/A

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PCT/vegetation community	Description	Area in study area (ha)	Vegetation class	Associated BC Act TEC	Associated EPBC Act TEC
Exotic trees	**Exotic trees:** Camphor Laurel occurs as scattered trees in exotic dominated grassland paddocks. *Aracauria* sp and *Acer* sp occur on occasion.	Total: 2.10 ha	N/A	N/A	N/A
Exotic grassland	**Exotic dominated grassland paddocks:** Dominated by Kikuyu Grass *Cenchrus clandestinus*, Crab Grass *Digitaria sanguinalis*, Wimmera Ryegrass *Lolium rigidum* and Paspalum *Paspalum dilatatum*. Spear Thistle *Cirsium vulgare*, Lantana *Lantana camara*, Fireweed *Senecio madagascariensis*, Purpletop *Verbena bonariensis* and Wild Tobacco Bush *Solanum mauritianum* occur throughout the study area	Total: 21.0 ha	N/A	N/A	N/A

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Threatened ecological communities

Plant Community Type 3021 is associated with the following communities:

- The EPBC Act listed Critically Endangered Ecological Community (CEEC) *Lowland Rainforest of Subtropical Australia*.
- The BC Act listed Endangered Ecological Community (EEC) *Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion*.
- BC Act listed EEC *Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion*.

The PCT 3021 in the study area is most consistent with the BC Act listed EEC *Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion*. Therefore, the other BC Act TEC above is not considered further.

Given the *Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion* EEC's final determination provides inclusion of degraded areas, all patches of PCT 3021 are considered the BC Act listed EEC (NSW Environment and Heritage 2011). This PCT is consistent with this BC Act listed EEC due to meeting the following listing criteria of the EEC final determination (NSW Environment and Heritage 2011):

- Study area is in the NSW North Coast distribution of this EEC.
- Occurs on Mitchell landscape with soils derived from alluvium (Clarence – Richmond Alluvial Plains).
- Occurs below 300 metres above sea level. The study area occurs in Karangi, NSW, which is approximately 110 metres above sea level.
- Occurs in an area of high rainfall.
- Occurs more than 2 kilometres from the coast. Karangi, NSW, is approximately 9.5 kilometres from the eastern coastline of Australia.
- All areas within the study area have species diagnostic of this EEC in the community listing's species assemblage list (NSW Environment and Heritage 2011), including canopy species Sydney Blue Gum *Eucalyptus saligna* and Flooded Gum *Eucalyptus grandis* and midstory species Bangalow Palm *Archontophoenix cunninghamiana* and Blackwood *Acacia melanoxylon*.

Unlike the BC Act listed EEC *Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion* present in the study area, the EPBC Act CEEC *Lowland Rainforest of Subtropical Australia* must satisfy further criterion to be listed, including high species richness with a minimum of 30 woody species from Appendix A of the community listing (Threatened Species Scientific Committee 2011). The patch of PCT 3021 in the study area does not meet this criterion, due to a lack of woody species diversity, and therefore is not considered to be the EPBC Act CEEC.

The EPBC Act is likely to be present outside of the study area only, adjacent to the Orara River, however these areas were not assessed in detail as they are outside of the current assessment scope. These patches outside of the study area are in a more natural, higher quality state due to less historical disturbance and are likely to meet the key diagnostic characteristics and minimum condition thresholds for the EPBC Act CEEC (TSSC 2011).

Similarly, the PCT 3959 patches are associated with the BC Act EEC *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*. Areas of PCT 3959 in the study area are consistent with this BC Act TEC due to meeting the following listing criteria for the community (NSW TSSC 2010):

- Occurs on Coastal Floodplains of the NSW North Coast bioregion.

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- Associated with periodic or semi-permanent inundation by freshwater, although there may be minor saline influence.
- Varying composition primarily determined by the frequency, duration and depth of waterlogging and may be influenced by the level of nutrients and salinity in the water and substrate.
- Dominated by herbaceous species and sedges.
- Contains characteristic species including: *Persicaria strigosa*, *Ludwigia peploides*, *Cyperus* species and *Baumea* species.

The other PCTs in the study area are not consistent with any TECs listed under the BC Act or the EPBC Act.

While TECs are rarely a 'fatal flaw' to project approval, strong justification will be required to show that the project has avoided and then minimised impacts as far as practicable in these areas. Usually, TECs can be offset but will incur higher costs if offset obligations are to be paid or traded (rather than physically secured in a Stewardship Site). The TECs in the study area modelled as high constraints with a moderate constraint buffer in Figure 3.

Waterways and wetlands

Two natural watercourses occur within the immediate vicinity of the study area or study area. Orara River is a 6th order (Strahler 1964) watercourse and is the most significant waterway that occurs directly adjacent to the study area along a minor portion of the northern boundary. The Orara River is outside of the study area, however influences vegetation along the northern boundary of the study area. An unnamed 1st order watercourse is present in the west of the study area. All waterways have been buffered as per the *Controlled Activities – Guidelines for riparian corridors on waterfront land* (DPE 2022).

The Orara River and an adjoining waterbody area adjacent to the north-western corner to the study area is classed as Key Fish Habitat (KFH) in the Department of Primary Industries (DPI) Fisheries spatial data portal (DPI 2023). There is no mapped habitat for any threatened aquatic species listed under the FM Act within the study area itself. However, the unnamed 1st order watercourse in the west of the study area is connected to the KFH area outside of the study area to the north west. This unnamed watercourse has been mapped as a high constraint on Figure 3.

Habitat is mapped for the Southern Purple Spotted Gudgeon *Mogurnda adspersa* (Endangered, FM Act) along the Orara River just outside the northern boundary of the study area. The unnamed natural watercourse in the west is a tributary of the Orara River and flows directly into the Southern Purple Spotted Gudgeon habitat. The Orara River is also mapped as habitat for Eastern Freshwater Cod *Maccullochella ikei* which is Endangered under the FM Act.

Generally, the waterways directly adjacent to the study area as mentioned above, have been subject to modification, historical clearing and grazing, and as a result have lost some natural form and structure. However, water quality and functionality cannot be said to be poor, and they are generally conducive to amphibious life when climatic conditions allow. These perennial watercourses have fringing and floating native macrophytes and sedges, including that provide suitable frog habitat, as well as good quality habitat for other aquatic species. Several Platypus *Ornithorhynchus anatinus* individuals and groups of Australian Wood Duck *Chenonetta jubata* were recorded utilising the watercourses during the field investigations.

No NSW Wetlands (OEH 2010) or National Important Wetlands (Cth DCCEEW 2019) are mapped in the study area and no wetlands were recorded during the field investigation. The Karangi Dam occurs 850 metres south-west of the study area and is mapped as a wetland (OEH 2010).

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Threatened flora and fauna

Background searches (BioNet and PMST) and use of the BAM-C identified numerous threatened flora and fauna species recorded (NSW DCCEEW 2025b) or predicted to occur (DCCEEW 2025) within 5 kilometres of the study area. These species have been ranked as having a low, medium or high likelihood of occurrence within the study area based on a preliminary assessment of habitat values in Appendix 3.

First season targeted surveys have been completed for threatened species in the January 2026 period in accordance with the Biodiversity Assessment Method (BAM). During these surveys a number of threatened species were identified including: Powerful Owl *Ninox strenua* (Vulnerable, BC Act), White-bellied Sea-Eagle *Haliaeetus leucogaster* (Vulnerable, BC Act), Grey-headed Flying-fox *Pteropus poliocephalus* (Vulnerable, BC Act and EPBC Act) and Giant Barred Frog *Mixophyes iteratus* (Vulnerable, BC Act and EPBC Act).

A full list of flora and fauna species recorded during the field investigation are provided in Appendix 4. Several species have also been output by the BAM-C and/or are predicted to have a medium or higher likelihood of occurring or utilising the study area. Many of these species would require further assessment through the project BDAR. Species' listings under the BC Act and/or EPBC Act area provided in Appendix 3.

Flora

- Cryptic Forest Twiner *Tylophora woollsii*
- *Fontainea* sp. Coffs Harbour
- Hairy Jointgrass *Arthraxon hispidus*
- Macadamia Nut *Macadamia integrifolia*
- Milky Silkpod *Parsonsia dorrigoensis*
- Native Guava *Rhodomyrtus psidioides*
- Needle-leaf Fern *Grammitis stenophylla*
- Newry Golden Wattle *Acacia chrysotricha*
- Orara Boronia *Boronia umbellata*
- *Pittosporum kororoense*
- Red Boppel Nut *Hicksbeachia pinnatifolia*
- Red-flowered King of the Fairies *Oberonia titania*
- Rusty Plum *Niemeyera whitei*
- Sandstone Rough-barked Apple *Angophora robur*
- Scant Pomaderris *Pomaderris queenslandica*
- Scented Acronychia *Acronychia littoralis*
- Scrub Turpentine *Rhodamnia rubescens*
- Slender Marsdenia *Marsdenia longiloba*
- Stinky Lily *Typhonium* sp. Aff. *brownii*
- Trailing Woodruff *Asperula asthenes*
- White-flowered Wax Plant *Cynanchum elegans*
- Woodland Babingtonia *Kardomia silvestris*

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Fauna

- Birds:
  - Barking Owl *Ninox connivens*
  - Black-necked Stork *Ephippiorhynchus asiaticus*
  - Brown Treecreeper (eastern subspecies) *Climacteris picumnus victoriae*
  - Bush Stone-curlew *Burhinus grallarius*
  - Dusky Woodswallow *Artamus cyanopterus cyanopterus*
  - Eastern Osprey *Pandion cristatus*
  - Little Eagle *Hieraaetus morphnoides*
  - Little Lorikeet *Glossopsitta pusilla*
  - Painted Honeyeater *Grantiella picta*
  - Powerful Owl *Ninox strennua*
  - Red Goshawk *Erythrotriorchis radiatus*
  - Rose-crowned Fruit-Dove *Ptilinopus regina*
  - Rufous Scrub-bird *Atrichornis rufescens*
  - South-Eastern Glossy Black-Cockatoo *Calyptorhynchus lathami lathami*
  - Square-tailed Kite *Lophoictinia isura*
  - Swift Parrot *Lathamus discolor*. Note that for the purposes of the BAM, this species is assessed via important habitat mapping administered by NSW DCCEEW. This mapping does not coincide with the study area, therefore, no further assessment would be required.
  - White-bellied Sea-Eagle *Haliaeetus leucogaster*
  - White-throated Needletail *Hirundapus caudacutus*
  - Wompoo Fruit Dove *Ptilinopus magnificus*
- Mammals:
  - Brush-tailed Phascogale *Phascogale tapoatafa*
  - Common Planigale *Planigale maculata*
  - Eastern Cave Bat *Vespadelus troughtoni*
  - Eastern Coastal Free-tailed Bat *Micronomus norfolkensis*
  - Eastern Pygmy-possum *Cercartetus nanus*
  - Grey-headed Flying-fox *Pteropus poliocephalus*
  - Koala *Phascolarctos cinereus*
  - Large Bent-winged Bat *Miniopterus orianae oceansis*
  - Little Bent-winged Bat *Miniopterus australis*
  - Northern Long-nosed Potoroo *Potorous tridactylus tridactylus*
  - Parma Wallaby *Notamacropus parma*
  - Rufous Bettong *Aepyprymnus rufescens*
  - Southern Greater Glider *Petauroides volans*

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  - Southern Myotis *Myotis macropus*
  - Squirrel Glider *Petaurus norfolcensis*
  - Yellow-bellied Glider *Petaurus australis*
- Insects:
  - Black Grass-dart Butterfly *Ocybadistes knightorum*
- Frogs:
  - Giant Barred Frog *Mixophyes iteratus*
  - Green and Golden Bell Frog *Litoria aurea*
  - Green-thighed Frog *Litoria brevipalmata*
  - Pouched Frog *Assa darlingtoni*
  - Sphagnum Frog *Philoria sphagnicolus*
  - Stuttering Frog *Mixophyes balbus*
- Snakes/Turtles:
  - Bellinger River Snapping Turtle *Myuchelys georgesi*
  - Pale-headed Snake *Hoplocephalus bitorquatus*
  - Stephen's Banded Snake *Hoplocephalus stephensii*
- Fish:
  - Eastern Freshwater Cod *Maccullochella ikei*
  - Southern Purple Spotted Gudgeon *Mogurnda adspersa*

Matters of National Environmental Significance

Based on the results of a Protected Matters Search run in February 2026, and the findings of the preliminary field investigations, MNES potentially of relevance to the project are provided in

Table 4 below.

Table 4 MNES of relevance to the Project

MNES	Relevance to the Project
World Heritage Properties	Not identified within the study area or a 5 km radius.
National Heritage Places	Not identified within the study area or a 5 km radius.
Wetlands of International Importance (Ramsar Wetlands)	Not identified within the study area or a 5 km radius.
Great Barrier Reef Marine Park	Not identified within the study area or a 5 km radius.

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MNES	Relevance to the Project
Commonwealth Marine Area	Not identified within the study area or a 5 km radius.
Listed Threatened Ecological Communities	A total of 4 Commonwealth listed TECs are predicted to occur within the study area or 5 km buffer. One Commonwealth listed TEC may occur within the immediate surrounds of the study area: • *Lowland Rainforest of Subtropical Australia* (Critically Endangered). This EPBC Act listed CEEC was determined to be absent from the study area and surrounding study area. This CEEC may be present in the remnant vegetation surrounding the study area, however, was not assessed in detail and detailed assessment is outside of the scope for this assessment.
Listed Threatened Species	A total of 81 threatened fauna species and 34 threatened flora species are predicted to occur within a 5 km buffer of the study area. Those considered potentially occurring are listed in the section before this.
Listed Migratory Species	A total of 18 listed migratory species are predicted to occur within a 5 km buffer of the study area.

