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ARGOON WIND FARM

Scoping Report

FINAL

November 2023

ARGOON WIND FARM

Scoping Report

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
RES Pty Limited

Project Director:	Paul Douglass
Project Manager:	Marion O'Neil
Report No.	22497/R01
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Environmental & Social Consultants

This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

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Abbreviations and Glossary

Abbreviation / Term	Definition
ABS	Australian Bureau of Statistics
ACHA	Aboriginal Cultural Heritage Assessment
AEMO	Australian Energy Market Operator
AIA	Aviation Impact Assessment
Associated dwelling	A dwelling owned by an associated landholder
Associated landholder	A landholder who has reached an agreement with the Proponent in relation to the Project but will not host WTGs on their land
BAM	Biodiversity Assessment Method
BBUS	Bird and Bat Utilisation Survey
BC Act	Biodiversity Conservation Act 2016
BCD	Biodiversity and Conservation Division
BDAR	Biodiversity Development Assessment Report
BSAL	Biophysical Strategic Agricultural Land
CASA	Civil Aviation Safety Authority
CCC	Community Consultative Committee
CEEC	Critically Endangered Ecological Community
CIV	Capital Investment Value
CLM Act	Contaminated Land Management Act 1997
Crown Land Act	Crown Land Management Act 2016
CSEP	Communications and Stakeholder Engagement Plan
dB(A)	A-weighted noise or sound power level in decibels
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
Development Area	The Development Area refers to the Project's proposed disturbance area which will be subject to further detailed assessments and design.
DPE	NSW Department of Planning and Environment [current]
DPIE	NSW Department of Planning, Industry and Environment [former]
EEAP	NSW Energy Efficiency Action Plan
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EL	Exploration License
EMF	Electromagnetic Field
EMI	Electromagnetic Interference
EnergyCo NSW	Energy Corporation of NSW

Abbreviation / Term	Definition
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPL	Environment Protection Licence
GHG	Greenhouse Gas
GIS	Geographic Information System
GW	Gigawatts
Ha	Hectares
Host dwelling	A dwelling owned by a host landholder
Host landholder	A landholder who will (subject to finalisation of an agreement with the Proponent) host WTGs on their land, also referred to as 'involved' landholders
HHA	Historical Heritage Assessment
KV	Kilovolt
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
LVIA	Landscape and Visual Impact Assessment
MNES	Matter of National Environmental Significance
MW	Megawatt
MWh	Megawatt Hour
MWTT	Multiple Wind Turbine Tool
NDC	Nationally Determined Contributions
NEM	National Electricity Market
Non-associated dwelling	A dwelling owned by a non-associated landholder
Non-associated landholder	A landholder who has not reached an agreement with the Proponent in relation to the Project, also referred to as 'non-involved' landholders
NPfI	Noise Policy for Industry 2017
NSW	New South Wales
NSW EPA	NSW Environment Protection Authority
NSW REAP	NSW Renewable Energy Action Plan
OSOM	Over-size, over-mass vehicle
PA	Planning Agreement
PCT	Plant Community Type
Project Site	The Project Site is the maximum spatial extent of potential land access defined by the cadastre boundaries of the host landholder's properties.
POEO Act	Protection of the Environment Operations Act 1997
PVIA	Preliminary Visual Impact Assessment
REZ	Renewable Energy Zone

Abbreviation / Term	Definition
RFS	NSW Rural Fire Service
SAT	Spot Assessment Technique
SEARs	Secretary's Environmental Assessment Requirements
SIA	Social Impact Assessment
SISR	Social Impact Scoping Report
SSD	State Significant Development
TBDC	Threatened Biodiversity Data Collection
TEC	Threatened Ecological Community
TTIA	Traffic and Transport Impact Assessment
WM Act	Water Management Act 2000
WRIA	Water Resources Impact Assessment
WSP	Water Sharing Plan
WTG	Wind Turbine Generator

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1.0 Introduction

1.1 Project Overview

RES Australia Pty Ltd (RES) propose to develop the Argoon Wind Farm (the Project) to provide a reliable and affordable source of energy for the people of NSW and contribute to reducing greenhouse gas (GHG) emissions associated with energy generation.

The Project is planned to have an installed generating capacity of up to 901 megawatts (MW) with battery storage to allow the Project to store and dispatch energy to the National Electricity Market (NEM) as it is needed. The Project would be approximately 21 km north of Jerilderie and approximately 63 km southwest of Darlington Point in the South-West region of New South Wales (NSW), within the Murrumbidgee Council Local Government Area (LGA). The location of the Project and its regional context is presented on **Figure 1.1**.

The Project proposes the installation, operation, maintenance and decommissioning of up to 106 wind turbine generators (WTGs), battery storage facilities and associated infrastructure, ancillary infrastructure and temporary facilities. The associated infrastructure proposed includes operation and maintenance buildings, roads, civil works and electrical infrastructure necessary to connect to the electricity transmission network. A detailed description of the Project is provided in **Section 3.0**.

The Project has adopted an iterative approach to design. As such, the development corridor and footprint will be finalised at a later stage, as informed by specialist studies. The outcome of this iterative approach will be a Project that avoids and/or minimises environmental, cultural and social impacts.

The Project will be located within the South-West Renewable Energy Zone (REZ) gazetted in November 2022. The Project will connect to the newly proposed Dinawan Substation currently being designed and developed by TransGrid as part of the Project EnergyConnect (NSW-Eastern Section) Project which is scheduled for completion in 2025.

The Project will be developed on land zoned RU1 'Primary Production', covering a total area of approximately 10,900 hectares (ha) (the Project Site). The Project Site extends across 103 freehold lots, owned by two landholders (host landholders), and some parcels of Crown Land (road reserves). The full list of lots is provided in **Appendix 1**.

The Project has been conceived and developed through a comprehensive process that incorporates community and stakeholder feedback to maximise positive social, cultural, economic and environmental outcomes while minimising adverse impacts and unintended consequences. RES has established a community and stakeholder engagement plan (CSEP) for the Project and has commenced early engagement with the local community and other valued stakeholders. This community and stakeholder engagement will continue throughout the Project planning and approvals process.

The Project is State Significant Development (SSD) as defined under *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) and will require development consent under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

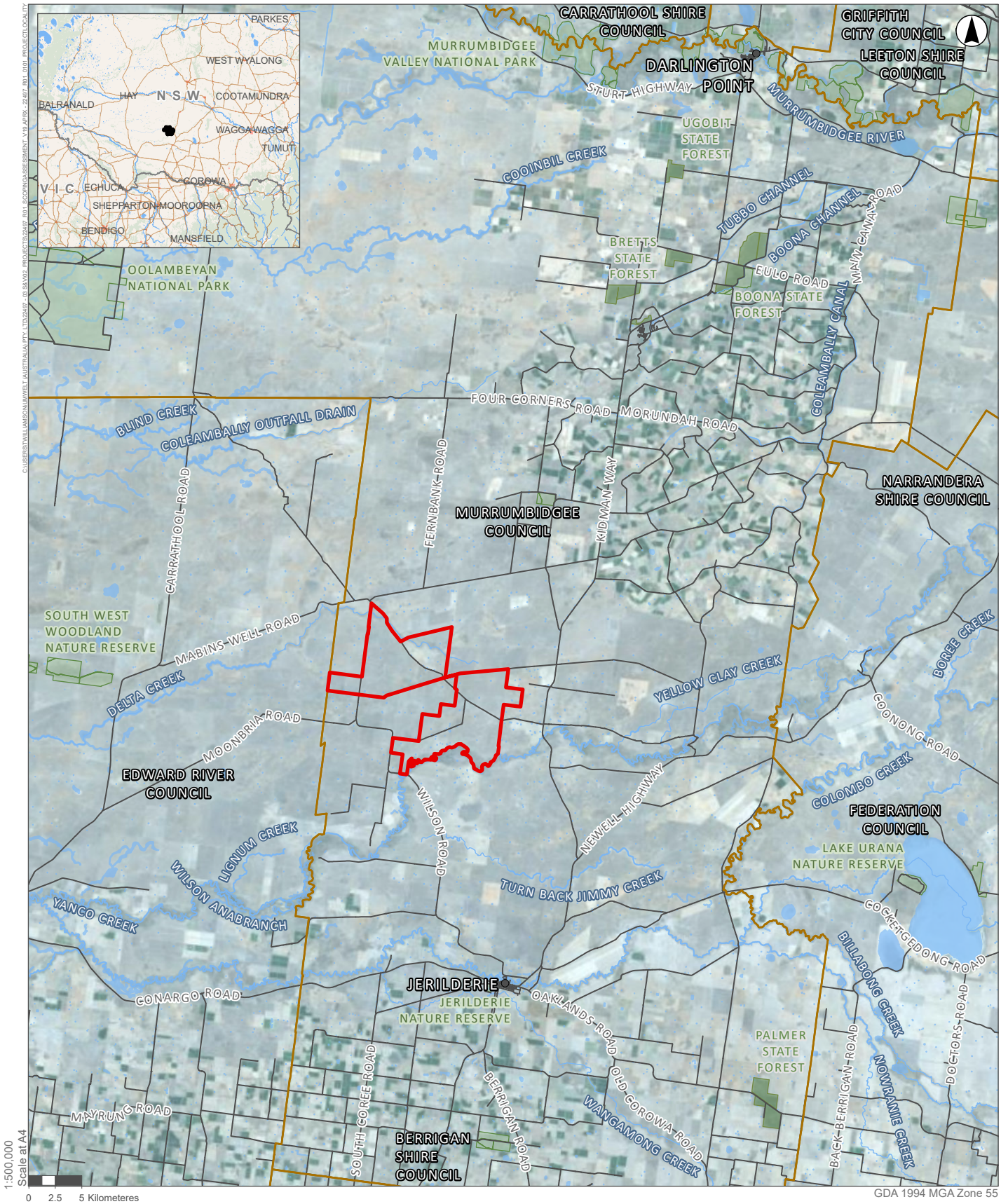


FIGURE 1.1

Project Location and Regional Context

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)

1.2 Project Objectives

The objectives of the Project are to:

- establish a reliable and cost-efficient source of electricity for NSW energy consumers and help reduce greenhouse gas (GHG) emissions
- contribute to State and Commonwealth renewable energy goals
- make positive contributions to the NSW Government's emissions reduction targets and electricity strategy
- contribute to achieving the target of 2.5 gigawatts (GW) of renewable energy generation from the South-West REZ
- generate employment opportunities during Project construction and operations phases
- establish and maintain partnerships with stakeholders and the community to minimise environmental and social impacts and maximise benefits
- ensure that the highest safety and environmental standards are met during construction and operation of the Project.

1.3 The Proponent

RES Australia Pty Ltd (RES), the Proponent for the Project as detailed in **Table 1.1**, is the world's largest independent renewable energy company active in both onshore and offshore wind, solar, energy storage and transmission and distribution. A family-owned business at the forefront of the industry for nearly 40 years, RES has delivered over 20 GW of renewable energy projects across the globe and supports an operational asset portfolio of 7 GW worldwide.

Table 1.1 Proponent Details

Requirement	Details
Full Name/s	RES Australia Pty Ltd
Postal Address	Suite 6.01, Level 6 165 Walker Street North Sydney NSW 2060
ABN	55 106 637 754
Nominated Contact	Marton Kalocsay

Since 2004, RES has a strong history of working with communities to develop projects in Australia, including the Taralga Wind Farm (NSW), Ararat Wind Farm (VIC), Murra Warra Wind Farm stage 1 and 2 (VIC), Emerald Solar Farm (QLD), Dulacca Wind Farm (QLD), the construction and asset management of the Lal Lal Wind Farm (VIC) and the Columboola Solar Farm (QLD). The construction and asset management portfolio currently under management by RES in Australia is over 3 GW.

To achieve positive local and regional community outcomes, RES is committed to building strong relationships with key stakeholders and local communities. At the early development stage, emphasis is put on encouraging local participation and community input.

1.4 Strategies to Avoid and Minimise Impacts

The design of the Project has been developed taking into account environmental constraints relevant to the Project Site and immediate surrounding land. Identification of environmental constraints has been informed by preliminary desktop assessments (as further discussed in **Section 6.0**) and supported by preliminary ecology and visual fieldwork. The design of the Project will continue to be developed in response to further information obtained during the environmental and social impact assessment processes and engagement with landowners, the community and other stakeholders.

Key factors that have influenced the Project design to avoid and minimise impacts during the Scoping Phase, include:

- incorporating a 2 km exclusion zone around all host landholder dwellings within the Project site for WTG placement
- avoidance of Delta Creek and Yanco Creek traversing through the Project Site, including their associated floodplain area
- avoidance of all mapped Groundwater Dependant Ecosystems (GDEs), as further discussed in **Section 6.2.8**.

1.5 Related Development

Related development, as outlined in the NSW Government State Significant Development Guidelines (DPE, 2022b), refers to any existing or approved development that would be incorporated into, or operated in conjunction with the Project. Related development can also include development by a Proponent that is required for a Project; but is subject to a separate development approval process.

At this stage, there are no existing or approved developments that would need to be incorporated into the assessment of the Project.

1.6 Restrictions and Covenants

As discussed in **Section 3.2**, there are some parcels of Crown Land (road reserves) within the Project Site (refer to **Figure 3.2**)**.** RES will be consulting with Crown Land in this regard during the EIS phase. There are no other known restrictions or covenants applicable to the Project Site.

1.7 Purpose of this Report

As SSD, an Environmental Impact Statement (EIS) will be prepared to accompany the development application for the Project. This Scoping Report has been prepared to provide a description of the Project to key regulatory agencies and to identify the key environmental and social matters of relevance to the Project to inform the preparation of the Secretary's Environmental Assessment Requirements (SEARs) for

the EIS. The SEARs will identify specific assessment considerations relevant to the Project that must be addressed in the EIS.

This document has been prepared in consideration of the following guidelines:

- NSW Wind Energy Guideline for State significant wind energy development (DPE, 2016), including:
    - Wind Energy: Visual Assessment Bulletin (Visual Bulletin).
    - Wind Energy: Noise Assessment Bulletin (Noise Bulletin).
- Cumulative Impact Assessment Guidelines (DPIE, 2022a).
- *State significant development guidelines – preparing a scoping report* (Appendix A to the state significant development guidelines), October 2022 (DPIE, 2022b) and referred to hereafter as the DPE Scoping Guideline.
- Social Impact Assessment Guideline for State Significant Projects, February 2023 (DPIE, 2023).
- Undertaking Engagement Guidelines for State Significant Projects (DPIE, 2022c) (Engagement Guidelines).

1.8 Structure of this Report

This report has the following sections:

- **Section 1.0** introduces the Project, the Proponent and provides an outline of the structure of the document.
- **Section 2.0** outlines the strategic context for the Project, including the justification for the Project, a summary of the locality in which the Project is undertaken and an overview of the environmental and social context.
- **Section 3.0** contains a description of the Project, including an overview of alternatives considered.
- **Section 4.0** summarises the relevant State and Commonwealth statutory context applicable to the approval process for the Project.
- **Section 5.0** describes the stakeholder engagement program for the Project and identifies the environmental and social matters identified during the scoping phase for further consideration in the EIS.
- **Section 6.0** contains an analysis of the environmental and social matters relevant to the Project and the assessments proposed to be completed as part of the EIS.
- **Section 7.0** References.

2.0 Strategic Context

2.1 Project Justification

The development of renewable energy projects aligns with federal, state and local commitments to increase renewable energy generation and reduce carbon emissions. In particular, the NSW Government is taking action to lead investment in new renewable generation to ensure an orderly transition away from coal (Energy Corporation, 2022), with the progressive closure of the State's five existing coal-fired power stations scheduled since 2022-2023. These power stations currently provide around three quarters of NSW's electricity supply and two thirds of the firm capacity required during summer heat waves. The NSW government recognises that the development of electricity infrastructure is necessary to maintain a reliable, secure and affordable supply of power, and is taking action to lead investment in new renewable generation to ensure an orderly transition away from coal (Energy Corporation, 2022).

The Project is located within the South-West REZ, being an area identified by the NSW government as strategically advantageous for energy generation, storage and transmission. The NSW Government has indicated that REZs will play a vital role in delivering affordable energy generation to help prepare the State for the expected retirement of thermal power stations over the coming decades.

Establishing new renewable generation capacity, such as wind in the REZs, aligns with the NSW Government's *Electricity Strategy* (NSW Government, 2020) and *Electricity Infrastructure Roadmap* (DPIE, 2020). The NSW Government has indicated that the REZs are expected to unlock a significant pipeline of large-scale renewable energy and storage projects through support for private sector investment and contribute substantially to local social and economic development and decarbonisation of the economy. The NSW Government expects the South-West REZ to bring up to $2.8 billion in private investment by 2030 and, at its peak, the REZ is expected to support more than 2,000 construction jobs.

The Project will contribute to meeting Commonwealth and NSW Government carbon reduction targets and renewable energy generation objectives and will provide significant renewable energy generation capacity within an area planned for renewable energy development by the NSW Government. In summary, the Project will provide a range of long-term strategic benefits including:

- Renewable energy supply to assist with fulfilling the current obligations under state and federal renewable energy targets.
- Energy supply to help safeguard both NSW and eastern Australia's energy security, specifically with the imminent closure of Australia's ageing fleet of coal fire power plants.
- Provision of clean reliable electricity generation and assisting with meeting current and future load demand while reducing greenhouse gas emissions and the impacts of climate change.
- Provision of regional investment in the NSW renewable energy sector.

The Project will also provide direct financial benefits to the regional and local community, including:

- Capital investment of approximately $1.5 billion.
- Employment generation and the creation of up to 340 full time equivalent (FTE) jobs during peak construction and between 6 and 12 permanent staff during the operational phase.
- Establishment of a community fund to support local charitable, environmental and educational organisations and groups.
- Indirect benefits to local services through the construction and operation phases.
- Mixed use agriculture activities within the Project Site.

Further detail regarding the strategic context of the development is provided in the following sections.

2.1.1 Strategic and Regional Context

2.1.1.1 Commonwealth Policy

Australia is one of the 193 Parties (192 countries plus the European Union) from around the world signed to the international climate change agreement (*The Paris Agreement*). The Paris Agreement aims to:

- Hold the increase in the global average temperature to below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.
- Increase the ability (of nations) to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.
- Make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.

The Paris Agreement seeks to meet its objectives by developing programs and mechanisms that:

- Require participating Parties to prepare and communicate greenhouse gas mitigation contributions. Parties were expected to set mitigation targets for 2020, and then develop new targets every five years. Each successive target is expected to represent a larger mitigation effort than the previous target.
- Promote climate change resilience and adaptation.
- Provide mitigation and adaptation funding to developing countries.
- Foster mitigation and adaptation technology transfer between Parties.
- Require participating Parties to report progress towards their mitigation contributions on an annual basis.

Australia signed *The Paris Agreement* on 22 April 2016. The obligations under *The Paris Agreement* will drive national greenhouse gas policy up to 2030. Australia's commitment to *The Paris Agreement* includes reducing greenhouse gas emissions to 43% below 2005 levels by 2030 (DEECCW, 2022). In 2022, the Commonwealth Government stated its ambition to put the country on track to achieve net zero emissions by 2050 (McAllister & Albanese, 2022). Australia's Nationally Determined Contribution (NDC) prescribes an unconditional economy-wide target to reduce greenhouse gas emissions, and states that future policies will target emissions generated from energy use, industrial processes, agriculture, land-use, land-use change and forestry and waste.

The Project, as a large-scale renewable energy project, will contribute to achieving Australia's greenhouse gas emission reduction targets through reducing emissions from energy production in NSW.

2.1.1.2 NSW Policy

NSW Climate Change Policy Framework

The NSW Government has developed its *NSW Climate Change Policy Framework*, which aims to deliver net zero emissions by 2050, and a State that is more resilient and responsive to climate change (NSW Government, 2016).

Under the *NSW Climate Change Policy Framework*, NSW has committed to both follow *The Paris Agreement* and to work to complement national action.

The policy framework is being delivered through:

- the Climate Change Fund
- developing an economic appraisal methodology to value greenhouse gas emissions mitigation
- embedding climate change mitigation and adaptation across government operations
- building on NSW's expansion of renewable energy
- developing action plans and strategies.

In 2013 the NSW Government released the *Renewable Energy Action Plan* (REAP) and the *NSW Energy Efficiency Action Plan* (EEAP). The REAP aimed to increase the generation, storage and use of renewable energy in NSW, at least cost to customers and with maximum benefits to NSW. The three core goals of the REAP were to attract renewable energy investment, build community support for renewable energy and attract and grow expertise in renewable energy. Based on the implementation of the REAP, renewable energy is now well-placed to play a leading role in meeting NSW's energy needs into the future.

NSW Electricity Strategy and Electricity Infrastructure Roadmap

Current and future electricity development in NSW is supported though the NSW Government's *Electricity Strategy* (NSW Government, 2020) and the NSW *Electricity Infrastructure Roadmap* which builds on the framework set out in the *Electricity Strategy* taking an integrated approach to all demand and supply options, including action by households and small businesses, demand management and investment in large-scale, affordable and reliable generation. The Project is consistent with the objectives of the *Electricity Strategy* and *Electricity Infrastructure Road Map*, in aiming to provide large-scale renewable electricity generation that is affordable and reliable.

The NSW *Electricity Strategy* is the NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. The NSW Government's *Electricity Strategy* and *Electricity Infrastructure Roadmap* set out a plan to deliver the state's first five REZs in the South-West, Central-West Orana, New England, Hunter-Central Coast and Illawarra regions. This builds on the NSW *Transmission Infrastructure Strategy* and supports the implementation of the *Australian Energy Market Operator's Integrated System Plan* (NSW Government, 2022a). The NSW Government expects that REZs will deliver multiple benefits to NSW, including:

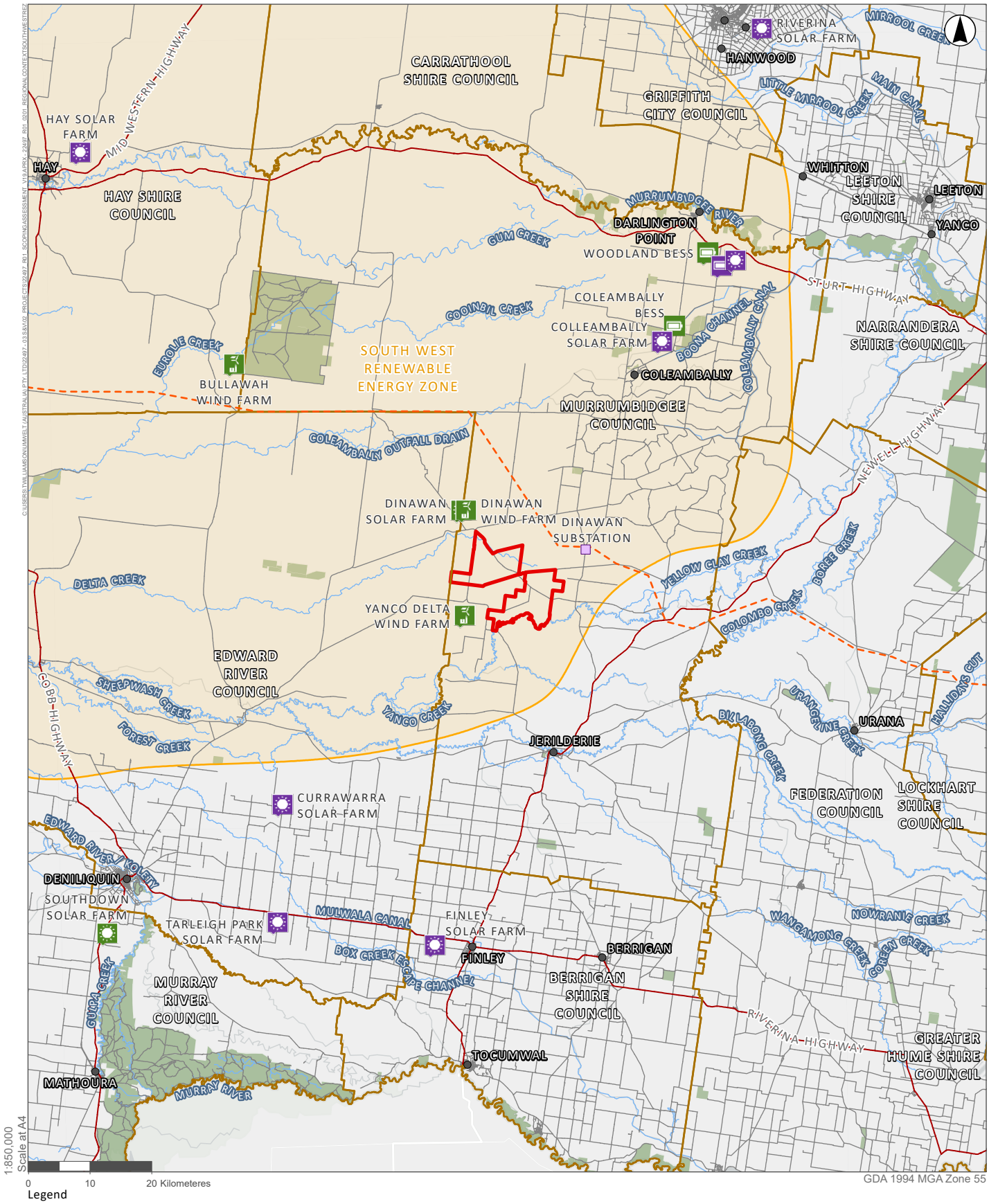
- more reliable energy from significant amounts of new energy supply
- energy bill savings from reduced wholesale electricity costs
- emissions reduction from a cleaner energy sector
- community partnership from strategic planning and best practice engagement and benefit sharing.

The Energy Corporation of NSW (EnergyCo) is the NSW-Government-controlled statutory authority that will lead the delivery of NSW REZs. EnergyCo will coordinate REZ transmission, generation, firming and storage projects to deliver efficient, timely and coordinated investment. EnergyCo has been appointed as the Infrastructure Planner for the CWO REZ and will lead development of the CWO REZ.

The Project Site is located within the South-West REZ as identified within the NSW Government's *Electricity Strategy* (NSW Government, 2020) (refer to **Figure 2.1**). A target of up to 2.5 GW of renewable energy generation has been assigned to the South-West REZ (NSW Government, 2022b). The Project, if approved, will make a meaningful contribution to achievement of this target.

The Project Site is mapped as an area with high wind renewable energy source potential under the NSW REAP. The Renewable Energy Resource Mapping (NSW Government, 2019) is reproduced in **Figure 2.2** which indicates the existing wind resources applicable to the Project Site. This high wind resource makes the location suitable for a productive wind farm.

The Project is consistent with the objectives of the Electricity Strategy and Infrastructure Road Map, in aiming to provide large-scale renewable electricity generation that is affordable and reliable.