MNES listed above, along with any other MNES recorded or predicted as likely to occur within the study area, will require consideration as part of ongoing ecological assessments. A referral of the project to Cth DCCEEW will be required if the project is determined to have a significant impact on threatened species, or to provide legal certainty, in the event of precautionary or uncertain impacts. Based on the TECs present and experience on recent projects in Northern NSW and in similar habitats, it is unlikely referral will be required if constraints are considered for the development in the study area and avoid and minimise steps are implemented for biodiversity values in the study area.

Opportunities and constraints

Modelled biodiversity constraints for the project have been developed in accordance with the hierarchy and method outlined in Table 1 and are illustrated on Figure 3 in Appendix 1. Higher level constraints to the development of the project are associated with direct impacts to biodiversity values (e.g., native vegetation clearing and habitat loss or modification), rather than the indirect impacts.

Areas of high constraint that should be avoided are areas listed as moderate condition remnant native vegetation and threatened species habitat that represent TECs listed under the BC Act and in some cases are categorised as Category 2 – Regulated Land. Impacts to moderate condition areas of habitat are expected to result in high biodiversity offset costs, which are considered more likely to influence the viability of the proposed BESS project. A high degree of regulatory authority scrutiny would be expected based for impacts to high and moderate condition TECs. As such development in these areas is recommended to be avoided.

Areas of moderate constraint are considered suitable for development, but will generate a moderate biodiversity credit, include lower condition native vegetation such as scattered trees, and buffers surrounding lower condition native vegetation and highly disturbed ephemeral waterways.

Several paddock trees occur throughout the study area, of which many contain habitat features such as hollows, fissures and occasional nests. Impact to these areas will require offsetting and should be avoided where possible, and where avoidance is not possible, impacts minimised with a design focus around retaining vegetation in strategic manner to maintain habitat connectivity throughout. It should also be noted that

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although the BAM assessment and tools (scattered tree module or planted vegetation module) can be applied differently to these areas, an offset obligation will still apply if impacted.

A focus for the development should be on areas identified as a low and negligible constraint. Areas determined as Category 1 exempt land, and a negligible constraint, can be excluded from the BAM and are not required to be assessed, with exception of prescribed impacts such as alterations to hydrology. This will save time, money and reduce potential offset obligations for the project.

Summary

Locating BESS infrastructure within areas of low and negligible constraint as mapped in Figure 3 is considered most suitable and is likely to result in the least amount of regulator concerns from a biodiversity impact assessment standpoint. Areas mapped as high and moderate constraints are of higher biodiversity value and would likely result in higher offsetting costs, whereas low constraints may not require offsetting at all. Additionally, impacts to these areas may require a high degree of survey effort for targeted threatened flora and fauna. No-go areas should be avoided in all designs, planning and construction. As outlined above, the BC Act requirement for the avoidance and minimisation of impacts to biodiversity would still apply to the entirety of the study area where biodiversity values are present.

Based on previous experience, Biosis has found that PCTs in the following conditions generally accrue credit liability at the following rates:

- High: 30 credits per ha.
- Moderate: 20 credits per ha.
- Low: 15 credits per ha.

Biosis has undertaken initial analysis into the current market value of credits required for the project and found that PCTs in the study area may cost an estimate of $5,500.00 per credit, as at time of search in February 2026.

Recommendations

Avoiding and minimising impacts to biodiversity values should be considered further during detailed design revisions and should be further developed in consultation with relevant experts, stakeholders and agencies during the detailed assessments considering specifically:

- Early consultation with Conservation Programs, Heritage and Regulation (CPHR) around avoid and minimise as well as land category assessment.
- Minimise impacts to high and moderate constraints as far as practicable that include areas where high and moderate condition native vegetation, fauna habitat and TECs are present.
- Clearing of native vegetation kept to the minimum extent necessary and minimise disturbance to surrounding native vegetation buffers.
- Undertake additional BAM plots to confirm PCT condition and distribution association to further inform constraint level and complete BAM requirements.
- Minimise impacts to areas within 40 metres, 30 metres 20 metres of respective riparian corridors and waterways.

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- Avoidance of native scattered trees and key habitats for threatened entities (hollow-bearing trees) as far as practicable.
- Cross reference with other site/value-based constraints including Aboriginal cultural heritage values and flood prone areas.

Next steps

A BDAR is likely required for the project, and therefore further detailed ecological surveys, investigations and assessment will be required including:

- Collection of all required BAM floristic plot data.
- Confirmation of extent of all TECs present.
- Targeted surveys for candidate threatened species (some of which have been completed to date).
- Assessment of all direct, indirect and prescribed impacts.
- Offset planning.

Biodiversity Offsets

If the overall offset obligation is considered low, payment to the Biodiversity Conservation Fund (BCF) may be viable once a consent authority has issued project approval/conditions of consent that specify the number and type of credits to be retired. The benefit of this is that a proponent can then choose to use the BCF to meet their offset obligations immediately and does not have to locate their own offsets either by establishing a Biodiversity Stewardship Site or sourcing and retiring credits from the open market. Offset purchase via the BCF also means having no ongoing obligation for management of the offset, as this becomes the responsibility of the Biodiversity Conservation Trust (BCT). Although the easiest and fastest method, purchase via the BCF can be expensive with additional fees associated, and hence only suited to small offset obligations. As this site is considered small-scale, this is likely the most efficient offset strategy.

I trust that this advice is of assistance to you, however please contact me on JChapman@biosis.com.au or 0437 789 318 if you would like to discuss further.

Yours sincerely

Jessica Chapman – Senior Botanist

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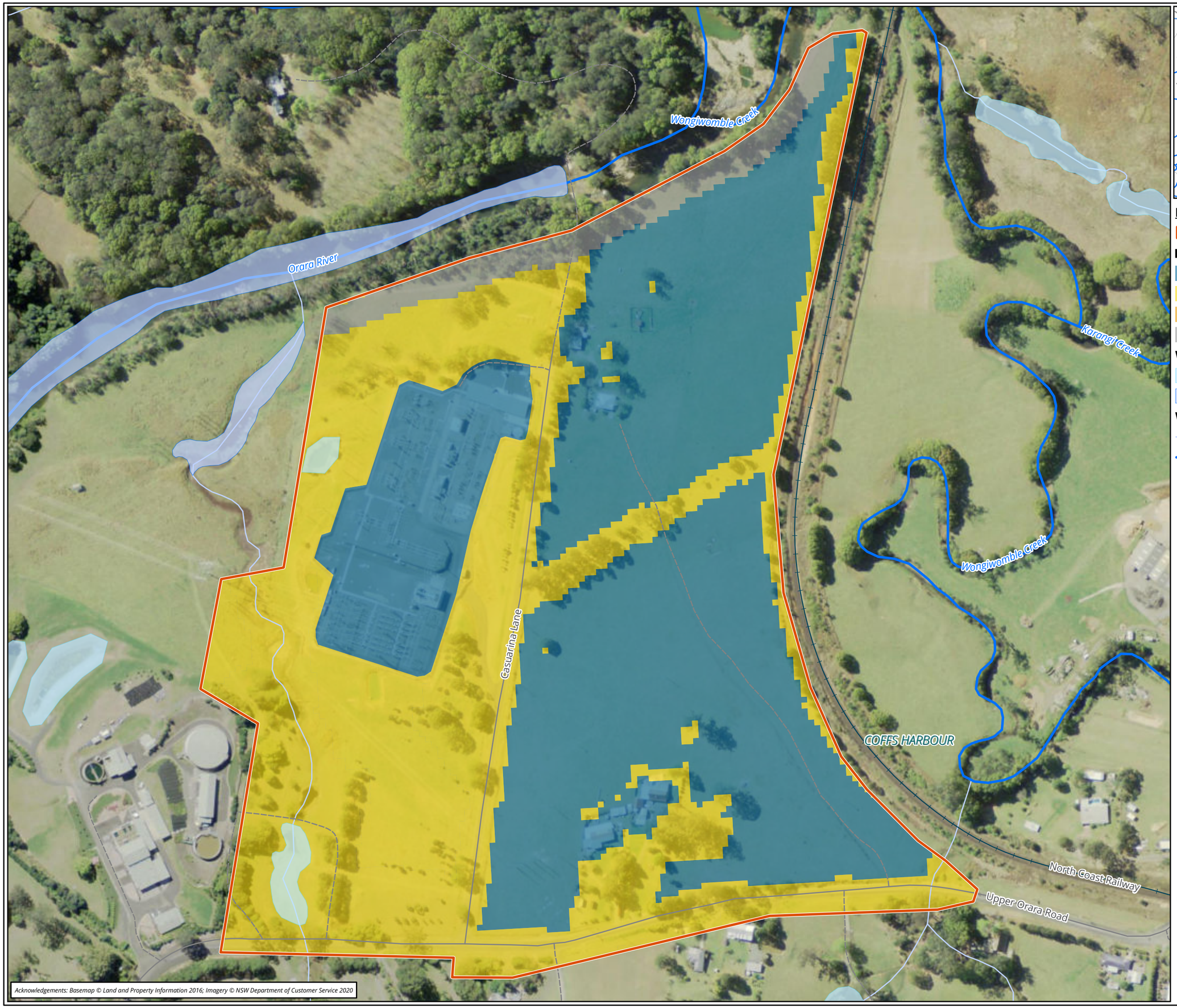
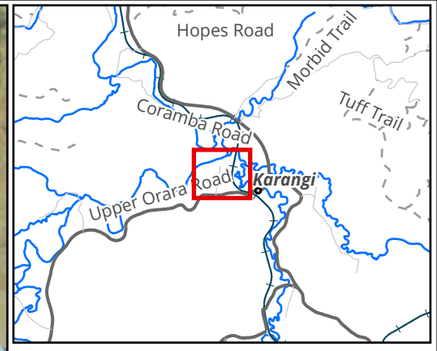
Appendices





Legend

- Study area

Land Category

- Category 1 - Exempt
- Category 2 - Regulated
- Category 2 - Vulnerable Regulated
- Excluded land

Waterbody

- Dam
- Waterway

Waterway

- Non-perennial
- Perennial

Figure 1 NSW Land Categorisation of the study area

0 20 40 60 80 100

Metres

Scale: 1:3,000 @ A3

Coordinate System: GDA2020 MGA Zone 56

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Matter: 42111, Date: 18 February 2026,
Prepared for: JC, Prepared by: AA, Last edited by: hliswoyo
Location: P:\42100s\42111\Mapping\
42111_CoffsHarbourBESS_BDAR,
Layout: 42111_F1_LandCat_20260218

Legend

Study area

Habitat features

Small pond

Plant Community Type and condition

- 3020 - Northern Hinterland River Oak Sheltered Forest (Moderate)
- 3020 - Northern Hinterland River Oak Sheltered Forest (Low)
- 3020 - Northern Hinterland River Oak Sheltered Forest (Planted)
- 3020 - Northern Hinterland River Oak Sheltered Forest (Scattered Trees)
- 3021 - Northern Lowland Subtropical Rainforest (Moderate)
- 3161 - Mid North Hinterland Wet Forest (Moderate)
- 3161 - Mid North Hinterland Wet Forest (Low)
- 3161 - Mid North Hinterland Wet Forest (Planted)
- 3161 - Mid North Hinterland Wet Forest (Derived)
- 3167 - Northern Hinterland Blackbutt-Forest Oak Wet Forest (Moderate)
- 3167 - Northern Hinterland Blackbutt-Forest Oak Wet Forest (Low)
- 3959 - Coast Sands Baumea articulata Sedgeland (Moderate)
- 3959 - Coast Sands Baumea articulata Sedgeland (Low)
- Exotic trees
- Exotic dominated grassland
- Cleared

Threatened ecological community

- 3021, Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions (BC Act)
- 3959, Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (BC Act)