Legend

- Roads
- Major Roads
- Waterways
- Project EnergyConnect Alignment (indicative)
- Local Government Area
- Project Site
- South-West Renewable Energy Zone
- National Park / State Forests

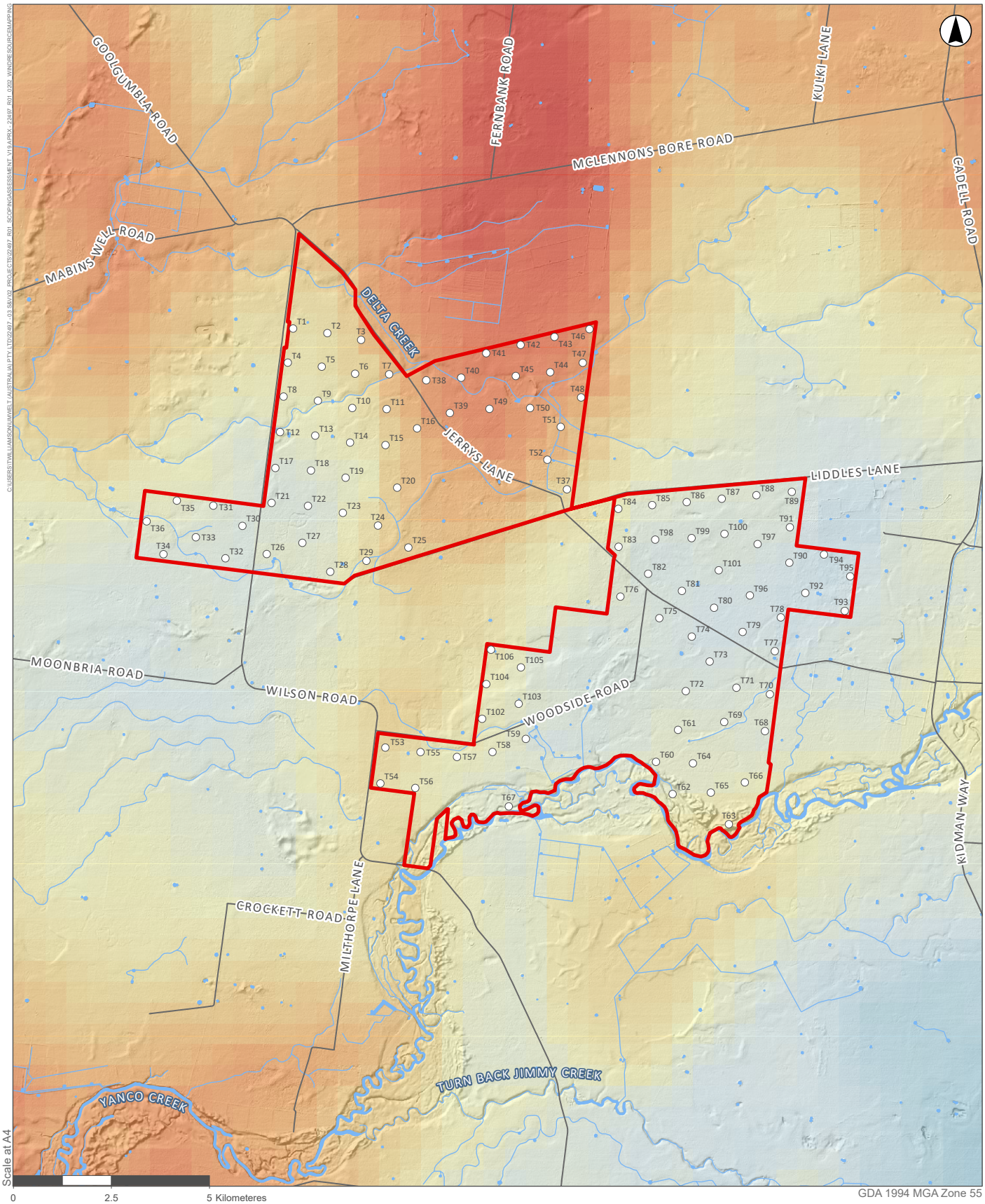
Renewable Energy Projects

- Substation - Proposed
- Wind Farm - Proposed
- Solar Farm - Approved
- Solar Farm - Proposed
- BESS - Approved
- BESS - Proposed

FIGURE 2.1

Regional Context in South-West REZ

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2021), NSW DSFI (2021); NPWS Estate (2019)



1:135,000 Scale at A4

0 2.5 5 Kilometeres

GDA 1994 MGA Zone 55

Legend

- Proposed Wind Turbine Generators
- Roads
- Waterways
- Project Site

Wind Speed (m/second)

7 m/s

6.3 m/s

FIGURE 2.2

Wind Resource Mapping

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)

2.1.2 Regional and Local Plans

2.1.2.1 Riverina Murray Regional Plan 2041

The *Riverina Murray Regional Plan 2041* (Draft Plan) is the NSW Government's strategy for guiding land use planning decisions for the Riverina Murray Region up to 2041. The vision of the Draft Plan is to facilitate the creation of 'a diversified economy founded on Australia's food bowl, iconic waterways and a network of vibrant connected communities' (DPE, 2022a).

There are 18 objectives across the environment, communities and places, and the economy that that support the vision of the Draft Plan. The Draft Plan promotes further development of renewable energy across the Riverina Murray Region, through Objective 13: 'Support the transition to net zero by 2050'.

The region is seen as having significant potential for renewable energy industries with vast open spaces for wind power generation. The Draft Plan states that DPE will work with Energy Corporation of NSW, the Renewable Energy Sector Board, councils and Aboriginal and community stakeholders to develop the South-West REZ, where the Project is proposed to be located.

The Project is considered to be consistent with the vision of the Draft Plan, particularly in light of the proposed development of renewable energy generation.

2.1.2.2 Far West Regional Plan 2036

The Far West Regional Plan 2036 (Far West Regional Plan) is the NSW Government's strategy for guiding land use planning decisions for the Far West over the next 14 years. The vision of the Far West Regional Plan is to maintain 'a unique part of Western NSW with a diverse economy, supported by the right infrastructure, an exceptional natural environment and resilient communities' (DPE, 2017a).

The supporting goals of the Far West Regional Plan are to create:

- a diverse economy with efficient transport and infrastructure networks
- exceptional semi-arid rangelands traversed by the Barwon-Darling River
- strong and connected communities.

The Far West Regional Plan promotes further development of renewable energy across the Far West, through Direction 4: 'Diversify energy supply through renewable energy generation'. The region is seen as having significant potential for renewable energy industries with vast open spaces with potential for wind power generation, large-scale solar energy and bioenergy generation. The Far West Regional Plan includes directions to support the Far West to become a leader in renewable energy and climate change adaption.

The Project is considered to be consistent with the vision of the Far West Regional Plan, particularly in light of the proposed development of renewable energy generation.

2.1.2.3 Murrumbidgee Council Local Strategic Planning Statement 2020

The *Murrumbidgee Council Local Strategic Planning Statement* (Local Strategic Planning Statement) is a 20-year vision for land use planning for the local government area resulting from the amalgamation of the former Jerilderie and Murrumbidgee Shires and provides an overarching strategic direction for future land use planning (Murrumbidgee Council, 2020).

Planning themes and priorities of the Local Strategic Planning Statement are around the community, the environment, infrastructure, the economy and leadership. Specifically, Murrumbidgee Council aims to support renewable energy projects within the LGA in order to support economic growth.

The Project is considered to be consistent with the vision and intent of the Local Strategic Planning Statement, specifically in relation to the proposed development of renewable energy generation.

2.1.2.4 Murrumbidgee Council Community Strategic Plan 2017–2027

The Murrumbidgee Council Community Strategic Plan 2017–2027 (Murrumbidgee CSP) (Murrumbidgee Council, 2017) outlines a shared vision for the wider Murrumbidgee community. The Murrumbidgee CSP includes five key strategic themes which align with the proposed development, including:

- Protecting the existing regional natural environment for future generations.
- Exploring and promoting alternative, sustainable energy sources and practices.
- Maintaining a balance between growth, development and environmental protection.
- Welcoming and supporting business and industries growth, diversity and productivity.
- Promoting and supporting a regional economy and growth.

The Project is considered to be consistent with the vision and intent of the Murrumbidgee CSP, specifically in relation to exploring and promoting alternative, sustainable energy sources and practices.

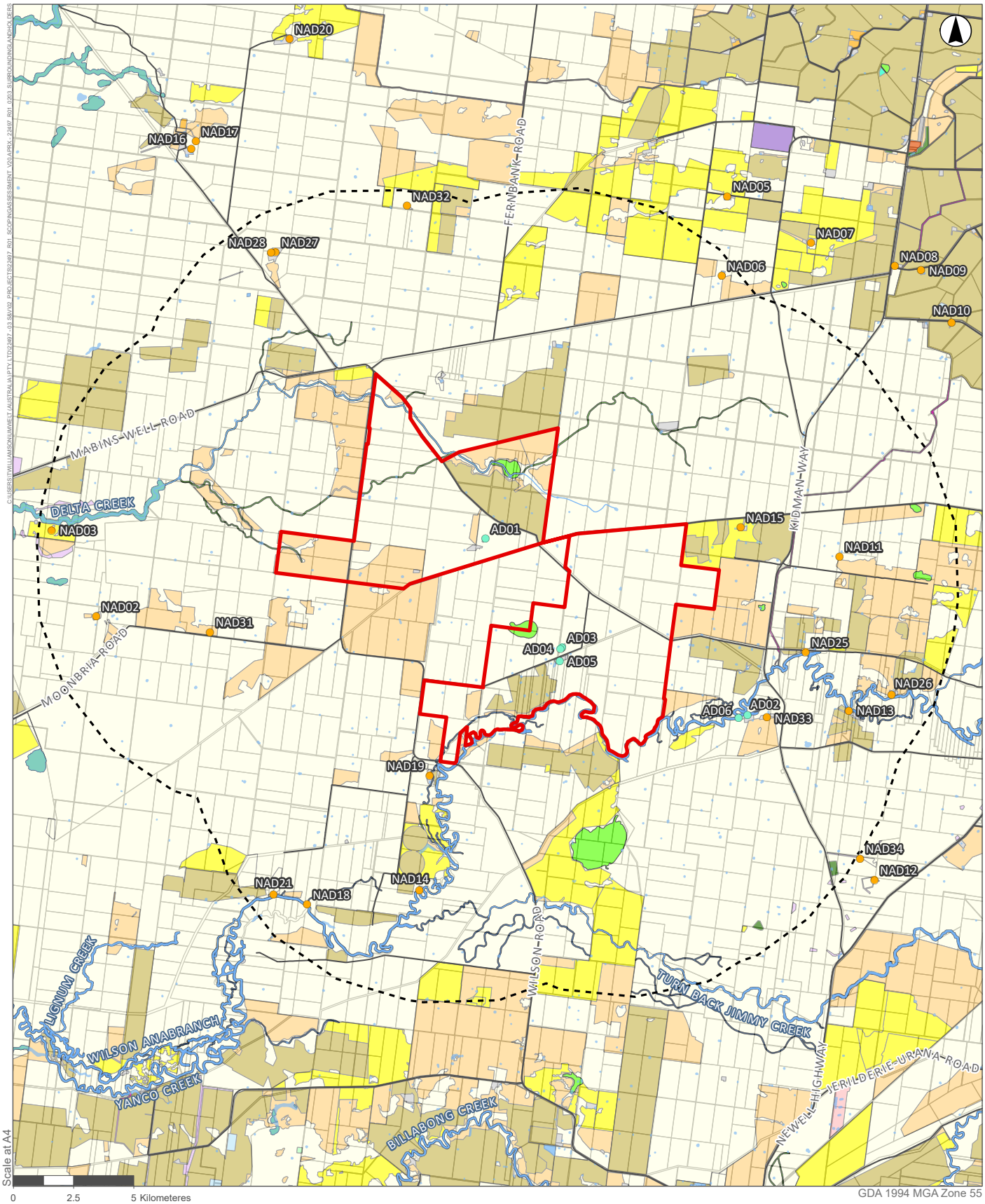
2.2 Environmental and Social Context of the Project Site

The Project Site is wholly within the Murrumbidgee Council LGA and borders the Edward River Council along its western boundary. The closest town centre is Jerilderie with a population of approximately 1,029 (approximately 21 km south of the Project Site). The largest population centres nearby are Wagga Wagga (approximately 150 km to the east) and Deniliquin (approximately 73 km south-west).

The Project Site is zoned RU1 'Primary Production' under the *Jerilderie Local Environmental Plan 2012* (LEP). Agriculture is the primary land use within the Project Site and the surrounding area, including grazing, cropping and irrigated cropping with some rural dwellings scattered throughout the area. The closest national park, state park or nature reserve is the Southwest Woodland Nature Reserve (approximately 20 km west) and the Jerilderie Nature Reserve (approximately 20 km south) (refer to **Figure 1.1**). The main land use within the Project Site and surrounding properties is agriculture (as shown on **Figure 2.3**).

There are 23 dwellings located within 10 km of the Project Site (**Figure 2.3**). Six of these are owned by host landholders (referred to as host dwellings) whereas the remaining dwellings are owned by landholders that are not involved in the Project (referred to as non-associated dwellings). The closest non-associated dwelling is located approximately 730 m south of the boundary of the Project Site. The proximity and number of non-associated dwellings (sensitive receivers) will be further investigated during the EIS process.

Land within the Project Site is predominately mapped as land soil capability (LSC) Class 4 (about 7769 ha), with some Class 5 (about 670 ha) and Class 6 (about 2122 ha), as further discussed in **Section 6.2.8**. None of the Project Site is mapped as Biophysical Strategic Agricultural Land (BSAL).



Legend

- Host Dwelling
- Non-associated Dwelling (potential receiver)
- Roads
- Waterways
- Project Site Buffer (10km)
- Cadastre
- Project Site

Land Use

- 1.1.0 Nature conservation
- 1.2.0 Managed resource protection
- 2.1.0 Grazing native vegetation
- 3.1.0 Plantation forests
- 3.2.0 Grazing modified pastures
- 3.3.0 Cropping
- 3.4.0 Perennial horticulture
- 4.1.0 Irrigated plantation forestry
- 4.2.0 Grazing irrigated modified pastures
- 4.3.0 Irrigated cropping
- 5.2.0 Intensive animal production
- 5.3.0 Manufacturing and industrial
- 5.4.0 Residential and farm infrastructure
- 5.7.0 Transport and communication
- 5.8.0 Mining
- 5.9.0 Waste treatment and disposal
- 6.2.0 Reservoir/dam
- 6.3.0 River
- 6.4.0 Channel/aqueduct
- 6.5.0 Marsh/wetland

FIGURE 2.3

Surrounding Landholders

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)

The Project Site is located on broad floodplain between the Murray River and Murrumbidgee River alignments. The primary watercourses draining the Project Site include Delta Creek (along the northeast of the Project Site) and Yanco Creek (along the southern extend of the Project Site), with a number of mapped unnamed creeks traversing the Project Site (refer to **Figure 2.1**). The Project Site is located on predominantly flat land, with an elevation ranging from approximately 108 m Australian Height Datum (AHD) to approximately 123 m AHD.

The Yanco Creek floodplain is mapped as a groundwater vulnerability region under the Jerilderie LEP with mapped aquatic and terrestrial Groundwater Dependant Ecosystems (GDEs) within the Project Site, as further discussed in **Section 6.2.8**. There are no mapped acid sulfate soils, flood planning zones or bushfire prone lane within the Project Site. No existing mineral exploration licences apply to the Project.

2.3 Cumulative Impact Considerations

The *NSW Wind Energy Guideline* (DPE, 2016) identifies the requirement to address cumulative impacts in relation to any other proposed, approved or operating wind energy projects in the vicinity particularly with regard to landscape, noise, biodiversity and traffic impacts. The *NSW Cumulative Impact Assessment (CIA) Guidelines for State Significant Projects* (DPIE, 2022a) sets clear requirements for assessing project-level cumulative impacts related to SSD projects.

There are a number of renewable energy projects within and in the vicinity of the South-West REZ, at different stages of the approval process (refer to **Figure 2.1** and **Table 2.1**). It is anticipated that there will be additional renewable energy projects proposed in the vicinity of the Project that are not publicly known at the time of preparing this scoping report. The CIA for the Project will include a review and update of all relevant projects at the time of the EIS being prepared. At the time of preparing this report, the closest renewable energy developments to the Project are:

- Yanco Delta Wind Farm, directly approximately west of the Project.
- Dinawan Solar Farm, directly north of the Project.
- Dinawan Wind Farm, directly northeast of the Project.

The EIS will include an assessment considering other relevant construction, industrial and employment generating projects within the locality as further outlined in **Section 6.2.9**. **Appendix 2** outlines where a cumulative impact assessment (CIA) will be undertaken for the relevant matters including the level of assessment and engagement.

Table 2.1 Renewable Energy Projects Surrounding the Project Site

Project	Status	Generation Capacity	Potential Construction Start Date
Bullawah Wind Farm	Proposed	1 GW	2025
Baldon Wind Farm	Proposed	1 GW	2024
Burrawong Wind Farm	Proposed	750 MW	2023
Coleambally Battery Energy Storage System	Proposed	200 MW	2024

Project	Status	Generation Capacity	Potential Construction Start Date
Coleambally Solar Farm	Approved	150 MW	Operating
Currawarra Solar Farm	Approved	195 MW	Unknown
Darlington Point Solar Farm	Approved	275 MW	Operating
Dinawan Energy Hub	Proposed	2500 MW	Unknown
Dinawan Solar Farm	Proposed	1 GW	2025
Dinawan Wind Farm	Proposed	1.5 GW	2025
Finley Solar Farm	Approved	170 MW	Operating
Hay Solar Farm	Approved	110 MW	Operating
Keri Keri Wind Farm	Proposed	1 GW	2024
Keri Keri Solar Farm	Proposed	400 MW – 500 MW	2024
Limondale Solar Farm	Approved	250 MW	Operating
Micro Solar Farm	Approved	5 MW	Unknown
Project EnergyConnect (NSW-Eastern Section)	Approved	NA	2022
Riverina and Darlington Point Battery Energy Storage System (BESS)	Approved	NA	2022
Southdown Solar Farm	Proposed	70 MW	2022
Sunraysia Solar Farm	Approved	200 MW	Operating
Tarleigh Park Solar Farm	Approved	90 MW	Unknown
The Plains Renewable Energy Park	Proposed	400 MW	2026
Wilan Wind Farm	Proposed	800 MW	2024
Victoria to NSW Interconnector West (VNI West)	Proposed	NA	Unknown
Woodland BESS	Proposed	NA	2022
Yanco Delta Wind Farm	Proposed	1.5 GW	2024

2.4 Planning and Other Agreements

Should the Project be approved, RES will negotiate a voluntary planning agreement (VPA) with Council in accordance with the requirements of the EP&A Act.

RES is committed to continuing to work with the host and nearby landholders in relation to project design and potential impacts associated with the Project. Agreements will be in place between RES and the host landholders, and where appropriate, with proximal landholders regarding the Project. Where landholder agreements are in place that are relevant to environmental assessment outcomes, these will be considered in the EIS.

2.5 Project Benefits

The Project will provide long-term, strategic benefits to the state of NSW, including:

- Renewable energy supply to assist with fulfilling the current obligations under State and Commonwealth renewable energy targets.
- Contributing to the South-West REZ – the NSW Government expects that REZs will deliver multiple benefits to NSW, including:
    - more reliable energy from significant amounts of new energy supply
    - energy bill savings from reduced wholesale electricity costs
    - emissions reduction from a cleaner energy sector
    - community partnership from strategic planning and best practice engagement and benefit sharing.
- Providing for cleaner reliable electricity generation, assisting with meeting current load demand while reducing greenhouse gas emissions and the impacts of climate change.
- Providing regional investment in the NSW renewable energy sector.
- The Project will also provide direct financial benefits to the regional and local community, including:
    - Infrastructure investment of approximately $1.5 billion.
    - Employment generation creating up to 340 FTE jobs during peak construction and between 6 and 12 jobs during the operational phase.
    - Flow on economic benefits to local services through the construction and operation phases.
    - Additional landowner income to host landowners resulting in financial contributions to the local community. RES is focussed on sharing the benefits of its projects by supporting communities over the long term. Benefit sharing is achieved by RES through a range of opportunities such as community benefits funds, neighbour benefit sharing agreements, VPAs, community sponsorship and grant initiatives.

3.0 The Project

3.1 Project Summary

The Project would involve the installation, operation, maintenance and decommissioning of a large-scale wind farm with the capacity of up to 901 MW that would supply energy to the national electricity grid.

Subject to detailed design, the Project would comprise the following key elements:

- ~ 106 (three blade) wind turbines, each with a maximum blade tip height of approximately 249 m and a hub height of approximately 180 m.
- Onsite 330 kV substation with a newly proposed 330 kV overhead transmission line (located off site), connecting the Project to grid via the proposed Dinawan Substation.
- A BESS (460 MW/2300 MWh, up to 5-hour battery).
- Permanent ancillary infrastructure including operation and maintenance (O&M) facilities, internal access tracks, underground and overhead cabling, meteorological monitoring masts.
- Temporary facilities including site compounds, site offices and buildings, laydown areas, stockpiles, gravel borrow pit(s) and concrete batching plants, temporary roads and monitoring masts, as well temporary workers accommodation camps (if required).

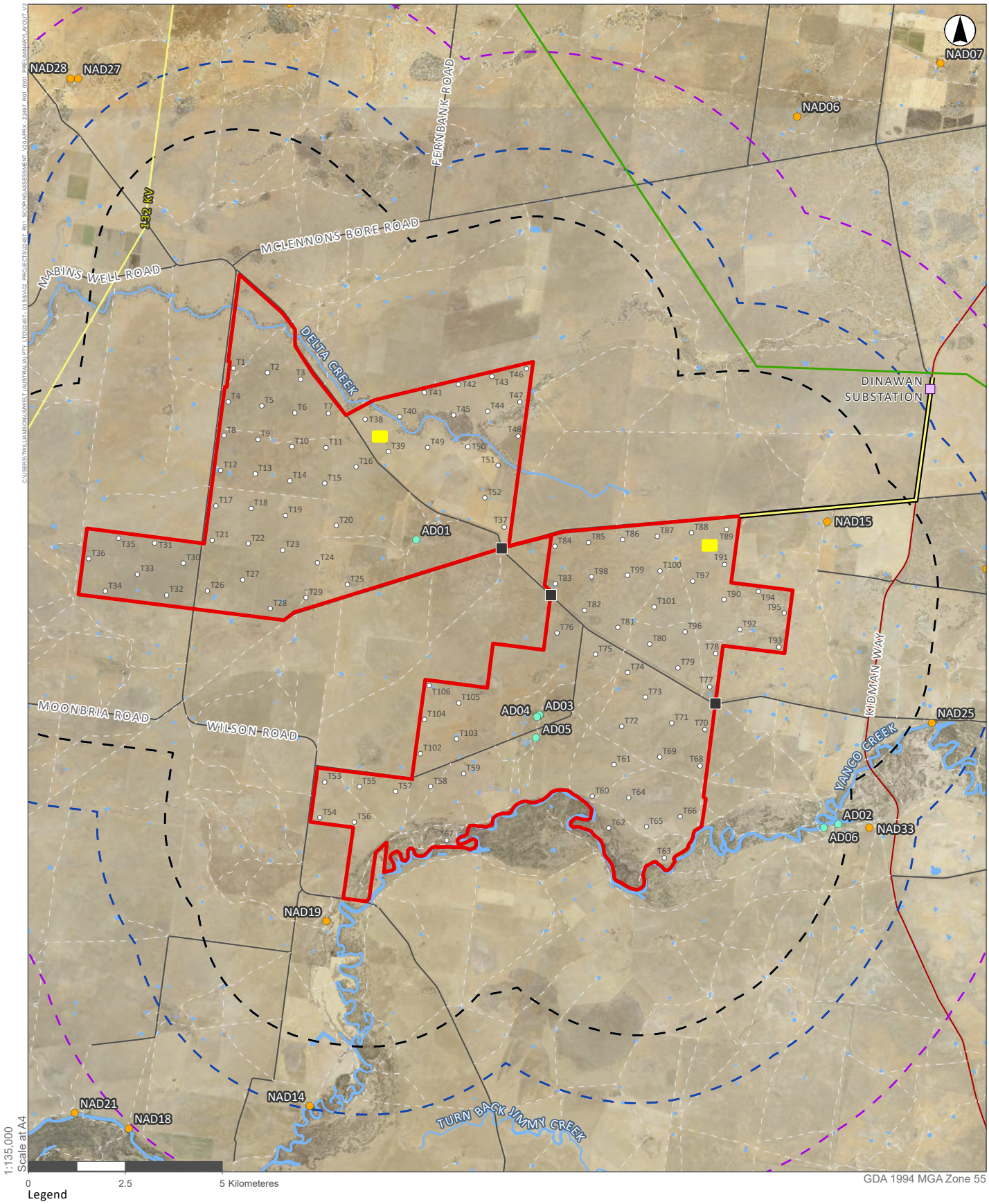
A preliminary Project layout is provided in **Figure 3.1**. The preliminary Project layout will be further refined in response to ongoing stakeholder consultation and detailed assessment during the EIS phase.

3.2 Project Site

The Project Site is the maximum spatial extent of potential land access defined by the cadastre boundaries of the host landholder's properties, as provided in **Appendix 1**. The Project Site therefore encompasses all land within and including the Project Site boundary and covers approximately 10,900 ha. As illustrated on **Figure 3.2**, the Project Site is split across two distinct areas with approximately 5,061 ha to the west and approximately 5,824 ha to the east.

The majority of the Project Site is freehold land, owned by two landholders, with some small parcels of Crown Land (road reserves), as shown on **Figure 3.2.** Properties within the Project Site have been subject to agricultural activities such as grazing, dry land and irrigated cropping.

There are four host dwellings within the Project Site, with a further two host dwellings located approximately 3.1 km to 3.4 km southeast of the Project Site. These are at a minimum of 2 km from any proposed WTGs. No turbines are placed within 2.4 km of any habitable dwellings on properties neighbouring the Project Site (refer **Figure 3.1**).



Legend

- Substation - Proposed
- Proposed Site Entry Point
- Host Dwelling
- Non-associated Dwelling (potential receiver)
- Proposed Wind Turbine Generators
- Roads
- Major Roads
- Tracks/Trails
- Waterways
- Existing Transmission Line
- Project Energy Connect Alignment (indicative)
- Proposed Transmission Route
- 3.75km Buffer
- 5.5km Buffer
- 8km Buffer
- Project Site
- Potential Substation and Construction Compound

FIGURE 3.1

Preliminary Project Layout

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2021), NSW DSFI (2021); NPWS Estate (2019)

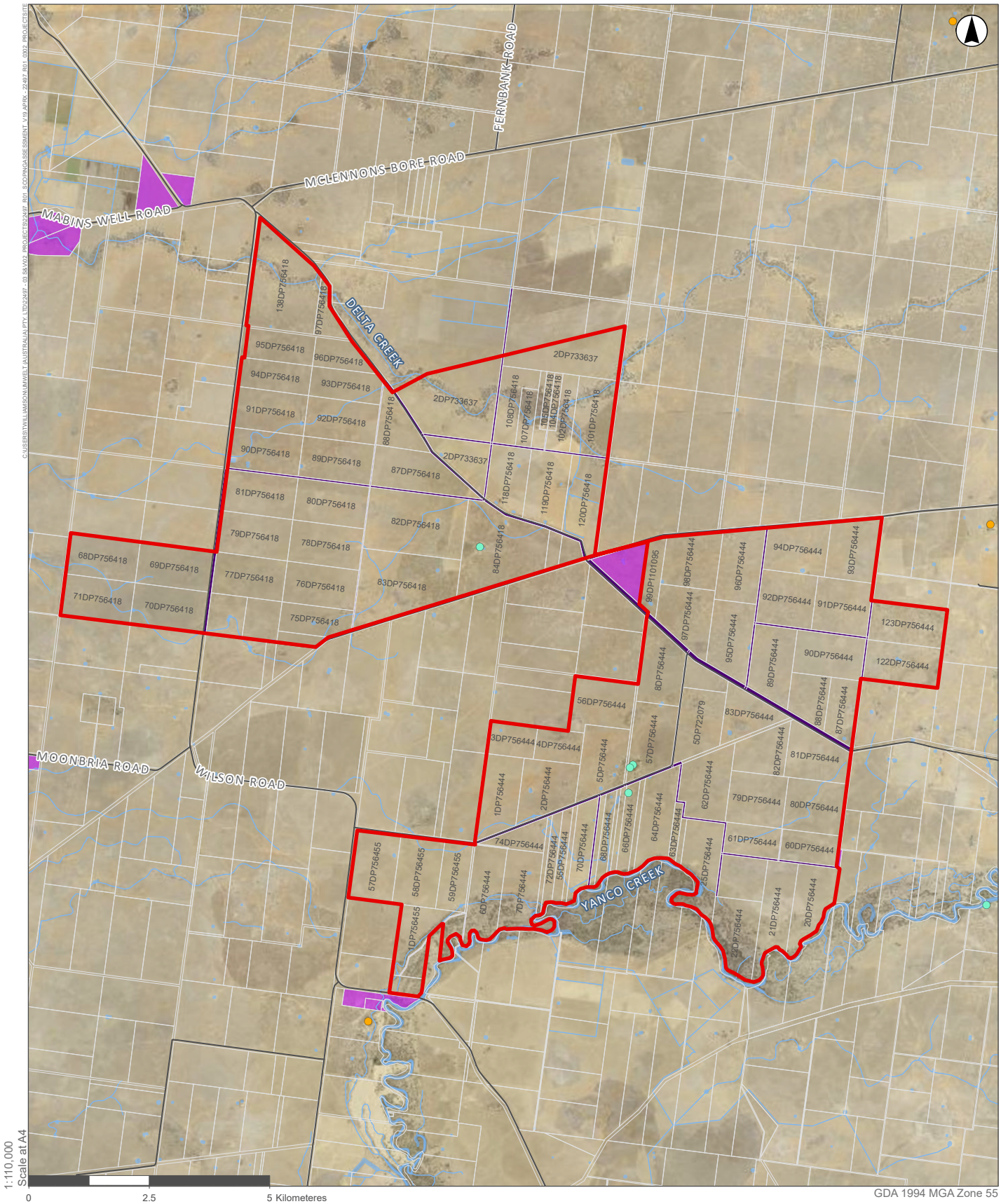


FIGURE 3.2

The Project Site

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)

3.3 Key Features of the Project

3.3.1 Wind Turbine Generators

The Project is designed to accommodate approximately 106 WTGs of up to 280 m in height. This allows for a conservative assessment allowing for WTG advances between the time of assessment for the Project and the commencement of construction.