Figure 2 Ecological values of the study area

0 20 40 60 80 100

Metres

Scale: 1:3,000 @ A3

Coordinate System: GDA2020 MGA Zone 56

N

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APEM Group

Matter: 42111, Date: 20 February 2026,
Prepared for: JC, Prepared by: AA, Last edited by: hliswoyo
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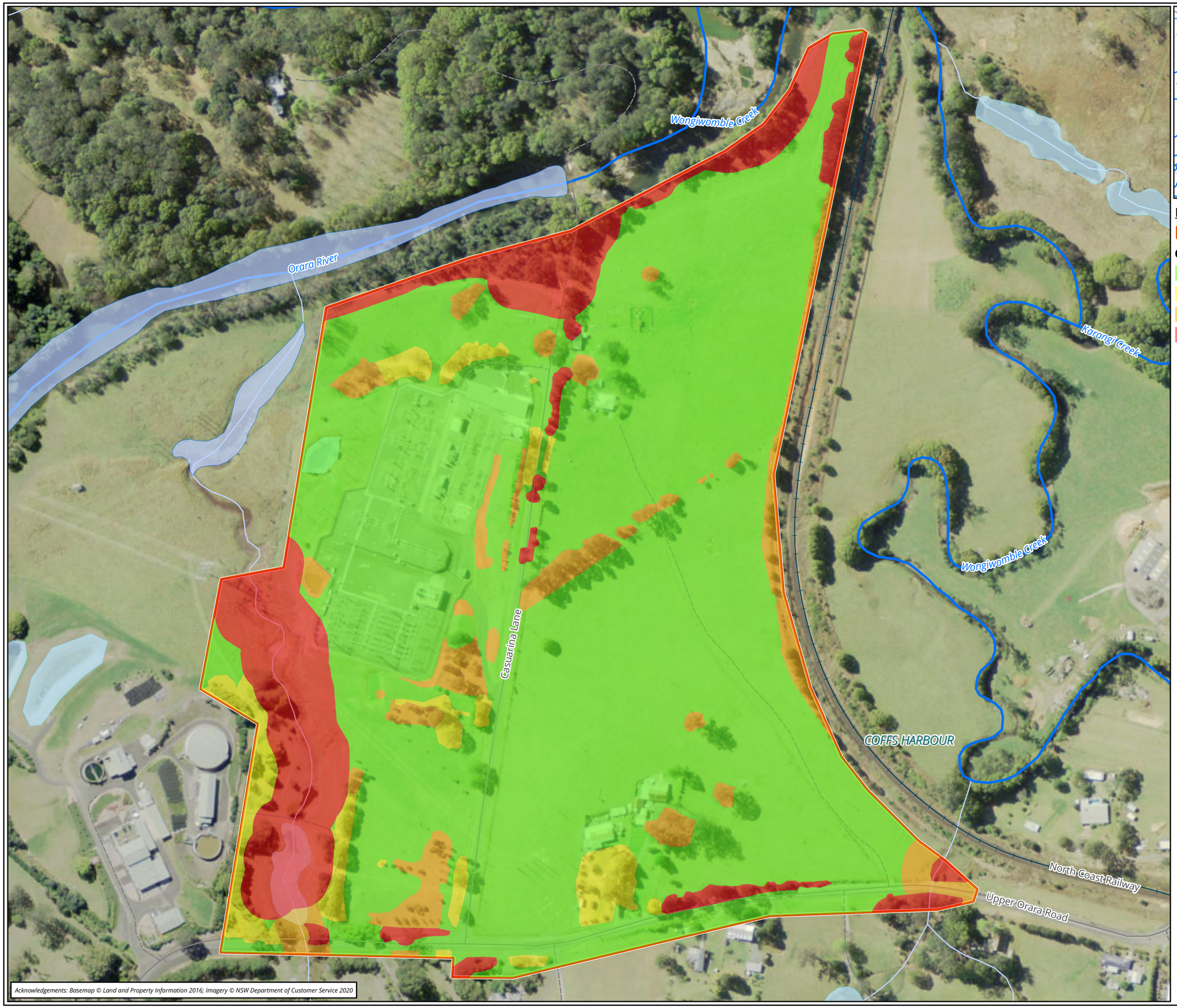

Acknowledgements: Basemap © Land and Property Information 2016; Imagery © NSW Department of Customer Service 2020

Figure 3 Constraints of the study area

Scale: 1:3,000 @ A3

Coordinate System: GDA2020 MGA Zone 56

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APEM Group

Matter: 42111, Date: 20 February 2026,
Prepared for: JC, Prepared by: AA, Last edited by: hliswoyo
Location: P:\42100s\42111\Mapping\
42111_CoffsHarbourBESS_BDAR,
Layout: 42111_F3_Constraints

Appendix 2 Photos of the study area

Photograph 1 PCT 3020 in moderate condition in the study area (photo taken just outside of the study area on northern boundary looking east)

Photograph 2 PCT 3021 in moderate condition in the study area

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Photograph 3 PCT 3161 in moderate condition in the study area

Photograph 4 PCT 3167 in low condition in the study area

Photograph 5 Example of exotic trees in the study area

Photograph 6 Example of exotic grassland in the study area (foreground)

Appendix 3 Threatened entities predicted to occur

The following tables include a list of the threatened flora, fauna and threatened ecological communities that have potential to occur within the study area. The list of species is sourced from the NSW BioNet Wildlife Atlas, BAM-C and the Protected Matters Search Tool.

Examples of criteria for determining the likelihood of occurrence for threatened biota as a guide for writing the rationale for likelihood have been listed below.

Likelihood of occurrence	Potential criteria
High	• Species recorded in study area during current or previous assessment/s. • Aquatic species recorded from connected waterbodies in close proximity to the study area during current or previous assessment/s. • Sufficient good quality habitat is present in study area or in connected waterbodies in close proximity to the study area (aquatic species). • Study area is within species natural distributional range (if known). • Species has been recorded within 5 km or from the relevant catchment/basin.
Medium	• Records of terrestrial biota within 5 km of the study area or of aquatic species in the relevant basin/neighbouring basin. • Habitat limited in its capacity to support the species due to extent, quality, or isolation.
Low	• No records within 5 km of the study area or for aquatic species, the relevant basin/neighbouring basin. • Marginal habitat present (low quality & extent). • Substantial loss of habitat since any previous record(s).
Negligible	• Habitat is not present in study area. • Habitat for aquatic species is not present in connected waterbodies in close proximity to the study area. • Habitat present but sufficient targeted survey has been conducted at an optimal time of year and species was not recorded.

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Table 5 Threatened flora species predicted to occur within the study area

Species (scientific and common name)	EPBC Status	BC Status	Credit type	Likely occurrence in study area
Acacia chrysotricha Newry Golden Wattle	Not Listed	Endangered	Species	Low
Acronychia littoralis Scented Acronychia	Endangered	Endangered	Species	Low
Arthraxon hispidus Hairy Jointgrass	Vulnerable	Vulnerable	Species	Medium
Asperula asthenes Trailing Woodruff	Vulnerable	Vulnerable	Species	Medium
Bertya sp. Clouds Creek (M. Fatemi 4)	Endangered	Not Listed	Species	Low
Belvisia mucronata Needle-leaf Fern	Not Listed	Endangered	Species	Medium
Boronia umbellata Orara Boronia	Vulnerable	Vulnerable	Species	Medium
Corynocarpus rupestris subsp. *rupestris* Glenugie Karaka	Vulnerable	Vulnerable	Species	Low
Cryptostylis hunteriana Leafless Tongue Orchid	Vulnerable	Vulnerable	Species	Low
Cynanchum elegans White-flowered Wax Plant	Endangered	Endangered	Species	Medium
Danhatchia copelandii	Not Listed	Critically Endangered	Species	Low
Dichanthium setosum Bluegrass	Vulnerable	Vulnerable	Species	Low
Endiandra hayesii Rusty Rose Walnut	Vulnerable	Vulnerable	Species	Low
Eucalyptus glaucina Slaty Red Gum	Vulnerable	Vulnerable	Species	Medium

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Species (scientific and common name)	EPBC Status	BC Status	Credit type	Likely occurrence in study area
Fontainea sp. Coffs Harbour (A. S. Benwell 341, NSW1102027)	Critically Endangered	Not Listed	Species	Low
Haloragis exalata subsp. *velutina* Tall Velvet Sea-berry	Vulnerable	Vulnerable	Species	Low
Hicksbeachia pinnatifolia Red Boppel Nut	Vulnerable	Vulnerable	Species	Medium
Macadamia integrifolia Macadamia Nut	Vulnerable	Not Listed	Species	Medium
Macadamia tetraphylla Rough-shelled Bush Nut	Vulnerable	Vulnerable	Species	Low
Marsdenia longiloba Slender Marsdenia	Vulnerable	Endangered	Species	Medium
Niemeyera whitei Rusty Plum, Plum Boxwood	Not Listed	Vulnerable	Species	Medium
Oberonia titania Red-flowered King of the Fairies	Not Listed	Endangered	Species	Low
Owenia cepiodora Onion Cedar	Vulnerable	Vulnerable	Species	Low
Parsonsia dorrigoensis Milky Silkpod	Endangered	Vulnerable	Species	Low
Persicaria elatior Tall Knotweed	Vulnerable	Vulnerable	Species	Low
Phaius australis Southern Swamp Orchid	Endangered	Endangered	Species	Low
Plectranthus nitidus	Endangered	Endangered	Species	Low

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Species (scientific and common name)	EPBC Status	BC Status	Credit type	Likely occurrence in study area
Nightcap Plectranthus				
Quassia sp. Moonee Creek Moonee Quassia	Endangered	Endangered	Species	Low
Rhodamnia rubescens Scrub Turpentine	Critically Endangered	Critically Endangered	Species	Medium
Rhodomyrtus psidioides Native Guava	Critically Endangered	Critically Endangered	Species	Medium
Samadera sp. Moonee Creek (J. King s.n. Nov 1949)	Endangered	Endangered	Species	Low
Sarcochilus fitzgeraldii Ravine Orchid	Vulnerable	Vulnerable	Species	Low
Sarcochilus hartmannii Hartman's Sarcochilus	Vulnerable	Vulnerable	Species	Low
Senna acclinis Rainforest Cassia	Not Listed	Endangered	Species	Low
Syzygium hodgkinsoniae Red Lilly Pilly	Vulnerable	Vulnerable	Species	Low
Thesium australe Austral Toadflax	Vulnerable	Vulnerable	Species	Low
Tinospora smilacina Tinospora Vine	Not Listed	Endangered	Species	Low
Tylophora woollsii Cryptic Forest Twiner	Endangered	Endangered	Species	Medium
Typhonium sp. aff. *brownii* Stinky Lily	Not Listed	Endangered	Species	Low
Zieria prostrata Headland Zieria	Endangered	Endangered	Species	Low

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Table 6 Threatened fauna species predicted to occur within the study area

Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
Birds						
Actitis hypoleucos Common Sandpiper	Migratory	Not Listed	-		Y	Low
Anthochaera phrygia Regent Honeyeater	Critically endangered	Critically endangered	Species/ Ecosystem	Y	Y	Low
Apus pacificus Fork-tailed Swift	Migratory	Not Listed	Ecosystem		Y	Low
Ardenna pacifica Wedge-tailed Shearwater	Migratory	Not Listed	-		Y	Low
Ardenna tenuirostris Short-tailed Shearwater	Migratory	Not Listed	-		Y	Low
Atrichornis rufescens Rufous Scrub-bird	Endangered	Vulnerable	Species			Medium
Botaurus poiciloptilus Australasian Bittern	Endangered	Endangered	Ecosystem			Low
Calidris acuminata Sharp-tailed Sandpiper	Vulnerable/ Migratory	Not Listed	Species/ Ecosystem		Y	Low
Calidris canutus Red Knot	Vulnerable/ Migratory	Not Listed	Species/ Ecosystem		Y	Low
Calidris ferruginea			Species/	Y	Y	Low

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Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
Curlew Sandpiper	Critically Endangered/ Migratory	Critically Endangered	Ecosystem			
Calidris melanotos Pectoral Sandpiper	Migratory	Not Listed	-		Y	Low
Calyptorhynchus lathami lathami South-Eastern Glossy Black-Cockatoo	Vulnerable	Vulnerable	Species/ Ecosystem			Medium
Charadrius leschenaultii Greater Sand-plover	Vulnerable/ Migratory	Vulnerable	Species/ Ecosystem		Y	Low
Climacteris picumnus victoriae Brown Treecreeper (south-eastern subspecies)	Vulnerable	Vulnerable	Ecosystem			Medium
Cuculus optatus Oriental Cuckoo	Migratory	Not Listed	-		Y	Low
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot	Critically Endangered	Critically Endangered	Species	Y		Low
Black-necked Stork *Ephippiorhynchus asiaticus*	Not listed	Endangered	Ecosystem			Medium
Ephippiorhynchus asiaticus Black-necked Stork	Not Listed	Endangered	Ecosystem			Medium
Erythrotriorchis radiatus Red Goshawk	Endangered	Endangered	Species	Y		Low

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Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
Falco hypoleucos Grey Falcon	Vulnerable	Vulnerable	-			Low
Gallinago hardwickii Latham's Snipe	Vulnerable/ Migratory	Vulnerable	Ecosystem		Y	Medium
Grantiella picta Painted Honeyeater	Vulnerable	Vulnerable	Ecosystem			Medium
Haematopus fuliginosus Sooty Oystercatcher	Not listed	Vulnerable	-			Low
Haematopus longirostris Pied Oystercatcher	Not listed	Endangered	-			Low
Haliaeetus leucogaster White-bellied Sea-Eagle	Not Listed	Vulnerable	Species/ Ecosystem			Medium
Hieraaetus morphnoides Little Eagle	Not listed	Vulnerable	Species/ Ecosystem			Medium
Hirundapus caudacutus White-throated Needletail	Vulnerable/ Migratory	Vulnerable	Ecosystem		Y	Medium
Lathamus discolor Swift Parrot	Critically Endangered	Endangered	Species/ Ecosystem	Y	Y	Medium
Lophoictinia isura Square-tailed Kite	Not Listed	Vulnerable	Species/ Ecosystem			Low
Melanodryas cucullata cucullata	Endangered	Endangered	Ecosystem			Low