The WTGs will be three-bladed with the rotor and nacelle mounted on a tower with an internal ladder or lift. The WTGs would be installed at final locations to be confirmed within a 100 m micro-siting buffer of the proposed locations identified in the EIS, with the current conceptual locations shown on **Figure 3.1**.

3.3.2 Battery Energy Storage System

The Battery Energy Storage System (BESS) forms part of the Project to allow for the storage and discharge of energy. Storage of energy can add significant benefits to renewable generation because it allows for the dispatch of energy in accordance with market demand and overcomes potential issues associated with intermittency of output from the WTGs. The indicative electrical capacity of the BESS is 460 MW / 2300 MWh, and will be subject to further design work.

The BESS would be connected to the onsite substations via underground and/or overhead cables. Potential locations are shown on **Figure 3.1**, however, these locations are subject to further design work and the storage facilities may be co-located with other compounds shown on **Figure 3.1**.

3.3.3 Grid Connection

A series of underground cabling and overhead transmission lines are proposed to transmit the electricity generated by the Project to the national electricity grid via the proposed Dinawan Subtation (refer **Figure 3.1**). This includes a newly proposed 330 kV overhead line from the Project's primary substation, along Liddles Lane and Kidman Way to the proposed Dinawan Subtation.

The indicative location of the Project's primary substation and the 330 kV overhead line are shown on **Figure 3.1**.

3.3.4 Ancillary Infrastructure

Ancillary infrastructure for the Project includes, but is not limited to:

- communication cables (includes control cables and earthing)
- hardstands
- internal roads
- permanent meteorological masts
- permanent offices and site compounds
- substations

- switching stations
- underground and overhead electricity transmission lines
- water storage tanks
- wind monitoring masts.

Temporary facilities will include site offices and compounds, rock crushing facilities, concrete batching plants, stockpiles and materials storage compounds, temporary laydown areas, minor construction access roads and temporary meteorological masts. All temporary facility sites will be rehabilitated once they are no longer required.

Sources for water supply and construction materials will be identified during preparation of the EIS, and assessment of potential impacts and appropriate mitigation measures will appear in the EIS.

3.4 Transport Route and Site Access

3.4.1 Project Site Access

The Project Site will be accessed from the public road network at the following locations during construction and operation:

- proposed main site entry locations will be off Liddles Lane
- proposed alternate site entry locations will be via Jerrys Lane and Wilson Road.

Figure 3.1 shows the indicative locations of the Project Site access points which would be gated and secured, and appropriate warning signs erected.

The public road network surrounding the Project is not currently planned to be used by construction vehicles, except to allow local service and/or resource suppliers the opportunity to participate in the Project. The Project will seek to allow heavy and light vehicles to use other public roads not discussed above, but only to undertake pre-construction minor works and dust suppression.

3.4.2 Over-sized, over-mass Vehicle Transport Routes

Over-sized, over-mass (OSOM) vehicle transport to the Project Site from various ports was the subject of a preliminary transport route feasibility assessment undertaken to consider the potential route options and identify opportunities and risks to the transport of WTG. This includes an assessment of an 85 m blade allowing for a conservative assessment in relation to route upgrades potentially required for the Project (iCubed, 2023).

Preliminary investigations have been conducted based on a desktop analysis and involved:

- Investigation into existing conditions of proposed transport route from the nominated port to the Project Site location.
- Identifying the key intersections and pinch point locations along the transport routes.

- Investigating the most appropriate turning paths for the vehicles to undertake at key locations.
- Vehicle swept path analysis of intersections along the proposed transport routes.
- Identification of any road or intersection upgrades required to enable transportation of vehicles to site.

A comparison of the travel distance from each nominated port to the Project site and general commentary is summarised in **Table 3.1** below.

Table 3.1 Preliminary transport route feasibility assessment outcomes

Aspect	Port of Geelong	Port of Newcastle	Port of Portland	Port of Kembla
Approximate Distance to Project Site	455 km	825 km	830 km	640 km
Potential Route	Via Geelong, Princes Highway (M1), Western Ring Road (M80), Hume Freeway (M31), Goulburn Valley Highway (A39), Newell Highway (A39), Kidman Way (B87)	Via Newcastle, Pacific Highway (A43), New England Highway (A1), Pacific Motorway (M1), NorthConnex Highway (A28), Hills Motorway (M2), Westlink M7 (M7), Hume Motorway / Highway (M31), Sturt Highway (A20), Newell Highway (A39), Kidman Way (B87).	Via Portland, Princes Highway (A1/A10), Princes Freeway (M1), Western Ring Road (M80), Hume Freeway (M31), Goulburn Valley Freeway (M39), Goulburn Valley Highway (A39), Newell Highway (A39) and Kidman Way (B87).	Via Wollongong, Princes Motorway (M1), Picton Road (B88), Hume Motorway / Highway (M31), Sturt Highway (A20), Newell Highway (A39) and Kidman Way (B87).

Aspect	Port of Geelong	Port of Newcastle	Port of Portland	Port of Kembla
General Comments	Geelong is a strong potential port option given the proximity to the Project Site as well as its convenient access to the regional road network. Geelong Port has also been utilised for recent renewable projects in the area. The feasibility for use of this port for WTG importation to NSW would need to be investigated further.	The route is approximately double the distance and time of the Port of Geelong route. However, Newcastle is an established port for the importation of turbines and blades for wind farms projects in other REZ's. This means that it is likely less upgrades will need to be made when compared to the Port of Geelong which may have more constraints. There is also fewer height constraints, with all overpasses being 5 m or greater according to available data.	The route is approximately double the distance and time of the Port of Geelong route. However, Portland has been used for WTG transportation previously and should require minimum modifications when leaving the port. At first inspection, this route could present a similar path to the Port of Geelong that could be utilised to transport both the blade and tower sections.	Port of Kembla is again a strong potential port option given its relative proximity to the Project. The feasibility for use of this port for WTG importation to NSW would need to be investigated further.

A preferred port and transport route have not yet been established but options are available as indicated in **Figure 3.3**. The preferred transport route of WTG components and other Project related materials will be confirmed (via the port and transport route assessment), to be prepared as part of the EIS.

Outcomes of the port and transport route assessment will be incorporated into the EIS traffic and transport impact assessment. Amongst other things this will identify a proposed transport route from the preferred port to the Project Site as well as any road upgrades. This will include consultation with relevant roads authorities and Council(s).

3.5 Economic Investment and Employment

The Project has a capital investment value (CIV) of approximately $1.5 billion and is anticipated to generate up to 340 Full Time Equivalent (FTE) employment opportunities during peak construction with a range of different skills required.

RES will engage an Engineering, Procurement and Construction (EPC) Contractor to construct the Project. The EPC Contractor will aim to engage local labour for construction and source local sub-contractors and suppliers, where possible and subject to local constraints. Furthermore, RES working with the local council, chambers of commerce and other community organisations to identify local employment opportunities and facilitate training in renewable energy to prepare for the increased demand for a skilled workforce when construction commences.

3.6 Construction Timing and Duration

It is anticipated that works will commence within one year of project approval. The timing of construction will be driven by additional permits and authorisations, contractor selection, detailed design and procurement processes and a final investment decision. The construction phase of the Project is anticipated to be 24 to 36 months.

Construction activities would be undertaken during standard daytime construction hours consistent with the *Interim Construction Noise Guideline* (Department of Environment and Climate Change 2009) (ICNG) as follows:

- 7 am to 6 pm Monday to Friday.
- 8 am to 1 pm on Saturdays.
- No works on Sunday or public holidays.

It is anticipated that certain activities would require work to be conducted outside these hours to prevent damage to concrete tower bases and trenches, to reduce the safety risk of open trenches and to reduce the risk of tower self-oscillation. Some examples of these activities include concrete pours, in-ground electrical work and WTG installation.



FIGURE 3.3
Transport Routes

Data source: NSW DFSI (2021); VIC DELWP (2021), Copyright:(c) 2014 Esri

3.7 Operations and Maintenance

The operation of the Project is expected to generate between 6 and 12 permanent full time employment opportunities. These may either be with RES directly or contracted through an Operations and Maintenance (O&M) Contractor. Operational staff will be responsible for day-to-day operations and maintenance activities, ground patrols, communication with local stakeholders and facilitation of third-party access to the site.

It is estimated that the operational life of the Project is up to 35 years, after which time it will either be extended, refurbished to extend its life and improve generation or decommissioned.

3.8 Decommissioning and Rehabilitation

Decommissioning of the Project will occur at the end of the Project's operational life. A decommissioning plan for the Project and associated infrastructure will be prepared in advance of decommissioning in consultation with the relevant regulatory authorities and landholders. The basis of the plan will be that the Project and associated infrastructure are to be decommissioned in line with the applicable legislative requirements and best practice guidelines existing at that time. Should the Project be approved, the development consent for the Project will include standard conditions regarding the cessation of operations, decommissioning and rehabilitation of the Project Site.

3.9 Project Alternatives

The Project location was selected due to:

- A reliable wind resource and access to this wind resource consistently across the Project Site.
- Its position within the South-West REZ and proximity to the proposed Dinawan Substation.
- Increased generation capacity in the existing transmission line due to the proposed Project Energy Connect, Victoria NSW Interconnector (VNI West) and Humelink transmission projects.
- Very flat topography within the Project Site resulting in straightforward construction when compared to wind farms in other geographies i.e. projects with more substantial topography.
- Generally positive feedback received from preliminary community and stakeholder engagement with host landholders, neighbouring landholders and other key stakeholder groups in the region.
- Low population density and a limited number of nearby rural residential dwellings. There are currently 16 non-associated dwellings and six host dwellings situated within 10 km of the Project Boundary, resulting in the potential to position WTG to maximise distance offsets to neighbouring dwellings such that substantial setbacks have been established and can be maintained.
- Much of the region being historically cleared of native vegetation and cultivated for agricultural use, resulting in generally homogenous agricultural land within and surrounding the Project Site.
- The Project being compatible with existing pastoral land uses, with minimal impact to current agricultural activities being anticipated during both construction and operation of the Project.

- Proximity to the existing public road network and access to several existing internal roads.
- Consideration of other important social and environmental values.

Consultation with potential host landholders started in April 2023 via phone calls and face to face meetings conducted by RES employees. Wind monitoring commenced on site in August 2022, to further understand the local wind resource and assess the feasibility of the Project.

The current Project Site with indicative WTG placement is based on an initial site desktop screening. Throughout the EIS, RES will further refine the turbine layout, taking into account discussions with involved landowners and project neighbours to incorporate feedback. Throughout scoping phase of the project RES has also identified many constraints that will inform future iterations on WTG locations. Constraints include riparian areas along the Yanco and Delta creek lines, significant remnant native vegetation beyond riparian zones and within certain paddocks and areas of high potential GDEs.

Project alternatives will be considered in more detail in the EIS.

4.0 Statutory Context

In meeting contemporary community expectations with regard to environmental and social impacts, the Project must respond to prevailing statutory requirements at a Commonwealth, State and Local Government level. In doing so, the Project demonstrates its validity and conformance with underlying social principles and expectations.

In accordance with the DPE Scoping Report Guideline (DPIE, 2022b), **Table 4.1** provides a summary of compliance requirements under Commonwealth, State and local legislation relevant to the Project including NSW State Environmental Planning Policies (SEPPs), Regional and Local Environmental Plans (REPs & LEPs). Detailed consideration of relevant statutory requirements will be provided in the EIS.

Table 4.1 Statutory Requirements Summary

Category	Comment
Power to grant consent	Section 4.36 of the EP&A Act provides for the declaration of a project as SSD. Under the EP&A Act, the declaration of a project as SSD can be made by meeting the requirements of a SEPP or by the Minister for Planning and Public Spaces. Clause 20 of Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021* prescribes that development for the purpose of 'electricity generating works' that has a capital investment value of more than $30 million is SSD. The Project has a capital investment value of greater than $30 million. Therefore, the Project is declared as SSD and the development application for the Project will be subject to the requirements of Division 4.7 of the EP&A Act. The development application will be lodged with the Planning Secretary of the Department of Planning and Environment (DPE). The consent authority will be the Minister for Planning and Homes or the Independent Planning Commission (IPC) if public objections to the Project exceed 50; any reportable political donations are made by the proponent; and/or the Local Council objects to the Project.
Permissibility	**Jerilderie LEP 2012** As illustrated on **Figure 4.1**, the Project Site is zoned RU1 'Primary Production' under the Jerilderie LEP 2012. Under the LEP, 'electricity generating works' are not listed as prohibited within the RU1 zoning and therefore, under the provisions of the LEP, the Project is permissible with consent. However, due to the operation of Clause 2.36(1)(b) of the Infrastructure SEPP, the Project is permissible with development consent. No subdivision of land is proposed as part of the Project. **State Environmental Planning Policy (Transport and Infrastructure) 2021** Clause 2.36(1)(b) of *the State Environmental Planning Policy (Transport and Infrastructure) 2021* (Infrastructure SEPP) states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural zone, which includes land zoned RU1 under a LEP. The Project, being located on land zoned as RU1 Primary Production, is therefore permissible with consent. Under Clause 2.7(1) of the Infrastructure SEPP, the provisions prevail where there are inconsistencies with any other environmental planning instruments, including LEPs.

Category	Comment
Commonwealth Approvals	**Environment Protection and Biodiversity Conservation Act 1999** Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), a referral is required to be submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for any 'action' that is considered likely to have a significant impact on any Matter of National Environmental Significance (MNES). A search of the Commonwealth Protected Matters Search Tool in August 2022 indicated that the Project Site is not within a world heritage property or national heritage place, is not in proximity to wetlands of international importance, is not within either a Commonwealth marine area or the Great Barrier Reef Marine Park, and does not relate to a nuclear action, coal seam gas or coal mining development (refer **Appendix 6**). There is however potential for the Project to impact on listed threatened species and ecological communities, and migratory species. An EBPC Referral will be lodged with the DCCEEW to determine whether the Project requires formal assessment and approval under the EPBC Act as a Controlled Action. If deemed a Controlled Action, it is proposed that the Project would be assessed under the bilateral agreement between the NSW and Commonwealth government. **Civil Aviation Regulations 1988** Reporting of tall structures to the Royal Australian Air Force (RAAF) is required under the *Civil Aviation Regulations 1988*. A detailed assessment in accordance with the regulations and consultation with the relevant agencies will be undertaken as part of the preparation of the EIS (refer to **Section 6.2.7**). **Heavy Vehicle National Law** Approvals are required for the transport of wind turbines and associated infrastructure by OSOM vehicles. The requirements for such OSOM transport will be assessed via a route analysis study as part of the EIS (refer to **Section 6.2.5**). **Native Title Act 1993** Searches of the National Native Title Register, the Register of Native Title Claims, and Native Title Applications Registration Decisions and Determinations, has not identified the Project Site as within a registered or determined native title claim. An Aboriginal Cultural Heritage Assessment (ACHA) will be completed as detailed in **Section 6.2.4.1** and an archaeology field survey will seek to identify indigenous archaeological sites and areas of Potential Archaeological Deposits (PADs) within and around the Project Site. Management and mitigation measures will be implemented as part of the Project to ensure protection of any un-expected Indigenous heritage finds.
NSW Approvals not required	Section 4.41 of the EP&A Act specifies authorisations which are not required for approved SSD. Those are listed below: • *Fisheries Management Act 1994* – a permit under section 201, 205 or 219. The Project may require work in water land to facilitate the upgrade of road crossings or establish new crossings of mapped watercourses within the Project Site. These works will be undertaken in accordance with the *Guidelines for riparian corridors on waterfront land* (DPI, 2012a) and *Guidelines for watercourse crossings on waterfront land* (DPI, 2012b). A Water Resources Impact Assessment will be undertaken during the EIS phase as discussed in **Section 6.2.8**.

Category	Comment
	• *Heritage Act 1977* – an approval under Part 4, or an excavation permit under section 139. The preliminary historical heritage analysis found that there are no listed heritage items within the Project Site. A detailed assessment of potential impacts on historical heritage will be undertaken as part of the EIS as discussed in **Section 6.2.4.2**. • *National Parks and Wildlife Act 1974* – an Aboriginal heritage impact permit under section 90. No sites have been previously recorded within the Project Site however this may be reflective of the lack of prior assessment in this area. An Aboriginal Cultural Heritage Assessment (ACHA) will be prepared as part of the EIS and will include consultation with the registered Aboriginal parties for the Project as outlined in **Section 6.2.4.1**. • *Rural Fires Act 1997* – a bushfire safety authority under section 100B. A bushfire threat assessment will be completed during the EIS as discussed in **Section 6.2.7.6**. Consultation with NSW Rural Fire Services (RFS), Fire and Rescue NSW and the local RFS fire brigade will be conducted during the preparation of the EIS. • *Water Management Act 2000* – a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91. Construction work near or within watercourses within the Project Site may be required. These works will be carried out in accordance with DPIE's various guidelines for controlled activities. A Water Resources Impact Assessment will be undertaken during the EIS phase as discussed in **Section 6.2.8**.
NSW Approvals that must be applied consistently	**Roads Act 1993** Under Section 138 of the *Roads Act 1993*, a person must not undertake any works that impact on a road, including connecting a road (whether public or private) to a classified road, without approval of the relevant authority, being either Transport for NSW or local council, depending upon the classification of the road. The interaction of the Project with the local and regional road network, including the requirement for any road works, will be addressed in the EIS and include engagement with relevant authorities.
Other relevant NSW legislation	**Crown Land Management Act 2016** Crown land may not be occupied, used, sold, leased, licensed, dedicated, reserved or otherwise dealt with unless authorised by the *Crown Land Management Act 2016*. As there are some areas of Crown land within the Project Site and should any works be proposed in these areas an approval would be obtained. **Biodiversity Conservation Act 2016 (BC Act)** Under the BC Act, biodiversity assessment in accordance with the Biodiversity Assessment Method (BAM) is required for any SSD project. The Project (as SSD) triggers the need to prepare a Biodiversity Development Assessment Report (BDAR) in accordance with the BAM. The EIS will include a BDAR. **Protection of the Environment Operations Act 1997 (POEO Act)** The POEO Act regulates pollution to the environment and requires licences for environment protection including waste, air, water, and noise pollution control. Wind farms are a scheduled activity under the POEO Act and require an Environment Protection Licence (EPL). An EPL would be sought in relation to the construction and operation of the Project.

Category	Comment
	Contaminated Land Management Act 1997 (CLM Act) The CLM Act establishes the process for investigating and if required, remediating land that the NSW EPA considers to be contaminated significantly enough to require regulation. The Project Site does not contain land listed on the Contaminated Lands Register. Relevant mitigation and management measures would be incorporated as part of the Project to address potential contamination issues.
Pre-conditions to exercising the power to grant consent	An EIS will be prepared in accordance with relevant legislative requirements and guidelines. No pre-conditions to exercising the power to grant consent for the Project are currently envisaged.
Mandatory matters for consideration	Section 4.15 of the EP&A Act describes the matters for consideration in assessing SSD, which includes the provisions of relevant environmental planning instruments, proposed instruments that have been the subject of public consultation, development control plans, planning agreements and statutory regulations. The assessment of SSD must also consider the likely impacts of the development, suitability of the site, and submissions received and the public interest. All relevant matters will be addressed in the EIS based on the outcomes of environmental assessments to be undertaken (refer to **Section 6.0**).

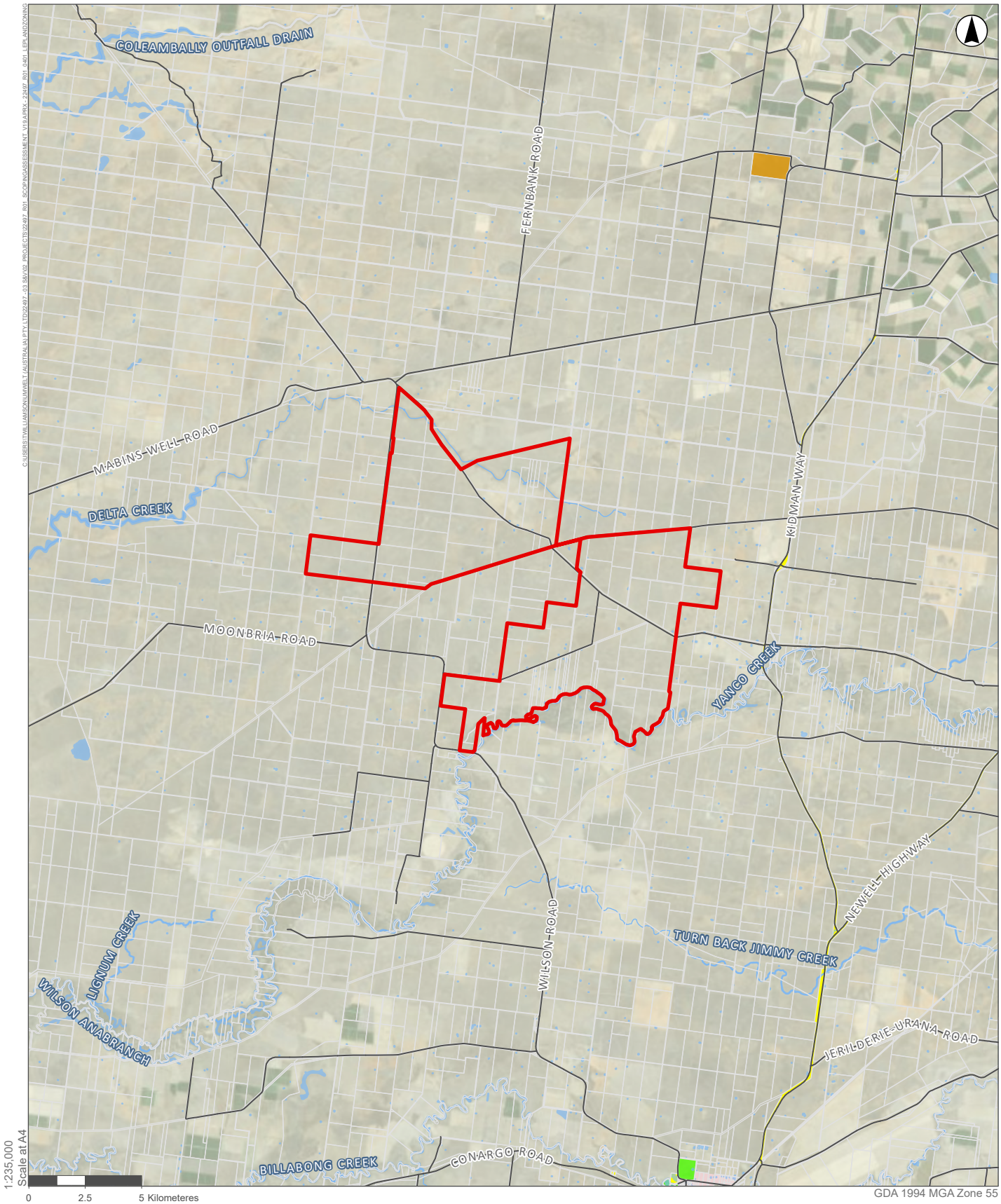


FIGURE 4.1

LEP Zoning

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)

5.0 Engagement

Umwelt is preparing a Social Impact Assessment (SIA) to support the EIS. The scoping phase (Phase 1) of the SIA has been conducted in accordance with the *Social Impact Assessment Guideline for State Significant Projects* and the Engagement Guidelines. Phase 1 of the SIA has involved key phases of work to inform Project planning and design process including consultation with relevant stakeholders to identify social impacts/issues relevant to the Project.

Stakeholders identified for the Project include the host landholders of the Project Site, residents of nearby communities including proximal neighbours (located within 10 km from the Project), employees and suppliers, local business and service providers, local government, State government, Federal government, traditional custodians and First Nations stakeholders, community and special interest groups, broader community and local media. These stakeholders have been identified within the Project's Community and Stakeholder Engagement Plan (CSEP) which is appended to the Social Impact Scoping Report (SISR) (refer to **Appendix 3**).

The following section provides a summary of the CSEP, the consultation undertaken to date and key issues raised.

5.1 Stakeholder Engagement Plan

Through the implementation of the CSEP, RES aims to:

- Keep the community informed about the Project, its likely impacts and likely benefits, through the provision of accurate and timely information.
- Provide multiple opportunities and mechanisms for meaningful information exchange with stakeholders.
- Ensure that the team developing the Project fully understands the local context, including any local impacts that it may have or opportunities that it could provide.
- Integrate feedback received into the Project planning and design as far as possible.
- Build and maintain positive, trust-based relationships with the local community.

The CSEP provides an overview of RES' approach to stakeholder engagement throughout all stages of the Project, outlines the Project and the relevant stakeholders, provides detail on the consultation undertaken to date and outlines various community benefits.

5.2 Phase 1 Engagement (Scoping)

Engagement with project neighbours and local stakeholders commenced in April 2023 and has been undertaken by the RES Project Team for the Argoon Wind Farm. The Project team have engaged in a range of activities, including hosting community information sessions, meeting with neighbouring landholders, council members and local stakeholders in-person and online to build and maintain genuine, trusting relationships. The overall approach to consultation with local community is aimed to be flexible, inclusive, open and responsive.

Stakeholder and community engagement has been undertaken early in the scoping phase:

- to proactively inform Project design and development
- to identify perceived issues/impacts to be addressed in the assessment process
- to establish stakeholder relationships with hosts, near neighbours and key stakeholders for the Project.

A range of engagement mechanisms have been used to obtain input from the various stakeholder groups during the Phase 1 engagement activities, as summarised in **Table 5.1**.

Table 5.1 Community Engagement

Engagement	Details
Website/hotline/ email / media release	A website, hotline and email address were established in March 2023 and two local media advertisements for community information sessions.
Formal project briefings	Initial project briefings were undertaken in April to October 2023 with key stakeholders such as the host landholders, nearby neighbours and Council to introduce RES and the Project.
Project Information Sheet	During June 2023, Project Information Sheet No 1 was distributed to approximately 2,476 households, 170 local community groups and 23 nearby neighbours to introduce the Project, to introduce RES, invite community members to community drop-in sessions and provide updates on the Project.
Personal interviews and face to face meetings	Meetings, phone calls and emails have been (and continue to be) undertaken with potential hosts and near neighbours. A total of 25 landholders have been contacted to date in relation to the Project. One-on-one introductory meetings with nearby and adjacent landholders took place in May-June 2023 and followed by further one-on-one meetings in October 2023 and a group meeting with 9 of the closest neighbouring landholders. All non-associated landholders within 3,750 m of the nearest WTG have been consulted by RES with face to face meetings. Face to face meetings and interviews with the following key stakeholder groups were also conducted during July and October 2023: • Coleambally Lions Club • Jerilderie Chamber of Commerce • Coleambally Chamber of Commerce • Coleambally Landcare.
Questionnaire/Survey	Host landholders were provided with a questionnaire to complete in their own time and provide written response in June 2023.
Community Drop-in Session	Two community drop-in sessions were held on 21 and 22 July 2023 with a total of 15 community members attending across both sessions. The session provided updates on the next steps of the process and provided community members an opportunity to provide perspectives and feedback.