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Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
South-eastern Hooded Robin, Hooded Robin (south-eastern)						
Monarcha trivirgatus Spectacled Monarch	Migratory	Not listed	-			Low
Motacilla flava Yellow Wagtail	Migratory	Not listed	-			Low
Neophema chrysostoma Blue-winged Parrot	Vulnerable	Vulnerable	-		Y	Low
Ninox connivens Barking Owl	Not Listed	Vulnerable	Species			Medium
Ninox strenua Powerful Owl	Not Listed	Vulnerable	Species			Medium
Numenius madagascariensis Eastern Curlew	Critically Endangered/ Migratory	Critically Endangered	Species/ Ecosystem		Y	Low
Pandion cristatus Eastern Osprey, Australian Osprey	Not Listed	Vulnerable	Species/ Ecosystem			Low
Pandion haliaetus Osprey	Migratory	Vulnerable	-		Y	Low
Parvipsitta pusilla Little Lorikeet	Not listed	Vulnerable	Ecosystem			Medium
Ptilinopus magnificus	Not Listed	Vulnerable	Ecosystem			Medium

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Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
Wompoo Fruit-Dove						
Ptilinopus regina Rose-crowned Fruit-Dove	Not Listed	Vulnerable	Ecosystem			Medium
Rostratula australis Australian Painted Snipe	Endangered	Endangered	Ecosystem			Low
Stagonopleura guttata	Vulnerable	Vulnerable	Ecosystem			Low
Diamond Firetail						
Sternula nereis nereis Australian Fairy Tern	Vulnerable	Not listed	Species			Low
Thalasseus bergii Crested Tern	Migratory	Not listed	-			Low
Tringa nebularia Common Greenshank	Endangered/ Migratory	Endangered	-		Y	Low
Turnix melanogaster	Vulnerable	Critically Endangered	Species	Y		Low
Black-breasted Button-quail						
Tyto novaehollandiae Masked Owl	Not Listed	Vulnerable	Species			Medium
Tyto tenebricosa Sooty Owl	Not Listed	Vulnerable	Species	Y		Medium
Mammals						

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Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
Aepyprymnus rufescens Rufous Bettong	Not Listed	Vulnerable	Species			Medium
Cercartetus nanus Eastern Pygmy-possum	Not Listed	Vulnerable	Species			Medium
Chalinolobus dwyeri Large-eared Pied Bat	Endangered	Endangered	Species/ Ecosystem	Y		Low
Dasyurus maculatus Spotted-tailed Quoll	Endangered	Vulnerable	Ecosystem			Low
Falsistrellus tasmaniensis Eastern False Pipistrelle	Not listed	Vulnerable	Ecosystem			Low
Micronomus norfolkensis Eastern Coastal Free-tailed Bat	Not listed	Vulnerable	Ecosystem			Medium
Miniopterus australis Little Bent-winged Bat	Not Listed	Vulnerable	Species/ Ecosystem	Y		Medium
Miniopterus orianae oceanensis Large Bent-winged Bat	Not Listed	Vulnerable	Species/ Ecosystem	Y		Medium
Myotis macropus Southern Myotis	Not Listed	Vulnerable	Species			Medium
Notamacropus parma Parma Wallaby	Vulnerable	Vulnerable	Species			Low
Petauroides volans Southern Greater Glider	Endangered	Endangered	Species			Medium

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Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
Petaurus australis Yellow-bellied Glider	Not listed	Vulnerable	Species			Medium
Petaurus australis australis (south-eastern) Yellow-bellied Glider	Vulnerable	Vulnerable	Species			Low
Petrogale penicillata Brush-tailed Rock-wallaby	Vulnerable	Endangered	Species	Y		Low
Phascolarctos cinereus Koala	Endangered	Vulnerable	Species			Medium
Phoniscus papuensis Golden-tipped Bat	Not Listed	Vulnerable	Ecosystem			Low
Potorous tridactylus Long-nosed Potoroo *Pseudomys novaehollandiae* New Holland Mouse	Vulnerable Vulnerable	Vulnerable Vulnerable	Species Ecosystem			Low Low
Pseudomys gracilicaudatus Eastern Chestnut Mouse *Pseudomys oralis* Hastings River Mouse	Not Listed Endangered	Vulnerable Endangered	Ecosystem Ecosystem			Low Low
Pteropus poliocephalus Grey-headed Flying-fox	Vulnerable	Vulnerable	Species/ Ecosystem			Medium

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Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
Amphibians						
Assa darlingtoni Pouched Frog	Vulnerable	Vulnerable	Species			Low
Litoria aurea Green and Golden Bell Frog	Vulnerable	Endangered	Species			Low
Litoria brevipalmata Green-thighed Frog	Not Listed	Vulnerable	Species			Low
Litoria olongburensis Wallum Sedge Frog	Vulnerable	Vulnerable	Species			Low
Mixophyes balbus Stuttering Frog	Vulnerable	Endangered	Species	Y		Low
Mixophyes iteratus Giant Barred Frog	Vulnerable	Vulnerable	Species			Low
Philoria sphagnicolus Sphagnum Frog	Vulnerable	Vulnerable	Species			Low
Reptiles/Fish						
Coeranoscincus reticulatus Three-toed Snake-tooth Skink	Vulnerable	Vulnerable	Species			Low
Harrisoniascincus zia	Vulnerable	Vulnerable	-			Low

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Species (Scientific name and common name)	EPBC Status	BC Status (and/or FM Act status)	Credit Type	SAII	Migratory/Nomadic/Vagrant	Likely occurrence in the study area
Rainforest Cool-skink						
Hoplocephalus bitorquatus Pale-headed Snake	Not Listed	Vulnerable	Species			Low
Hoplocephalus stephensii Stephens' Banded Snake	Not Listed	Vulnerable	Species			Low
Myuchelys georgesi Bellinger River Snapping Turtle	Critically Endangered	Critically Endangered	Species			Low
Saltuarius moritzi New England Leaf-tailed Gecko	Endangered	Not listed	-			Low
Fish						
Maccullochella ikei Eastern Freshwater Cod	Endangered	BC Act: Not Listed FM Act: Endangered	-			Low
Insects						
Argynnis hyperbius inconstans Australian Fritillary	Critically Endangered	Endangered	-			Low
Phyllodes imperialis smithersi Pink Underwing Moth	Endangered	Endangered	-			Low

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Table 7 Threatened ecological communities recorded or predicted to occur within 5 km of the study area

TEC Name	Likelihood of occurrence	EPBC listing	BC listing
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Known	Not Listed	Endangered Ecological Community
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Community may occur within area	Endangered	Not Listed
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Known	Not Listed	Endangered Ecological Community
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Known	Not Listed	Endangered Ecological Community
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	Known	Not Listed	Endangered Ecological Community
Lowland Rainforest of Subtropical Australia	Community may occur within area	Critically Endangered Ecological Community	Not Listed
Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	Known	Not Listed	Endangered Ecological Community
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	Known	Not Listed	Endangered Ecological Community
Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	Known	Not Listed	Endangered Ecological Community

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Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Community may occur within area	Endangered Ecological Community	Not Listed
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Known	Not Listed	Endangered Ecological Community
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Known	Not Listed	Endangered Ecological Community
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	Known	Not Listed	Endangered Ecological Community
White Box Yellow Box Blakely's Red Gum Woodland	Predicted	Critically Endangered Ecological Community	Not Listed
White Gum Moist Forest in the NSW North Coast Bioregion	Known	Not Listed	Endangered Ecological Community

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Appendix 4 Species recorded from the study area

Table 8 Flora species recorded from the study area

Status	Scientific name	Common name
Native species		
	Acacia melanoxylon	Blackwood
	Alphitonia excelsa	Red Ash
	Araucaria cunninghamii	Hoop Pine
	Archontophoenix cunninghamiana	Bangalow Palm
	Asplenium australasicum	Bird's Nest Fern
	Callicoma serratifolia	Black Wattle
	Carex brunnea	Greater Brown Sedge
	Cassia spp.	-
	Casuarina cunninghamiana subsp. *cunninghamiana*	River Oak
	Centella asiatica	Indian Pennywort
	Centella spp.	-
	Commelina cyanea	Native Wandering Jew
	Cordyline stricta	Narrow-leaved Palm Lily
	Cyathea cunninghamii	Slender Tree fern
	Cynodon dactylon	Common Couch
	Desmodium spp.	Tick-trefoil
	Dichondra repens	Kidney Weed
	Diplazium australe	Austral Lady Fern
	Endiandra muelleri	Green-leaved Rose Walnut
	Eucalyptus grandis	Flooded Gum
	Eucalyptus microcorys	Tallowwood
	Eucalyptus saligna	Sydney Blue Gum
	Ficus macrophylla subsp. *macrophylla*	Moreton Bay Fig
	Geranium solanderi	Native Geranium
	Gleichenia spp.	-

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Status	Scientific name	Common name
	Juncus spp.	-
	Lobelia purpurascens	Whiteroot
	Lomandra hystrix	-
	Lomandra longifolia	Spiny-headed Mat-rush
	Lophostemon confertus	Brush Box
	Melaleuca sp.	-
	Microlaena stipoides	Weeping Grass
	Microsorum scandens	Fragrant Fern
	Neolitsea dealbata	Hairy-leaved Bolly Gum
	Oplismenus aemulus	-
	Ozothamnus diosmifolius	White Dogwood
	Parsonia straminea	Common Silkpod
	Pittosporum multiflorum	Orange Thorn
	Pittosporum undulatum	Sweet Pittosporum
	Platycerium bifurcatum	Elkhorn Fern
	Platycerium superbum	Staghorn
	Pteridium esculentum	Bracken
	Ranunculus spp.	-
	Sarcopteryx stipata	Steelwood
	Senna spp.	-
	Setaria spp.	-
	Sloanea australis	Maiden's Blush
	Sloanea woollsii	Yellow Carabeen
	Spiranthes australis	Ladies' Tresses
	Toona ciliata	Red Cedar
	Tristaniopsis laurina	Kanooka
Exotic species		
	Acer buergerianum	-
	Ageratina spp.	-

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Status	Scientific name	Common name
	Axonopus compressus	Broad-leaved Carpet Grass
	Bidens pilosa	Cobbler's Pegs
	Cenchrus clandestinus	Kikuyu Grass
	Cinnamomum camphora	Camphor Laurel
	Cirsium vulgare	Spear Thistle
	Cuphea carthagenensis	-
	Cyperus brevifolius	-
	Cyperus eragrostis	Umbrella Sedge
	Digitaria sanguinalis	Crab Grass
	Hypochaeris radicata	Catsear
	Jacaranda spp.	-
	Lantana camara	Lantana
	Ligustrum lucidum	Large-leaved Privet
	Ligustrum sinense	Small-leaved Privet
	Ligustrum vulgare	European Privet
	Lolium rigidum	Wimmera Ryegrass
	Lonicera japonica	Japanese Honeysuckle
	Paspalum dilatatum	Paspalum
	Paspalum notatum	Bahia Grass
	Paspalum quadrifarium	Tussock Paspalum
	Passiflora subpeltata	White Passionflower
	Pinus spp.	-
	Plantago lanceolata	Lamb's Tongues
	Rubus fruticosus sp. agg.	Blackberry complex
	Rumex conglomeratus	Clustered Dock
	Senecio madagascariensis	Fireweed
	Setaria pumila	Pale Pigeon Grass
	Setaria sphacelata	South African Pigeon Grass
	Solanum mauritianum	Wild Tobacco Bush

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Status	Scientific name	Common name
	Sporobolus africanus	Parramatta Grass
	Trifolium repens	White Clover
	Trifolium spp.	-
	Verbena bonariensis	Purpletop

Table 9 Fauna species recorded from the study area

Scientific Name	Common Name	EPBC Act status	NSW status
Birds			
Chenonetta jubata	Australian Wood Duck	-	-
Corvus coronoides	Australian Raven	-	-
Sphecotheres vieilloti	Australasian Figbird	-	-
Gymnorhina tibicen	Australian Magpie	-	-
Ceyx azureus	Azure Kingfisher	-	-
Geopelia humeralis	Bar-shouldered Dove	-	-
Macropygia phasianella	Brown Cuckoo-Dove	-	-
Eurystomus orientalis	Dollarbird	-	-
Gallinula tenebrosa	Dusky Moorhen	-	-
Platycercus eximius	Eastern Rosella	-	-
Acanthorhynchus tenuirostris	Eastern Spinebill	-	-
Psophodes olivaceus	Eastern Whipbird	-	-
Eopsaltria australis	Eastern Yellow Robin	-	-
Rhipidura albiscapa	Grey Fantail	-	-
Accipiter novaehollandiae	Grey Goshawk	-	-
Dacelo novaeguineae	Laughing Kookaburra	-	-
Meliphaga lewinii	Lewin's Honeyeater	-	-
Phalacrocorax sulcirostris	Little Black Cormorant	-	-
Anthochaera chrysoptera	Little Wattlebird	-	-
Grallina cyanoleuca	Magpie-lark	-	-
Vanellus miles	Masked Lapwing	-	-
Manorina melanocephala	Noisy Miner	-	-

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Aviceda subcristata	Pacific Baza	-	-
Anas superciliosa	Pacific Black Duck	-	-
Ninox strenua	Powerful Owl	-	vu
Trichoglossus haematodus	Rainbow Lorikeet	-	-
Neochmia temporalis	Red-browed Finch	-	-
Ptilonorhynchus violaceus	Satin Bowerbird	-	-
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	-	-
Cacatua galerita	Sulphur-crested Cockatoo	-	-
Podargus strigoides	Tawny Frogmouth	-	-
Corvus orru	Torresian Crow	-	-
Hirundo neoxena	Welcome Swallow	-	-
Haliaeetus leucogaster	White-bellied Sea-Eagle	-	vu
Columba leucomela	White-headed Pigeon	-	-
Rhipidura leucophrys	Willie Wagtail	-	-
Zanda funerea	Yellow-tailed Black-Cockatoo	-	-
Mammals			
Ornithorhynchus anatinus	Platypus	-	-
Pteropus poliocephalus	Grey-headed Flying-fox	VU	vu
Reptiles			
Morelia spilota mcdowelli	Eastern Carpet Python	-	-
Intellagama lesueurii lesueurii	Eastern Water Dragon	-	-
Cacophis krefftii	Southern Dwarf Crowned Snake	-	-
Frogs			
Litoria dentata	Bleating Tree Frog	-	-
Litoria fallax	Eastern Dwarf Tree Frog	-	-
Mixophyes iteratus	Giant Barred Frog	VU	vu
Litoria phyllochroa	Leaf-green Tree Frog	-	-
Litoria peronii	Peron's Tree Frog	-	-
Adelotus brevis	Tusked Frog	-	-
Exotic species			
Cervus timorensis	Rusa Deer	-	-