Further detail on the community engagement activities and timing can be found in Section 2.5 of the SISR (refer to **Appendix 3**).

The formal notification process for the Aboriginal Cultural Heritage Assessment has been carried out and six groups have responded formally registering their interest in the project. Detailed consultation will be undertaken with the Registered Aboriginal Parties (RAPs) for the Project throughout the EIS phase.

Consultation will be undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010b). Further details on the proposed heritage assessment are provided in **Section 6.2.4.1**.

5.2.1 Community Views

Phase 1 engagement activities focused on the proximal neighbours who are more likely to be impacted by the Project. The preliminary views from the community and data presented in the SISR (**Appendix 3**) are localised and do not necessarily represent the broader community.

When stakeholders and community members were asked directly about potential negative impacts of the Project, both prompted and unprompted, the top issues raised included:

- impacts on surrounds, and in particular the potential for the Project to impact on the visual amenity of the social locality
- public safety risks associated with natural disasters such as increase in bushfire risk
- site disturbance and impacts on environmental values and land uses
- public safety risks associated with increased traffic and impact to road condition
- short-term economic boost
- consultation fatigue and confusion due to multiple concurrent renewable energy projects.

When community members were asked directly to identify potential positive impacts of the Project, the most frequently cited response related to:

- local employment and procurement opportunities
- the provision of renewable energy to the National Electricity Market and long-term energy security
- support social infrastructure
- economic benefits and the sharing of these benefits through direct investment in the local community.

Key issues raised by stakeholders are discussed in detail in Section 4.0 of the SISR included in **Appendix 3**.

5.3 Phase 2 Engagement (EIS preparation)

The stakeholder identification process within the scoping phase involved identifying stakeholders with an interest in the Project, or those directly and indirectly affected, including any potentially vulnerable or marginalised groups in the community. The identified stakeholders were grouped according to the level of engagement needed for the Project. Proposed engagement activities to be undertaken during the EIS phase will be focused on exploring and validating the matters identified during the scoping phase. Similar engagement mechanisms will be used in Phase 2 as for Phase 1.

Engagement in this round will focus on:

- Sharing information and gathering feedback on the proposed design of the Project.

- Assessment of perceived or key social and environmental issues, impacts and opportunities associated with the Project.
- Potential mitigation or enhancement strategies to address and respond to issues, impacts and opportunities.
- Existing capacity of local land service provision and project future demand as relevant to the predicted project impacts.
- Measures to improve collaboration between RES and community or stakeholders, including potential community investment and benefit-sharing opportunities.

Round 2 of the Stakeholder engagements is expected to commence in early to mid-2024 and continue throughout the EIS phase.

5.4 Agency Engagement

The engagement program to inform the Scoping Report for the Project has included initial briefings with relevant government agencies. These briefings included an overview of the Project, discussion of the approvals processes and sought preliminary feedback on issues to be considered in the EIS.

The following agencies have been briefed on the Project:

- Murrumbidgee Shire Council – Meeting held 25 April 2023 and 19 October.
- Transport for NSW – letter correspondence on 20 September 2023, providing an overview of the project and requesting initial feedback with an offer to meet.
- Crown Lands – letter correspondence on 20 September 2023, providing an overview of the Project and requesting initial feedback with an offer to meet. *A response from Crown Lands was received via email on 24 September 2023, noting that Crown Lands acknowledges the introduction letter but will await receipt of the SEARs before providing comment on the Project*.
- DPE Water – letter correspondence on 20 September 2023, providing an overview of the Project and requesting initial feedback with an offer to meet.
- Heritage NSW – letter correspondence on 20 September 2023, providing an overview of the Project and requesting initial feedback with an offer to meet. *A response from Heritage NSW was received via email on 26 September 2023, noting that no additional information is required at this point in the assessment process*.
- Environment Protection Authority (EPA) – letter correspondence on 20 September 2023, providing an overview of the Project and requesting initial feedback with an offer to meet. *A response from EPA was received via email on 6 October 2023, noting that the EPA will await receipt of the SEARs before providing comment on the Project*.
- Biodiversity, Conservation and Science (BSC) – letter correspondence on 20 September 2023, providing an overview of the Project and requesting initial feedback with an offer to meet. A meeting was held with BCS on 19 October 2023 to discuss the biodiversity assessment work completed to date, including the Bird and Bat Utilisation Surveys (BBUS) methodology and data available from those surveys.

- Department of Planning and Environment (DPE) – Scoping meeting held on 10 October 2023.

During the preparation of the EIS, the agencies listed above will continue to be consulted on the EIS findings. Additional government agencies that may be consulted include:

- Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW).
- Rural Fire Service (RFS) and / or Fire and Rescue NSW.
- DPE Hazard.
- Department of Primary Industries – Agriculture and Fisheries (DPI).

6.0 Proposed Assessment of Impacts

6.1 Key Environmental and Social Matters

A review of the environmental and social matters relevant to the Project have been conducted to determine which issues need to be assessed as part of the EIS and the level of assessment that is required. This review has been undertaken with reference to the categories of assessment matters identified by the DPIE Scoping Guideline (DPIE, 2022b), with the key issues and the proposed level and scope of assessments discussed in the following sections.

The environmental and social matters relevant to the Project are identified and have been characterised (in accordance with DPIE, 2022b) as follows:

- matters requiring further assessment in the EIS (refer to **Section 6.2**)
- matters requiring no further assessment in the EIS (refer to **Section 6.3**).

For the matters requiring further assessment in the EIS, **Section 6.2** identifies whether detailed or standard assessment is required (as defined by *Appendix D* of DPIE Scoping Guideline). **Appendix 2** presents a Scoping Table Summary showing the outcome of the scoping stage review of matters as required by DPIE (2022b).

6.2 Matters Requiring Further Assessment in the EIS

The environmental, social and economic matters discussed in this section have been identified as key issues requiring further assessment as part of the EIS to fully understand the potential impacts and identify project-specific mitigation measures and/or alternatives. The relevant assessments will be undertaken in consideration of the *Wind Energy Guideline for State significant wind energy development* (DPE, 2016) (Wind Energy Guideline).

6.2.1 Landscape Character and Visual Amenity

A preliminary visual impact assessment (PVIA) was completed by Moir Landscape Architecture Pty Ltd (Moir) in accordance with the requirements of the Visual Bulletin. This section provides a summary of the outcomes of the PVIA with the full report attached in **Appendix 4**.

As outlined in **Section 5.0**, RES has commenced early engagement with the local community and with landholders within and surrounding the Project Site. The likely visual changes to the landscape were identified as an issue through community consultation. In particular, proximal landholders were concerned about how WTGs will impact the views from their properties and in some instances that the nature of large, built structures is contrary to the natural values of the social locality. Cumulative impacts associated with the Project and other nearby proposed renewable energy projects were also regarded as a key concern.

Consultation with the broader community and key stakeholders further highlighted that there are no features of historical significance within the Project boundary and no scenic protection zones exist within the PVIA study area, as the land is generally flat with no defining visual features, and that areas of environmental protection significance such as creeks would need to be protected.

The Project Site is located near Kidman Way. Extensive areas within and surrounding the Project Site have been cultivated for agricultural purposes, containing predominantly grassland and semi-arid woodland. The Project will be visible from both associated and non-associated landholders which will be a key focus of the detailed Landscape and Visual Impact Assessment (LVIA).

6.2.1.1 Preliminary Visual Impact Assessment

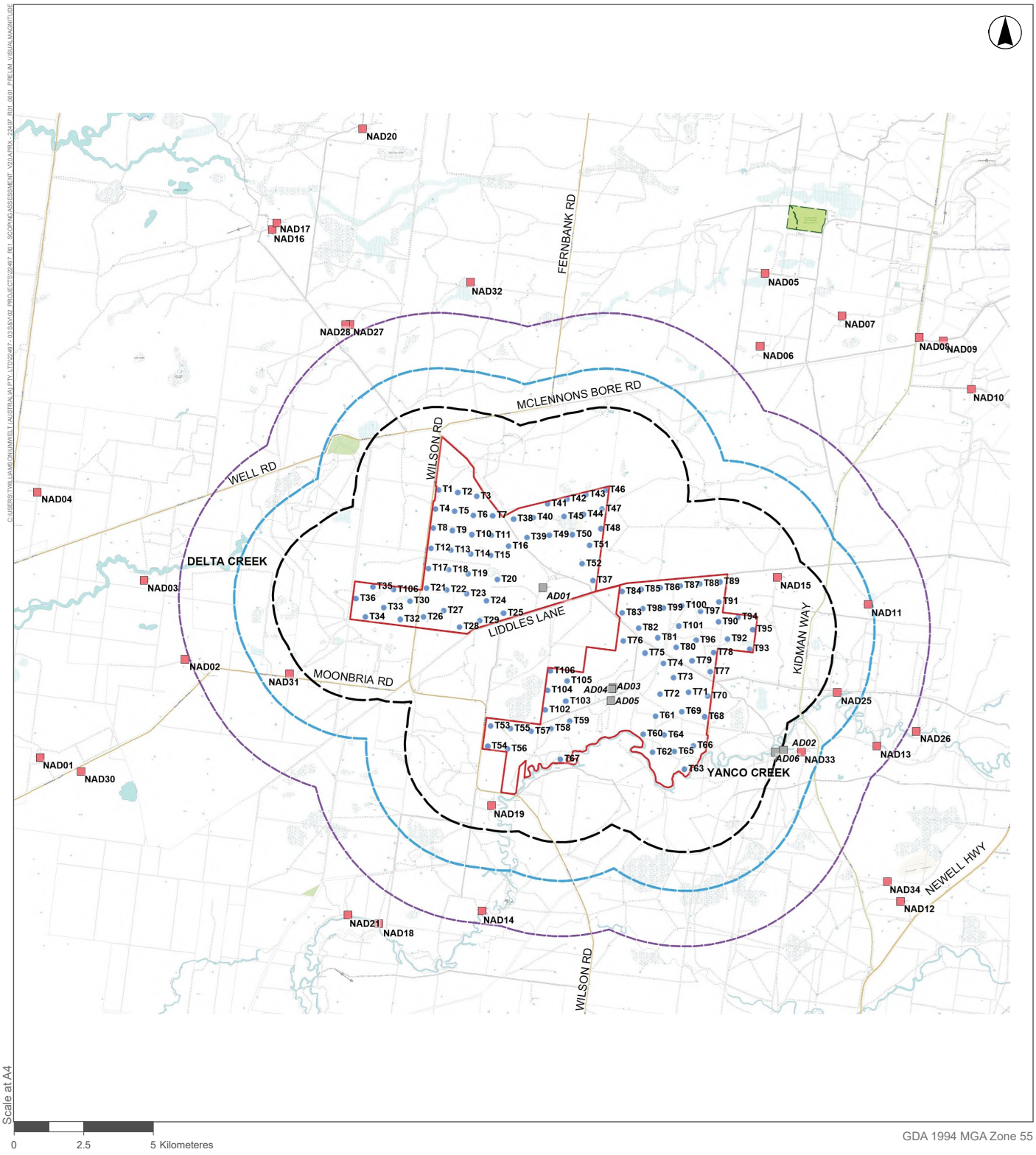
Visual Magnitude Assessment

In accordance with the Visual Bulletin, proposed WTGs below the 'black line' were identified along with the dwellings or key public viewpoints. The proposed WTGs are based on a worst-case scenario with a tip height of 280 m. As shown on **Figure 6.1**, the 'black line' intersects at a distance of 3,750 m and the 'blue line' intersects at 5,500 m.

Eight non-associated dwellings have been identified within 8,000 m of the nearest WTG as shown on **Figure 6.1**. The PVIA notes that:

- two non-associated dwellings have been identified within 3,750 m (within the black line) of the proposed WTGs
- four non-associated dwellings have been identified between 3,750–5,500 m (between the black and blue line) of the proposed WTGs
- two non-associated dwellings have been identified between 5,500–8,000 m (between the blue and purple line) of the proposed WTGs.

Figure 6.2 illustrates the Visual Zone of Influence Analysis, which indicates the theoretical number of WTGs that will be visible within the landscape. It should be noted the Visual Zone of Influence Analysis is preliminary only and is generated from topography mapping and does not take into consideration other factors that would restrict views such as orientation, vegetation, distance, perspective, etc. It should also be noted that the Visual Bulletin preliminary assessment tools are not determinative, and rather provide early indication of where placement of WTGs will require further detailed assessment and justification. Further detailed assessment and justification will be completed in the LVIA.



LEGEND

- Project Area
- T84 Proposed 280 m Turbine Location
- Host Residences
- Non-associated residences
- 3,750 m from nearest turbine
- 5,500 m from nearest turbine
- 8,000 m from nearest turbine
- Major Roads
- Minor Roads
- Creeks
- National Parks and Nature Reserves

FIGURE 6.1

Preliminary Assessment Tool 1: Visual Magnitude

Image Source: NSW Public Imagery (2022) **Data source:** MOIR (2023)



LEGEND

- Project Investigation Area
- T84 Proposed 280 m Turbine Location
- Host Residences
- Non-associated residences
- 8000 m from nearest turbine
- Roads

Number of visible turbines (at tip height)
(Based on topography alone):

- 0
- up to 106

FIGURE 6.2

Preliminary Zone of Visual Influence (Blade Tip 280m)

Image Source: NSW Public Imagery (2022) **Data source:** MOIR (2023)

Multiple Wind Turbine Analysis

The Visual Bulletin outlines the requirements for the multiple wind turbine assessment which provides a preliminary indication of potential cumulative impacts arising from the proposed wind energy project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple WTGs, the proponent must map into six sectors of 60° any proposed WTGs, and any existing or approved WTGs within eight kilometres of each dwelling or key public viewpoint.

Figure 6.3 provides an overview of the number of 60° sectors visible from each of the dwellings identified within 8,000 m. This gives an indication of the number of WTGs visible across the landscape, however, it should be noted that this is based on topography alone and does not take into consideration other factors such as orientation, vegetation, distance, perspective etc which would restrict views of the WTGs. This may result in the WTGs being either completely screened from view or only partially visible (i.e. only the tip of the WTG may be visible). It is noted that the PVIA does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing turbines.