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Appendix E Preliminary Traffic Assessment (PDC Consultants, 2026)

Ref: 25.013r01v03

12/05/2026

Avenis Energy Pty Ltd
Suite 2, Level 10, 52 Alfred St S
Milsons Point, NSW 2061

RE: KARANGI BATTERY ENERGY STORAGE SYSTEM, COFFS HARBOUR
TRANSPORT IMPACT ASSESSMENT
SCOPING ASSESSMENT

Dear Emma Bathgate,

PDC Consultants has been commissioned to prepare a Scoping Assessment (assessment) for the State Significant Development Application (SSDA) relating to the proposed Karangi Battery Energy Storage System (BESS) in Coffs Harbour (The Project). The proposed facility will provide large scale battery storage to support network reliability and the integration of renewable energy into the National Electricity Market. The assessment will highlight key environmental and transport considerations to inform the Secretary's Environmental Assessment Requirements (SEARs). Specifically, the application seeks development consent for the construction, operation and decommissioning of a grid scale battery energy storage facility and associated electrical and site infrastructure consisting of:

- Construction of a large scale battery facility capable of storing and dispatching electricity to support the grid.
- Installation of associated electrical infrastructure to connect the facility to the 330 kV transmission network.
- Development of supporting site infrastructure including access, internal roads, and operational facilities.

The indicative plans, prepared by Avenis Energy, are provided as **Attachment 1**.

LOCATION AND SITE

The proposed Karangi BESS is located at 50 Casuarina Lane, Karangi, within the Coffs Harbour City Council local government area. The Project site includes the Coffs Harbour Transgrid Substation and comprises Lot 222 of DP 601871, Lot 6 of DP 560766, Lot 4 and 5 of DP 560766, Lot 101 of DP 603409, Lot 1 of DP 1083920 and Lot 1 of DP 109727. The Project site is approximately 11 kilometres northwest of Coffs Harbour Train Station and is situated in a predominantly rural setting characterised by low density development, expansive vacant land holdings and existing electricity infrastructure.

The Project site has frontage to Casuarina Lane, Upper Orara Road and the North Coast NSW line between Coffs Harbour and Grafton Railway Station.

It is worth noting that a major NSW project, being the Coffs Harbour Bypass, is located nearby to the east of the Project. The Coffs Harbour Bypass is a major upgrade of approximately 14 kilometres of the Pacific Highway between the Sawtell and Sapphire Beach interchanges. The project includes 11 kilometres of new highway and 3.4 kilometres of upgraded sections, forming a four lane divided motorway designed to improve safety and traffic efficiency. The project is currently under construction and is scheduled to be open to traffic in late 2026. A new interchange onto Coramba Road is include within the delivery of the bypass.

Under the Coffs Harbour Local Environmental Plan (CHLEP), the land is zoned RU2 Rural Landscape. The surrounding land is largely undeveloped and comprises vacant rural allotments. The TransGrid Coffs Harbour Substation is located within the Project site.

Figure 1 and Figure 2 provide an appreciation of the Project site's location in both a local and board context, respectively.

PURPOSE OF THE ASSESSMENT

This assessment has been prepared to support the request for the SEARs for the proposed Karangi BESS. The purpose of this assessment is to undertake an initial high-level assessment of the likely traffic and transport implications associated with the construction, operation and decommissioning of the project. At this stage, the assessment does not provide detailed modelling or design but instead identifies the key transport matters that will require further investigation.

The report specifically considers preliminary construction traffic generation, workforce movements, site access arrangements, potential road upgrades, and the identification of likely Over Size Over Mass vehicle (OSOM) routes associated with the delivery of major plant and equipment.

This assessment is intended to inform the scope of detailed transport investigations to be undertaken at the Environmental Impact Statement (EIS) stage and to ensure that relevant traffic and transport matters are appropriately addressed within the SEARs.

PROJECT OVERVIEW

The Karangi BESS is a proposed grid scale energy infrastructure project comprising a battery facility with a capacity of up to 240 MW with a four-hour storage duration. The project is intended to connect into the existing TransGrid 330 kV transmission network and will support the stability and reliability of the National Electricity Market by enabling the storage and dispatch of electricity during periods of peak demand.

The facility will operate by storing excess electricity generated during low demand periods and releasing it back to the grid when required, thereby improving network flexibility and supporting the integration of renewable energy sources. The development represents critical energy infrastructure designed to respond to fluctuations in supply and demand and to enhance overall system resilience.

EXISTING CONDITIONS

Surrounding Road Network

The Project site is accessed via Casuarina Lane, which provides the primary point of entry to the proposed development. Casuarina Lane operates within a rural environment and is subject to a speed limit of 100 km/h, reflecting its function as a low volume rural road servicing dispersed rural allotments in the Karangi locality. Given its rural setting, traffic volumes are expected to be low. However, no formal traffic count data is currently available to confirm existing volumes. Casuarina Lane is a rural no-through road that primarily functions as a local access road rather than a broader through traffic corridor.

Upper Orara Road forms an important link within the broader local road network and is subject to an 80 km/h speed limit, consistent with its rural setting and function as a connector road. It provides access between the surrounding rural areas and Coramba Road, which operates under a 50 km/h speed limit through developed sections closer to

Coffs Harbour. Coramba Road facilitates connectivity between rural hinterland areas and the wider Coffs Harbour region, accommodating a mix of local, commuter and service vehicle movements within a semi urban environment.

The Pacific Highway is the nearest major highway to the Project site and forms part of the State road network. It carries high volumes of traffic and functions as a principal north south transport corridor along the eastern seaboard. The Australian and NSW government is investing in the Coffs Harbour bypass project, which is currently under construction. The Environmental Impact Statement details that in 2024, the existing traffic volume on the Pacific Highway south of Albany Street in Coffs Harbour is approximately 31,700 vehicles per day. With the bypass in place, this volume is forecast to reduce to around 19,100 vehicles per day, representing a significant decrease of approximately 12,600 vehicles per day. By 2034, the EIS forecast that without the bypass there would be 33,300 daily vehicles compared to 20,400 with the bypass. This substantial reduction in through traffic is expected to noticeably improve traffic flow within the Coffs Harbour CBD, easing congestion, improving travel times, and enhancing overall network performance through the town centre. With the bypass in place, the daily traffic volume north and south of Coramba Road is estimated to be 22,300 and 26,400 respectively, by 2034.

For Coramba Road in 2024, traffic volumes vary by section. Between Shephards Lane and the bypass, volumes are predicted to increase from about 8,300 vehicles per day without the project to approximately 9,400 vehicles per day with the bypass, reflecting a redistribution of traffic toward the Coramba Road interchange. However, west of the bypass (towards the Karangi BESS), volumes are expected to remain largely unchanged or slightly decrease, from around 6,800 vehicles per day without the bypass to approximately 6,700 vehicles per day with the bypass and remain generally unchanged to 2034. These changes indicate a shift in traffic patterns rather than a substantial overall increase in demand. Importantly, with the provision of the new bypass, overall network capacity will improve, and access to the broader regional road network will become more efficient, resulting in improved connectivity and smoother traffic movements.

The broader road network therefore comprises a transition from low volume rural roads near the Project site to high-capacity arterial infrastructure at the Pacific Highway, which would form a critical component of the regional haulage route for construction and OSOM vehicle movements. The exact haulage route for heavy vehicles, worker access route for the construction, operation and decommissioning of the project will be confirmed in the EIS. This will require consultation with the City of Coffs Harbour Council and Transport for New South Wales (TfNSW).

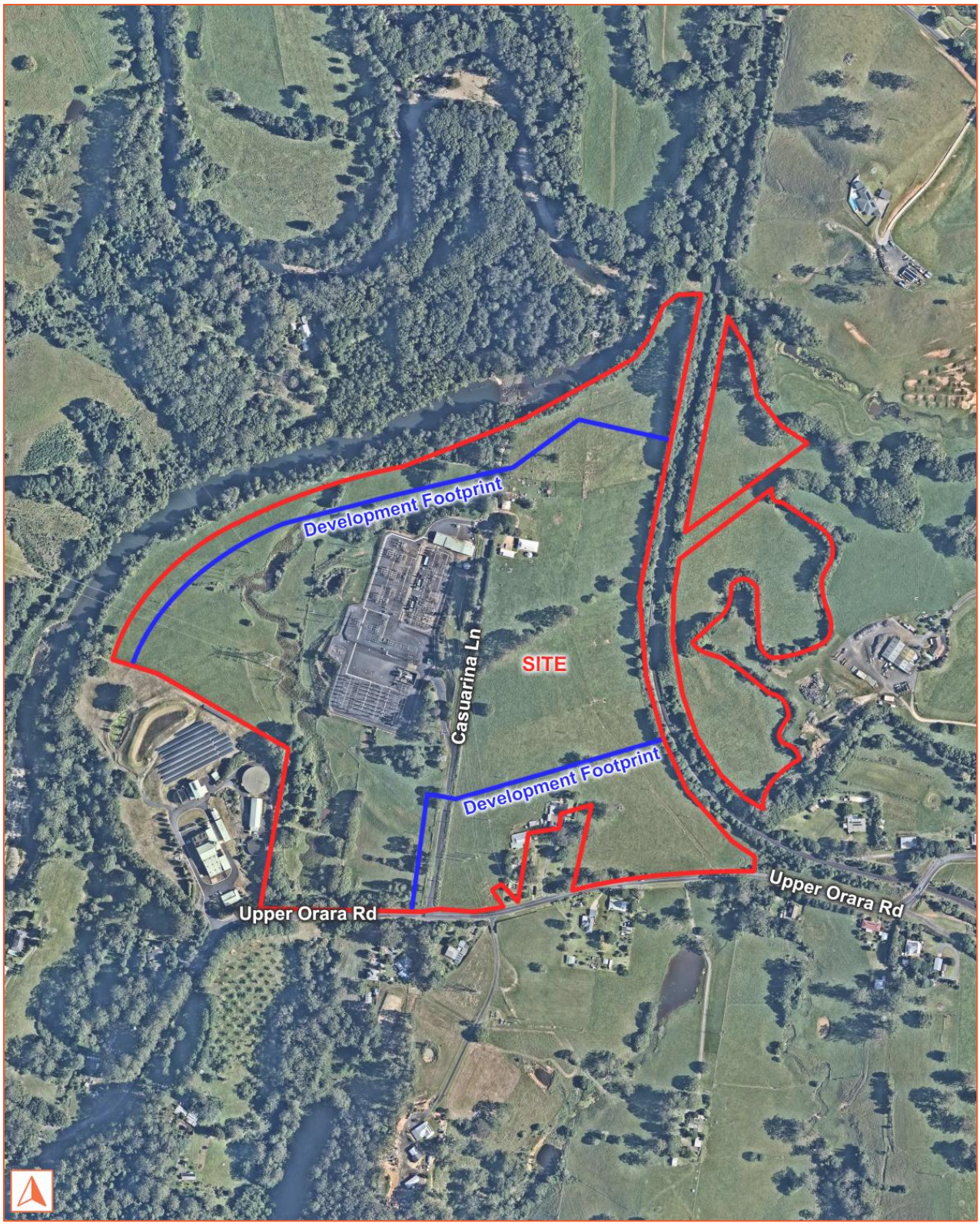


Figure 1: Project Site

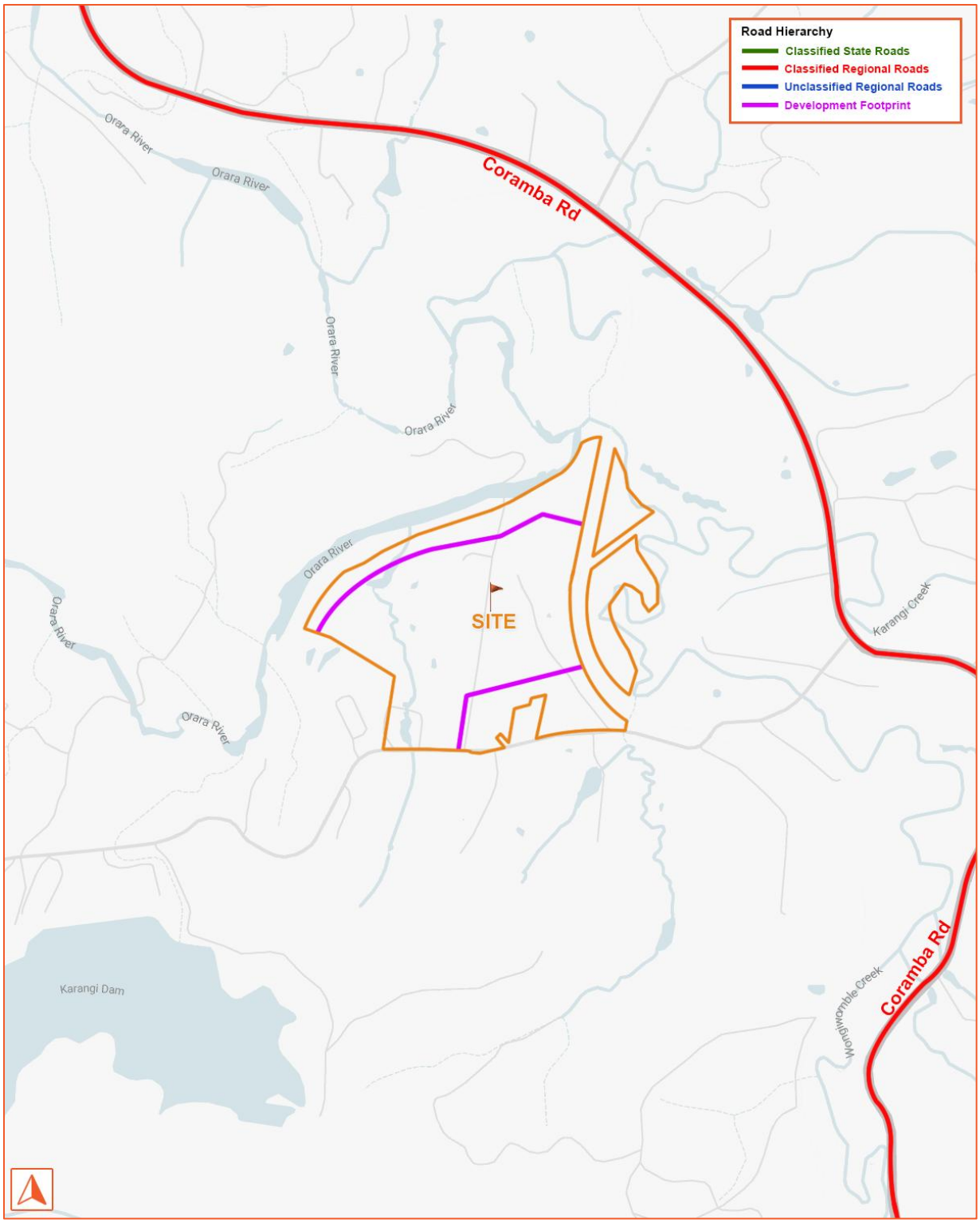


Figure 2: Road Hierarchy

Intersection layout

Two key intersections have been identified in the vicinity of the Project site which will require detailed consideration as part of the EIS. The first is the intersection of Casuarina Lane and Upper Orara Road.

Casuarina Lane operates as a narrow single carriageway road accommodating two-way traffic movements with limited pavement width and constrained shoulders. Upper Orara Road functions as a two lane, two-way rural road forming a key local connector within the area. The intersection is configured as a priority controlled T intersection. Due to the narrow carriageway width of Casuarina Lane and the relatively tight turning geometry at the junction, the intersection may present constraints for heavy vehicles, particularly during turning movements associated with construction traffic. This is further impacted by the intersections location near a horizontal crest on Upper Orara Road. These constraints will be assessed further, including consideration of swept path requirements for larger vehicles. Aerial imagery of this intersection is provided in **Figure 3**.

The second critical intersection is located at Coramba Road and Upper Orara Road. Coramba Road operates as a two-lane, two-way road and carries higher traffic volumes relative to local rural roads in the area. Similar to the Casuarina Lane intersection, this junction is configured as a T intersection with priority control and incorporates a Basic Right (BAR) turn treatment, whereby a southbound through vehicle on Coramba Road has the ability to pass a right turning vehicle waiting to turn into Upper Orara Road. The carriageway widths are generally consistent with rural road standards, and the geometry appears adequate for standard vehicle movements. Based on preliminary review, sight lines at this intersection appear satisfactory, with sufficient sight distance of oncoming traffic and no significant visual obstructions that would obscure potential hazards. Aerial imagery of this intersection is provided in **Figure 4**.

Both intersections will be subject to further detailed assessment in the EIS to determine whether geometric improvements, traffic control measures or temporary construction management treatments are required to safely accommodate project related traffic.

Figure 3: Casuarina Lane and Upper Orara Road Intersection

Figure 4: Coramba Road and Upper Orara Road Intersection

Public Transport

Public transport accessibility in the vicinity of the Project site is limited due to the rural nature of the locality. There are no train stations within close proximity to the Project site, with the nearest being Coffs Harbour Railway Station, located approximately 11 kilometres to the southeast. Similarly, the nearest bus stop is located approximately 4 kilometres from the Project site, and regular bus services do not operate along Casuarina Lane or Upper Orara Road. As a result, public transport options for accessing the Project site are minimal. Given this context, construction and operational workforce travel is expected to rely primarily on private vehicle access. The limited availability of public transport infrastructure reinforces the low level of public transport demand in the area and indicates that the Project is unlikely to have any material impact on existing public transport services.

Notwithstanding the limited general public transport provision in the area, a dedicated school bus service operates to support local education access. There is an established school bus service that provides dedicated public transport access to Karangi Public School and the surrounding communities. The service connects Karangi with Coramba, Upper Orara and parts of Coffs Harbour, ensuring students have reliable transport to and from the school. The morning service operates once daily, departing at approximately 7:43 AM and arriving prior to the commencement of classes. In the afternoon, a return service departs the school at around 2:55 PM to distribute students back to surrounding residential areas. The route travels along key roads including Coramba Road and the Pacific Highway, linking rural and semi rural areas to the school. This service is purpose specific and operates only in line with school hours, and therefore does not materially alter the overall limited public transport accessibility of the Project site.

Active Transport

The surrounding area is characterised by a rural road environment with limited active transport infrastructure. There are no dedicated footpaths, shared paths or marked cycle lanes within the immediate vicinity of the Project site. The

local road network, including Casuarina Lane and Upper Orara Road, primarily functions to service rural properties and carries relatively low pedestrian demand. Development in the locality is sparse and dispersed, with no notable commercial, retail or community destinations within walking distance of the Project site.

The absence of formal pedestrian infrastructure, combined with rural road cross sections and narrow shoulders, makes the surrounding environment generally unsuitable for regular walking activity. Similarly, the topography of the area includes sloping sections and variable gradients which are not ideal for cycling.

Karangi Public School is located near the intersection of Coramba Road and Upper Orara Road. However, given the rural context, it is anticipated that students are predominantly transported by private vehicle or dedicated school bus services rather than walking or cycling.

The nearest established cycling infrastructure is located within the Coffs Harbour urban area, where a network of shared paths, road shoulders and general traffic roads accommodates recreational and commuter cycling. These facilities are located some distance from the Project site and are not directly connected to the local rural road network surrounding the Project site. Overall, active transport infrastructure within the immediate vicinity of the Project site is limited, and pedestrian and cyclist demand is low.

While the immediate Project site area lacks formal active transport facilities, the broader Coffs Harbour and Orara region does contain a number of established cycling routes. However, these are primarily recreational in nature and not intended to function as daily commuter corridors to the Project site. Within the Orara and Karangi area, routes such as the Upper Orara Loop, Eastbank Road and the "Big Block" ride connect rural villages including Coramba, Nana Glen and Karangi via sealed rural roads with generally light traffic. These routes traverse scenic countryside, farmland and bushland areas, offering loop and return ride options of varying distances. While suitable for on road cycling, they are not dedicated commuter facilities and are mainly used for leisure.

Similarly, within the Coffs Harbour urban area, higher quality shared paths and cycleways such as the Coffs Creek Cycleway, Harbourside route and Eastside Circuit provide structured off road cycling opportunities; however, these facilities are geographically separated from the rural locality of the Project site and do not provide a continuous or practical cycling link to it. These facilities include sealed shared paths, boardwalk sections and designated bike lanes linking the CBD, harbour, beaches and parklands. Although some of these routes offer commuter connections within the urban area, they are predominantly recreational corridors with high amenity value, catering to leisure riders, families and tourists. Overall, cycling infrastructure in the vicinity of the Project site is focused on recreational use rather than daily transport demand.

TRAFFIC AND TRANSPORT IMPACTS

Construction Phase

The construction phase of the proposed Karangi BESS is expected to generate the highest level of traffic activity and therefore has the greatest potential to impact the surrounding road network. During this phase, the Project site will experience a combination of workforce movements, delivery of construction materials, transport of battery containers and major electrical infrastructure, and associated plant and equipment mobilisation. These activities will result in an increase in both light vehicle and heavy vehicle movements along Casuarina Lane, Upper Orara Road, Coramba Road and connecting routes to the Pacific Highway. Given the rural nature of the surrounding road network, including narrower carriageways and limited shoulder widths, the introduction of sustained construction traffic has the potential to influence intersection operations, pavement condition, traffic safety and general amenity for local road users. In particular, the delivery of oversized components may require careful route planning and traffic management to ensure safe and efficient access to the Project site. As such, the construction phase represents the period during which the most detailed assessment and management of traffic and transport impacts will be required within the EIS.

The delivery of large battery units and associated electrical infrastructure is expected to occur via maritime import through either the Port of Brisbane or the Port of Newcastle. Given the scale and dimensions of certain components, transport from the port to Project site may require the use of OSOM vehicles. The selection of port and subsequent route will depend on supplier logistics, shipping arrangements and permit requirements at the time of construction.

In the event that equipment is imported via the Port of Newcastle, a potential route to the Project site would involve travel from the port precinct via Industrial Drive, connecting to Maitland Road and then proceeding north along the Pacific Highway toward Coffs Harbour. At present, heavy vehicles must transition through the Coffs Harbour urban area via West High Street to connect to Coramba Road, before continuing along Upper Orara Road and accessing the Project site via Casuarina Lane. However, the Coffs Harbour Bypass is currently under construction and will provide a new alignment connecting back to the existing Pacific Highway near Englands Road to the south of the Project site, while also connecting directly to Coramba Road via a new interchange arrangement. Once completed and open to traffic at the end of 2026, the bypass will form the primary heavy vehicle access corridor, enabling movements to avoid the CBD and providing a more direct and higher capacity connection to the Project site.

Alternatively, if equipment is imported via the Port of Brisbane, vehicles may travel southbound via Port Drive, connecting to the Port of Brisbane Motorway, then the Gateway Motorway and Pacific Motorway before continuing south along the Pacific Highway toward Coffs Harbour. Upon reaching the project area, vehicles are expected to utilise the new Coffs Harbour Bypass infrastructure, which will connect the Pacific Highway at Korora Basin in the north and tie into Coramba Road near Bennetts Road. Two major roundabouts forming part of this interchange arrangement are currently under construction. From Coramba Road, vehicles would proceed via Upper Orara Road and Casuarina Lane to access the Project site.

These routes are preliminary and indicative only. Final haulage routes will be confirmed following consultation with the relevant road authorities and will be subject to detailed route assessment, permit requirements and OSOM approvals. Vehicles associated with the construction phase may include heavy vehicles up to the size of a B-Double, in addition to specialised OSOM vehicles for major components. The NSW NHVR website identifies approved and gazetted routes for heavy and OSOM vehicles. From the Port of Newcastle, the Pacific Highway is an approved B-Double route to Coffs Harbour and will connect directly to the new Coffs Harbour Bypass near Englands Road once operational. An exception applies at the Pacific Highway at Hexham, where specific approval is required prior to OSOM vehicle use.

From the Port of Brisbane, gazetted heavy vehicle routes apply from the port via the Port of Brisbane Motorway, Gateway Motorway and Pacific Motorway, which ultimately connect to the Pacific Highway at Glenugie. This route continues south toward Coffs Harbour and will interface with the new Coffs Harbour Bypass, ultimately providing access to Coramba Road. Further refinement of the preferred haulage route, including geometric assessment and swept path analysis at key intersections, will be undertaken as part of the detailed Traffic and Transport Assessment in the EIS.

Potential Construction Phase Impacts

The construction phase of the proposed Karangi BESS has the potential to generate temporary impacts on the surrounding transport network due to increased light and heavy vehicle movements, delivery of major electrical infrastructure and workforce access requirements. The following potential impacts have been identified for detailed assessment within the EIS

- Roadway Impacts
    - Given the relatively low existing daily traffic volumes on Casuarina Lane, Upper Orara Road and connecting local roads, the assessment will have regard to Austroads Guide to Road Design Part 3

Geometric Design and relevant TfNSW Supplements, which sets out road width and geometric standards for low volume rural roads based on traffic demand. An assessment of total daily traffic volumes, incorporating projected construction traffic, will be undertaken to determine whether the existing carriageway widths are adequate or whether localised widening, pavement strengthening or edge improvements are required. This will include a review of sight distance requirements along the proposed haulage and worker access routes to confirm that safe vehicle operation can be maintained with the addition of construction vehicles.

- An assessment of current road condition will also be undertaken to determine whether resurfacing, shoulder strengthening, sealing of narrow sections or other maintenance works may be necessary to accommodate sustained heavy vehicle movements.
- Any potential public road upgrades required to facilitate construction traffic will be confirmed during the detailed EIS assessment and developed in consultation with the relevant road authority. Where applicable, upgrade requirements will be considered in the context of other approved or proposed infrastructure works within the locality to ensure coordinated delivery and avoid duplication of road improvement measures.

- Intersection Impacts:
  - The level of service at key intersections along the proposed haulage and worker access routes is not expected to be significantly affected given the relatively low existing traffic volumes on the surrounding rural road network and the temporary nature of construction traffic. When projected construction traffic is combined with background traffic volumes, material degradation of intersection performance is not anticipated. Nevertheless, a detailed assessment will be undertaken as part of the EIS to review potential queuing, turning movements and capacity at the intersections of Casuarina Lane and Upper Orara Road, and Coramba Road and Upper Orara Road. This review will confirm that construction related turning movements do not adversely affect intersection operations or safety and will identify whether any mitigation measures are required.
  - The key intersections within the vicinity of the Project site are priority controlled T intersections with basic left and right turn treatments typical of rural road environments. In accordance with Austroads Guide to Traffic Management Part 6 Intersections, Interchanges and Crossings, warrants for auxiliary turning lanes are based on a combination of peak hour through traffic and turning traffic volumes. As part of the detailed EIS assessment, the intersections forming part of the proposed site access, worker and haulage routes will be assessed against the relevant Austroads warrants using peak hour traffic volumes incorporating projected construction traffic. The proposed site access on Casuarina Lane will also be assessed against Rural Property Access requirements in accordance with the Austroads Guide to Road Design to ensure appropriate geometric design, sight distance and safety compliance.
  - Safe Intersection Sight Distance (SISD) is defined in Austroads Guide to Road Design Part 4A as the minimum sight distance that should be provided on a major road at an intersection to allow drivers to safely enter or cross the traffic stream. As part of the detailed EIS assessment, a review of SISD will be undertaken at the proposed site access on Casuarina Lane where it interfaces with Upper Orara Road, as well as at other key intersections along the haulage route if required. Preliminary observations indicate that a localised crest on Upper Orara Road near the Casuarina Lane junction will require further investigation, whilst sight lines at the Upper Orara Road / Coramba Road junction appear generally adequate, with clear views of approaching traffic and no significant visual obstructions. However, detailed measurement and verification against Austroads requirements will be undertaken to confirm compliance under projected construction traffic conditions.
- OSOM Impacts:
  - The Pacific Highway provides the primary regional freight corridor and is an approved B Double route, facilitating access between the Project site and the Port of Newcastle or Port of Brisbane.

While sections of Coramba Road and Upper Orara Road accommodate general heavy vehicle movements, Casuarina Lane is a constrained rural road with limited carriageway width. The project will require the transport of major electrical infrastructure, including transformers and batteries, using OSOM vehicles, with two OSOM trips anticipated. As part of the EIS, the suitability of the proposed haulage route from the Pacific Highway to the Project site will be assessed, including turning requirements at the intersections of Coramba Road and Upper Orara Road, and Upper Orara Road and Casuarina Lane, carriageway widths, pavement strength and roadside constraints. Swept path analysis and detailed route verification will be undertaken to determine whether temporary traffic management measures or permanent road upgrades are required to safely accommodate OSOM movements.

- Given the potential transport of heavy electrical infrastructure and, where relevant, OSOM vehicles, the structural capacity and geometric suitability of bridges and culverts along the proposed haulage routes will be reviewed at a high-level. This will include review of any publicly displayed load limits, clearance constraints and any operational restrictions on structures within the regional and local road network. Consultation with the relevant road authority will be undertaken to confirm route suitability and any permit requirements. Should constraints be identified, appropriate mitigation measures, route adjustments or engineering assessments would be implemented to ensure that bridge assets are protected and that transport activities are undertaken safely and in accordance with regulatory requirements.

- Parking and Property Access Impacts:
    - There is no formal street parking provided along Coramba Road, Upper Orara Road or Casuarina Lane. Accordingly, no impacts to existing on street parking are anticipated, as construction workforce parking will be accommodated within the Project site. This will minimise the potential for informal parking along Casuarina Lane or Upper Orara Road. However, temporary impacts to property access along the proposed haulage and worker access routes may arise, particularly if localised widening, pavement strengthening or intersection upgrades are required. Any potential disruption to adjoining rural property driveways will be identified and appropriately managed as part of the detailed assessment in the EIS.
- Crown Land Impacts:
    - A review of land tenure will be undertaken to confirm whether any portion of the Project site, access arrangements or associated works interface with Crown land. Where Crown land is identified within or adjoining the project area, potential impacts on land use, access, easements and existing lawful activities will be considered. Any disturbance or use of Crown land, whether temporary or permanent, would be subject to consultation with the relevant land manager and compliance with the applicable legislative framework. Where required, appropriate approvals, licences or tenure arrangements would be secured prior to the commencement of works, and any affected land would be managed and rehabilitated in accordance with relevant statutory and environmental requirements.
- Public and School Bus Transport Impacts:
    - Construction related traffic volumes are anticipated to be relatively low when considered in the context of existing traffic volumes on Upper Orara Road and Coramba Road. As such, material impacts on public transport or school bus operations are not expected. However, given the proximity of Karangi Public School to the Coramba Road and Upper Orara Road intersection, potential interaction between construction vehicles and school bus services will be further assessed in the EIS once detailed construction traffic volumes and scheduling are confirmed.
- Active Transport Impacts:

- Due to the rural character of the locality, limited pedestrian infrastructure and distance from major activity centres, active transport demand in the immediate vicinity of the Project site is expected to be low. As such, significant impacts on pedestrian or cyclist movements are not anticipated. Notwithstanding this, any temporary road widening or intersection upgrade works along the haulage route will consider potential short term impacts on roadside users and will be assessed further in the EIS.

- Rail Corridor Impacts:
    - Direct use of the rail corridor or level crossings is not anticipated as part of the primary haulage or workforce access routes, as these movements are proposed to occur via the surrounding road network. The Project is proposed to be located on the Casuarina Lane side of the North Coast rail corridor only. As such, access between portions of the Project separated by the rail corridor is not expected to be required. However, any construction activities undertaken in proximity to the rail line would need to consider relevant rail authority requirements, approvals and asset protection measures. Coordination with the relevant rail authority and compliance with applicable standards would be required, where relevant, to ensure safe construction and ongoing operation.
- Road Safety Impacts:
    - A review of available crash data indicates that several incidents have occurred within the broader vicinity of the Project site, including a fatal crash and a number of serious and moderate injury crashes near the proposed bypass connection. Additionally, injury related crashes have been recorded at the intersection of Upper Orara Road and Coramba Road and in the vicinity of Casuarina Lane, generally associated with turning movements and loss of control on bends. These records are noted for contextual purposes only. As part of a detailed assessment, a comprehensive review of crash history along the proposed site access and haulage routes will be undertaken to identify any existing safety considerations. While the surrounding rural road network generally carries low traffic volumes, the introduction of additional heavy vehicle movements during construction has the potential to increase interaction at T intersections and along narrower carriageway sections. The assessment will consider crash trends, intersection geometry, sight distance, traffic volumes and composition to determine whether any targeted safety mitigation measures or design refinements are required.

Operations Phase

Traffic generation during the operational phase of the proposed Karangi BESS is expected to be minimal. Vehicle movements will generally be limited to routine inspection, monitoring and maintenance visits, as well as occasional specialist access for equipment servicing. These movements are anticipated to be infrequent and typically undertaken using light vehicles. As such, operational traffic is unlikely to result in any measurable impact on the surrounding road network, intersection performance, pavement condition or road safety.

Decommissioning Phase

At the end of the project's operational life, decommissioning activities will involve the removal of battery, electrical infrastructure and associated equipment from the Project site. Traffic associated with this phase is expected to be similar in nature to construction traffic, though likely over a shorter duration. Heavy vehicle and potentially OSOM movements may be required to remove major components. Detailed assessment of decommissioning traffic impacts will be undertaken closer to the end of the project life to confirm route suitability, safety requirements and any necessary mitigation measures.

ASSESSMENT APPROACH

The Traffic and Transport Assessment to be prepared as part of the EIS for the proposed Karangi BESS will adopt a structured and evidence based methodology to identify and quantify impacts associated with the construction, operation and decommissioning phases of the project. At the scoping stage, the focus is on identifying the key transport issues that warrant detailed assessment in response to the SEARs.

The assessment will commence with a comprehensive review of existing conditions, including the functional classification and hierarchy of Casuarina Lane, Upper Orara Road, Coramba Road and the Pacific Highway. Existing traffic volumes, including available Average Annual Daily Traffic (AADT) data for the Pacific Highway, intersection layouts, carriageway widths, pavement condition and heavy vehicle route status will be reviewed. A review of publicly available crash history data will also be undertaken to identify any existing safety constraints that may be influenced by additional project related traffic. The review will also consider public transport services and active transport infrastructure within the vicinity of the Project site to determine whether any interaction with construction traffic may arise.

The construction phase is anticipated to generate the highest level of traffic activity and will therefore form the primary focus of the detailed assessment. Traffic generation will be estimated having regard to construction staging, workforce numbers, delivery schedules and anticipated material quantities. This will include consideration of:

- Light vehicle trips associated with construction personnel.
- Heavy vehicle movements for delivery of battery and associated infrastructure.
- OSOM vehicle routes for major electrical equipment.
- Assessment of critical intersections along the proposed haulage route.
- Review of Safe Intersection Sight Distance at the proposed site access point/s.
- Review of public and active transport infrastructure in proximity to the Project site.

Traffic distribution across the surrounding network will be identified and key intersections along the proposed haulage and access routes will be assessed to determine whether capacity, queuing or turning movement impacts may occur. Where warranted, intersection modelling and turning lane warrant assessments in accordance with relevant Austroads guidance will be undertaken. Consideration will also be given to rural property access requirements and appropriate access design standards.

Given the delivery of large transformers and associated electrical infrastructure, an assessment of likely OSOM routes will be undertaken. This will involve identifying suitable approved corridors from the Pacific Highway to the Project site, reviewing geometric and structural constraints, and undertaking swept path analysis at critical intersections and access points. The assessment will determine whether temporary traffic management measures, minor widening, pavement strengthening or other works are required to facilitate safe vehicle movements.

Operational traffic associated with the project is anticipated to be low intensity and limited to routine inspection, monitoring and maintenance activities. An operational phase traffic estimate will be provided to demonstrate that impacts on the surrounding road network are negligible.

Where potential impacts are identified, appropriate mitigation and management measures will be developed. These may include:

- Temporary or permanent road upgrades
- Intersection improvements or auxiliary turning lanes
- Pavement strengthening or localised widening

- Heavy vehicle scheduling and delivery time restrictions
- Traffic control measures during critical construction activities
- Community notification and stakeholder consultation

A detailed Construction Traffic Management Plan (CTMP) will be prepared prior to the commencement of construction. The CTMP will outline approved haulage routes, OSOM vehicle management procedures, traffic control requirements, workforce parking arrangements, staging of construction activities, and protocols for managing impacts on the local road network. The CTMP will be prepared in consultation with the relevant road authorities and will provide a clear framework for managing truck routes and detailed construction activities throughout the delivery of the project.

Cumulative Impacts

Cumulative traffic impacts have been considered in the context of multiple State Significant renewable energy developments progressing within northern NSW. These projects involve substantial construction programs requiring delivery of photovoltaic panels, battery units, transformers and other oversized components via the strategic freight network, including approved Restricted Access Vehicle and OSOM routes along the Pacific Highway and key regional connectors. While individual projects may generate traffic volumes that are manageable in isolation, concurrent construction phases have the potential to create short term increases in heavy vehicle activity on shared regional corridors and at major intersections. Accordingly, the cumulative assessment considers background traffic growth, freight network capacity, intersection performance, haulage scheduling and road safety to ensure the broader network continues to function efficiently.

Although each development will likely implement project specific Traffic Management Plans and mitigation measures, the broader cumulative context recognises that overlapping construction programs may result in temporary increases in heavy vehicle demand on the Pacific Highway and connecting regional roads. Detailed Traffic Impact Assessments at the EIS stage will therefore examine construction timing, routing strategies, intersection geometry and safety performance to appropriately manage potential cumulative effects and maintain safe and efficient operation of the regional road network.

The above provides a preliminary overview of traffic and transport considerations associated with the proposed development. Further detailed assessment will be undertaken as part of the EIS. Please contact the undersigned should you require any additional information or clarification.

Yours sincerely,

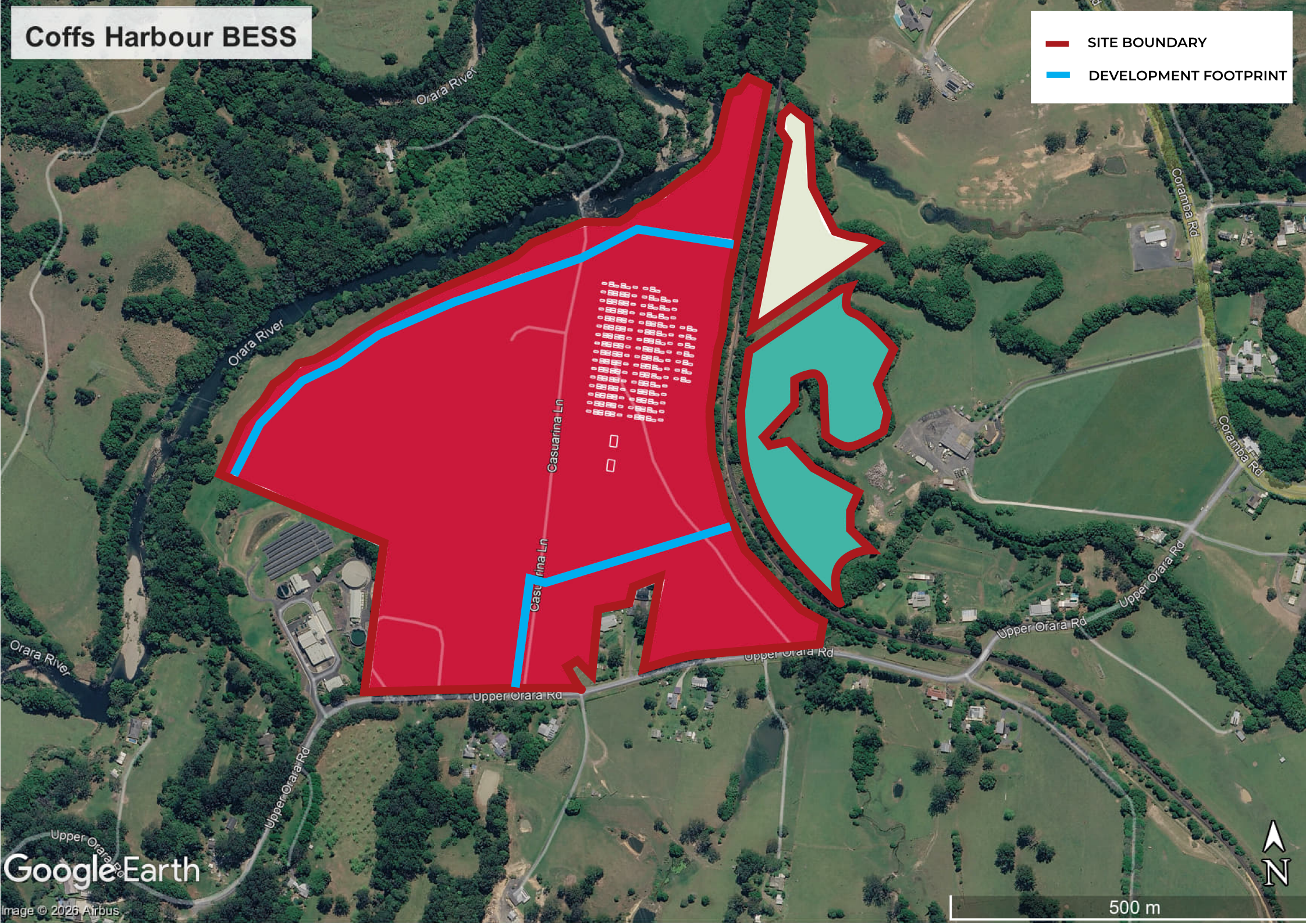
Hayden Calvey
Principal Transport Engineer, PDC Consultants

Email: hayden@pdcconsultants.com.au

Attachments:

1) *Indicative Plan*

Attachment 1


Coffs Harbour BESS
SITE BOUNDARY
DEVELOPMENT FOOTPRINT
Orara River
Orara River
Orara River
Casuarina Ln
Upper Orara Rd
Upper Orara Rd
Upper Orara Rd
Upper Orara Rd
Upper Orara Rd
Coramba Rd
Coramba Rd
Google Earth
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Appendix F Social Scoping Worksheet (RPS, 2026)

Social Impact Assessment (SIA) Scoping Worksheet: *Karangi BESS | February 2026*

SCOPE SOCIAL IMPACTS														PLAN YOUR SIA		
PROJECT ACTIVITIES	**CATEGORY OF SOCIAL IMPACT**	**POTENTIAL IMPACTS ON PEOPLE**			**CUMULATIVE IMPACTS**	**DIMENSIONS OF IMPACTS**					**MANAGEMENT BY OTHER TECHNICAL DISCIPLINES**	**ASSESSMENT LEVEL FOR EACH IMPACT**		**DATA COLLECTION PLAN**	**OPPORTUNITIES FOR OR REFINEMENTS TO DATE**	**INITIAL MITIGATION OR ENHANCEMENT PLANS**
Which project activity / activities could produce social impacts?	**Which social impact categories could be affected by the project activities?**	**How is this impact likely to be experienced by people?**	**Who is likely to be impacted?**	**Is the impact positive or negative?**	**Will this impact combine with others from this project and/or have cumulative impacts with other projects?**	**Is this dimension significant for the social impact?**					**Is there another technical discipline (i.e., not the SIA) that will likely manage some of this social impact?**	**Level of assessment for each social impact**	**Indicative data requirements**	**What data and methods will you use to investigate this impact?**	**Have you identified or adopted any refinements to reduce social impacts?**	**What mitigation / enhancement measures are being considered?**
						Extent	**Duration**	**Intensity**	**Sensitivity**	**Level of concern or interest**						
Construction	Accessibility	Construction traffic may temporarily affect local road conditions, access and road safety, including along local roads and school bus routes.	Local residents, road users and school community	Negative	Combined	Yes	No	No	Yes	Yes	Traffic and Transport Assessment	Detailed	Secondary data + targeted engagement + potentially targeted research	Traffic and transport assessment data, engagement with local residents and road users, and consultation with Council and Karangi Public School.	Yes	Traffic impacts will be assessed through the Traffic and Transport Assessment, including consideration of traffic management measures and consultation with relevant stakeholders, including Karangi Public School where appropriate.
All project stages	Community	The Project may influence community perceptions and social cohesion where views regarding the Project differ or where impacts and benefits are perceived to be unevenly distributed.	Local residents and community groups	Negative	Cumulative	Yes	Yes	No	Yes	Yes		Standard	Secondary data + targeted engagement + potentially targeted research	Stakeholder engagement with local residents, community groups and affected stakeholders.	Yes	Ongoing engagement and transparent communication with affected stakeholders will be undertaken throughout the assessment process. Opportunities for project refinements and community benefit initiatives will continue to be considered during the EIS phase.
Construction	Culture	Construction activities involving ground disturbance may impact Aboriginal cultural heritage values and connections to Country.	Gumbaynggirr people and other Aboriginal community members	Negative	Combined and cumulative	Yes	Yes	Yes	Yes	Yes	Aboriginal Cultural Heritage Assessment Report	Detailed	Secondary data + detailed engagement + targeted research	Aboriginal stakeholder engagement (including LALC) and specialist cultural heritage assessment	Yes	Ongoing consultation with Aboriginal stakeholders and the Local Aboriginal Land Council will inform the assessment process. Opportunities to avoid or minimise impacts through project design and layout refinements will continue to be considered during the EIS phase.
All project stages	Decision making systems	Community concern may arise where there are differing views regarding the Project or perceptions regarding consultation, transparency and distribution of impacts and benefits.	Local residents, community groups and stakeholders	Negative	Combined and cumulative	Yes	Yes	No	Yes	Yes		Standard	Secondary data + detailed engagement + targeted research	Stakeholder engagement with local residents, community groups and affected stakeholders	Yes	Ongoing engagement and transparent communication with affected stakeholders will be undertaken throughout the assessment process. Opportunities for project refinements and community benefit initiatives will continue to be considered during the EIS phase.
All project stages	Health and wellbeing	Changes to environmental conditions (e.g. pollution, impacts on waterways, biodiversity and hazardous materials) may affect how the surrounding environment is experienced and valued by nearby communities.	Local community	Negative	Combined and cumulative	Yes	Yes	No	Yes	Yes	Environmental/Biodiversity Impact Assessment	Detailed	Secondary data + detailed engagement + targeted research	Environmental impact assessment and stakeholder engagement with local residents and Council	Yes	Environmental impacts will be assessed through the EIS process, supported by ongoing stakeholder engagement and communication regarding environmental risk management.
Construction	Health and wellbeing	Construction dust and increased traffic movements may temporarily affect local air quality, health, comfort and amenity.	Nearby residents and vulnerable groups	Negative	Combined	No	No	Yes	Yes	Yes	Air quality assessment and Construction environmental management plan	Standard	Secondary data + detailed engagement + targeted research	Environmental assessment and stakeholder engagement with nearby residents	Yes	Construction environmental management measures and stakeholder engagement to minimise and manage dust impacts
Construction	Health and wellbeing	Increased construction traffic may elevate road safety risks for local road users, including near Karangi Public School.	Local residents, road users and the school community	Negative	Combined	Yes	No	Yes	Yes	Yes	Traffic and Transport Assessment	Detailed	Secondary data + detailed engagement + targeted research	Traffic and transport assessment and stakeholder engagement with local residents, road users and Karangi Public School	Yes	Traffic and transport assessment and stakeholder engagement to inform management of road safety risks
Construction	Health and wellbeing	Noise and vibration from construction activities may affect health, comfort and wellbeing, particularly for vulnerable groups.	Nearby residents and vulnerable groups	Negative	Combined	No	Yes	Yes	Yes	Yes	Noise and Vibration Assessment	Detailed	Secondary data + detailed engagement + targeted research	Noise and vibration assessment and stakeholder engagement with nearby residents	Yes	Noise and vibration assessment and stakeholder engagement to inform management of impacts
Operation	Health and wellbeing	Noise and vibration during operation may affect health, comfort and wellbeing, particularly for vulnerable groups.	Nearby residents and vulnerable groups	Negative	Combined	No	Yes	No	Yes	Yes	Noise and Vibration Assessment	Detailed	Secondary data + detailed engagement + targeted research	Noise and vibration assessment and stakeholder engagement with nearby residents	Yes	Noise and vibration assessment and stakeholder engagement to inform management of operational impacts

Construction	Livelihoods	Construction vehicle movements may increase the risk of weed spread and biosecurity impacts, potentially affecting agricultural activities, environmental values and surrounding land uses.	Nearby landholders	Negative	Combined	No	Yes	Yes	Yes	Yes	Construction environmental management / biosecurity management	Standard	Secondary data + targeted engagement + potentially targeted research	Stakeholder engagement with nearby landholders and review of biosecurity requirements	Yes	Stakeholder engagement and construction environmental management measures to minimise biosecurity risks
All project stages	Livelihoods	The Project may provide opportunities for local workforce participation and skills development during construction and operation, depending on workforce requirements.	Local workforce	Positive	Cumulative	Yes	Yes	No	No	No		Minor	Secondary data + limited engagement (if required)	ABS data (workforce baseline) and stakeholder engagement with Council and training providers	No	Stakeholder engagement with Council and training providers to explore potential local workforce and skills development opportunities
Construction	Livelihoods	Influx of construction workers may generate temporary demand for local goods, services and accommodation.	Local businesses	Positive	Cumulative	No	No	No	No	No		Minor	Secondary data + limited engagement (if required)	Workforce estimates and stakeholder engagement with local businesses and Council	No	Stakeholder engagement with local businesses to understand and enhance potential economic opportunities
Construction	Livelihoods	Construction activities may generate short-term employment and economic activity within the broader regional economy.	Local workforce and businesses	Positive	Cumulative	Yes	Yes	No	No	No		Minor	Secondary data + limited engagement (if required)	Workforce estimates and stakeholder engagement with local businesses and Council	No	Workforce and procurement approach to consider local employment and business opportunities
Operation	Livelihoods	Operation and maintenance of the Project may provide limited ongoing employment opportunities.	Local workforce	Positive	No	No	Yes	No	No	No		Minor	Secondary data + limited engagement (if required)	Workforce estimates	No	Workforce approach to consider local employment where feasible
All project stages	Surroundings	Potential environmental impacts (e.g. pollution, impacts on waterways, biodiversity and hazardous materials) may affect the surrounding environment and contribute to community concern regarding environmental safety and amenity.	Local residents and nearby landholders	Negative	Combined and cumulative	Yes	Yes	No	Yes	Yes	Bushfire Assessment	Standard	Secondary data + detailed engagement + targeted research	Bushfire assessment and stakeholder engagement with local residents, landholders and emergency services	Yes	Bushfire assessment and stakeholder consultation to inform project design and risk management
All project stages	Surroundings	Visual changes associated with the Project may affect how the surrounding rural locality is experienced by nearby residents and road users.	Nearby residents and road users	Negative	Cumulative	No	Yes	No	Yes	Yes	Visual Impact Assessment	Standard	Secondary data + targeted engagement + potentially targeted research	Visual impact assessment and stakeholder engagement with local businesses and tourism operators	Yes	Visual impact assessment and stakeholder engagement will inform consideration of project layout, screening and visual management measures.
Operation	Surroundings	Visual changes associated with the Project may affect landscape character and visual amenity within the surrounding locality.	Nearby residents, road users and surrounding communities	Negative	Cumulative	Yes	Yes	No	Yes	Yes	Visual Impact Assessment	Standard	Secondary data + detailed engagement + targeted research	Visual impact assessment and stakeholder engagement with nearby residents and community.	Yes	Visual impact assessment and stakeholder engagement with nearby residents and surrounding communities.
Construction	Way of life	Construction workforce demand may temporarily increase pressure on local services, including healthcare, emergency services and childcare.	Local residents and service providers	Negative	Cumulative	No	Yes	No	Yes	Yes		Standard	Secondary data + targeted engagement + potentially targeted research	ABS data and engagement with Council and local service providers.	No	Consultation with Council and relevant service providers will inform assessment of potential service demand impacts.
Construction	Way of life	Construction workforce demand may affect housing availability, rental affordability and accommodation capacity, influencing access to housing for local residents.	Local residents, renters and accommodation providers	Negative	Cumulative	Yes	Yes	No	Yes	Yes		Standard	Secondary data + targeted engagement + potentially targeted research	ABS data and engagement with local council and accommodation providers	No	Workforce accommodation approaches and stakeholder engagement will inform assessment of potential housing and accommodation impacts.