The PVIA notes that:

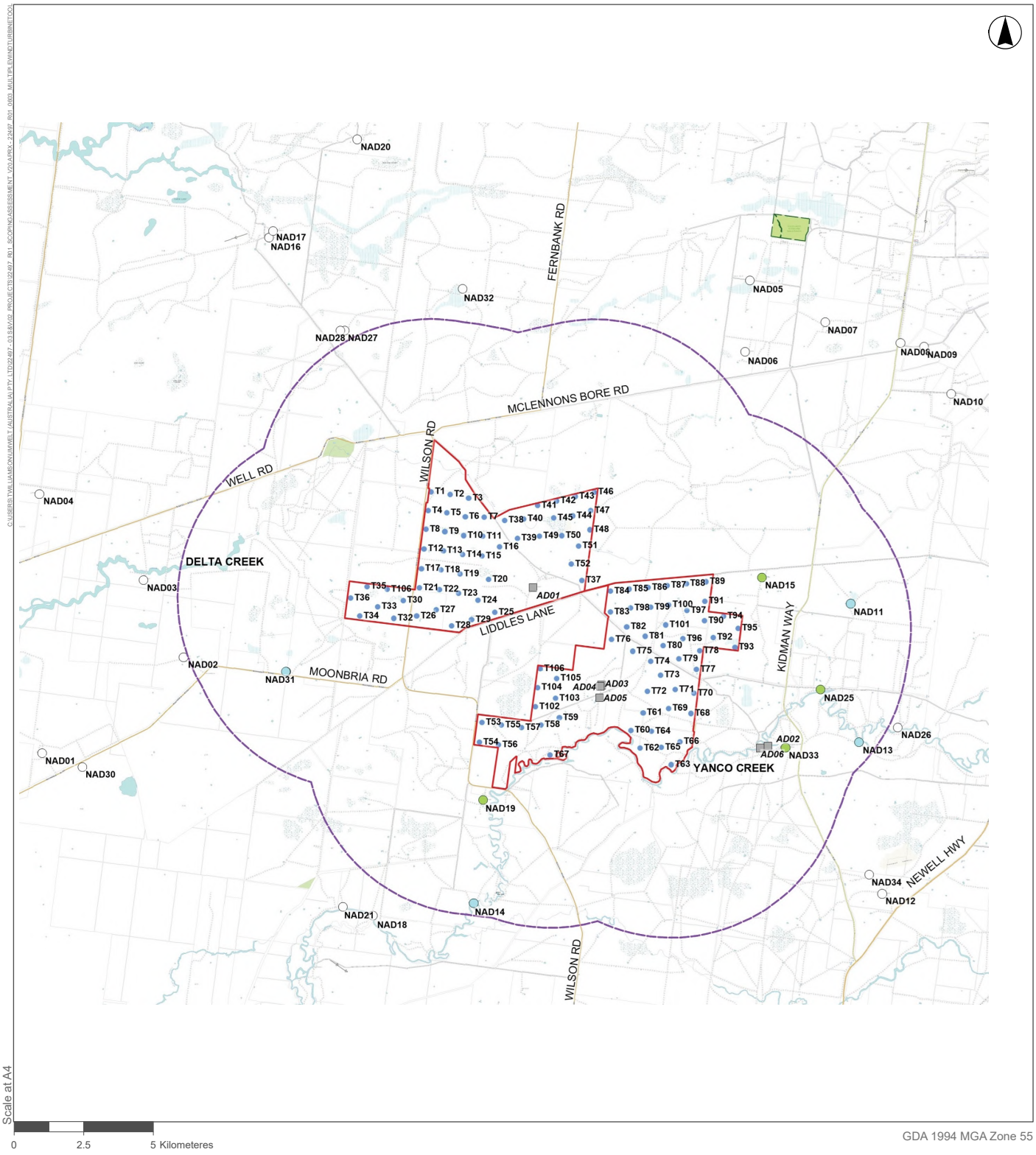
- of the eight non-associated dwellings within 8,000 m of the nearest WTG (refer to **Figure 6.3**),
    - four non-associated dwellings may have views of turbines in up to one 60° sector, and
    - four non-associated dwellings may have views of turbines in up to two 60° sectors (up to 120°), which is deemed acceptable according to the Bulletin.

Consultation with the above landholders will continue throughout the development of the detailed LVIA.

Cumulative Preliminary Visual Analysis

Cumulative visual impacts resulting from the Project and the nearby Yanco Delta Wind Farm and Dinawan Wind Farm projects have been assessed in the PVIA. The PVIA notes that of the eight non-associated dwellings within 8,000 m of the nearest WTG:

- one non-associated dwelling may have views of turbines in up to six 60° sector
- two non-associated dwellings may have views of turbines in up to four 60° sectors
- five non-associated dwellings may have views of turbines in up to two 60° sector, which is deemed acceptable according to the Bulletin.



1:12,500
Scale at A4

0 2.5 5 Kilometeres

GDA 1994 MGA Zone 55

LEGEND

- Project Area
- T84 Proposed 280 m Turbine Location
- AD01 Host Residences
- 8000 m from turbines
- Major Roads
- Minor Roads
- Creeks
- National Parks and Nature Reserves
- Dwellings or viewpoints in excess of 8,000 m
- One (1) 60° Sector (60°)
- Up to two (2) 60° Sectors (120°)
- Up to three (3) 60° Sectors (180°)
- Up to four (4) 60° Sectors (240°)
- Up to five (5) 60° Sectors (300°)
- Up to six (6) 60° Sectors (360°)

FIGURE 6.3

Multiple Wind Turbine Tool

Image Source: NSW Public Imagery (2022) **Data source:** MOIR (2023)

6.2.1.2 Further Assessment

Further detailed assessment and site inspections of sensitive receivers to ground truth the findings of PVIA will be undertaken in the Landscape and Visual Impact Assessment (LVIA) to be completed as part of the EIS phase. The LVIA will be prepared in accordance with the requirements of the Visual Bulletin which comprises three main steps:

- preparation of visual baseline study inputs, including consulting the community on aspects of the baseline study
- establishing visual influences zones from viewpoints using data collected in the baseline study
- visual performance evaluation requiring application of visual performance objectives to the proposed WTG layout.

The LVIA will also include:

- a detailed assessment of the Project layout with consideration to all influencing factors such as topography, relative distance, perspective, orientation and existing vegetation that may obscure views of the Project
- consultation with potentially impacted landholders
- ground truthing, photography and photomontages of the Project
- a description of the proposed mitigation measures to reduce visual impacts.

Potential mitigation measures to reduce visual impacts may include, but will not necessarily be limited to:

- deletion of WTGs from the Project or repositioning of WTGs
- screening and/or supplementary planting
- night lighting of ancillary infrastructure being limited to low-level lighting for security, night time maintenance and emergency purposes
- consideration of WTG and Project infrastructure colour and design during final commercial tender process to minimise visibility and contrast
- entering into impact agreements with impact landholders.

6.2.2 Noise and Vibration

A preliminary noise impact assessment (PNIA) has been undertaken by Sonus Pty Ltd in accordance with the Noise Bulletin.

The Noise Bulletin provides a baseline noise criterion of 35 dB(A) or 5 dB(A) above the background noise level at each integer wind speed for non-associated dwellings (whichever is greater). The Noise Bulletin enables the baseline criteria to be higher for associated dwellings. It is noted that background noise level monitoring conducted as part of the detailed EIS process may result in an increase in the noise assessment criteria for the Project above that of the 35 dB(A) baseline noise criterion.

The results of the PNIA are summarised below, with the full report provided in **Appendix 5**.

6.2.2.1 Existing Environment

Given the Project's rural setting and main land use (refer **Section 2.2**), existing background noises at nearby sensitive receivers are likely to be low and characterised by agricultural activities (such as use of agricultural equipment and machinery associated with production activities), vehicle movements and nature (weather related sounds such as wind and rain, animals including livestock, birds and insects, etc).

Associated and non-associated dwellings identified for the PNIA are shown on **Figure 6.4**. Refer to Appendix B of the PVIA (**Appendix 5**) for further detail regarding the location of these receivers. These locations will be reviewed and updated during the preparation of the Noise and Vibration Impact Assessment (NVIA) prepared through the EIS process.

6.2.2.2 Potential Noise and Vibration Impacts

The Project has the potential to result in construction related noise and vibration impacts associated with preparatory earthworks, delivery and assembly of infrastructure (such as the WTGs, BESS, on-site collector substations and grid connection works) and operation of light and heavy vehicles.

Operational noise sources include the operation of Project infrastructure (such as the WTGs, BESS, on-site collector substations and grid connection works) and vehicle movements associated with maintenance.

Noise contours provided in **Figure 6.4** display the worst-case operational scenario (i.e. all WTGs in the preliminary Project layout operating concurrently producing its maximum sound power level). The preliminary assessment assumed a sound power level of 108 dB(A), which is a conservatively high assumed level for a modern WTG. Refer to Appendix B of the PVIA (**Appendix 5**) for further detail regarding the predicated noise levels at each receiver.

Based on the preliminary modelling, there are no non-associated dwellings that have a predicted noise level above or equal to 35 dB(A) (refer to **Figure 6.4**).

6.2.2.3 Further Assessment

A Noise and Vibration Impact Assessment (NVIA) will be prepared as part of the EIS following the Noise Bulletin, Noise Policy for Industry (EPA, 2017) (NPfI), *Interim Construction Noise Guideline* (DECC, 2009), *NSW Road Noise Policy* (DECCW, 2011) and *Assessment Vibration: A technical Guideline* (DECC, 2006).

The NVIA will:

- establish the relevant level of background noise
- provide predictive noise modelling of the Project's construction and operational activities
- assess the road traffic noise during construction and operational activities
- assess any vibration impacts at sensitive receivers, and
- identify any reasonable and feasible mitigation and management measures.

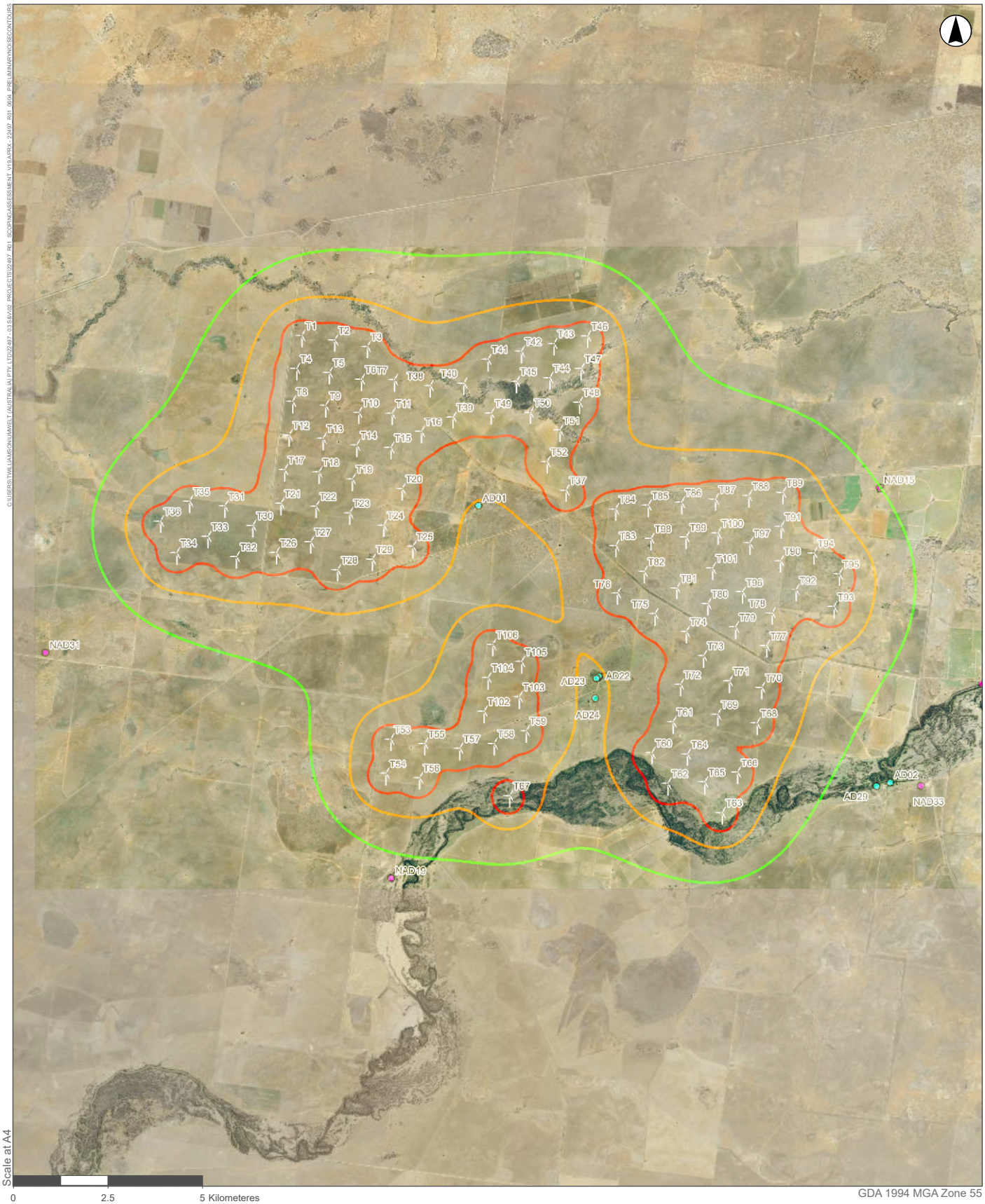


FIGURE 6.4

Preliminary Noise Contours

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2021), NSW DSFI (2021); NPWS Estate (2019)

Reasonable and feasible mitigation and management measures for noise will be considered as part of the NVIA process and may include, but will not necessarily be limited to:

- deletion of WTGs from the Project or repositioning of WTGs
- fixed construction noise sources such as concrete batching plant, generators and compressors being located at the maximum practicable distance to the nearest non-associated dwellings, where practicable
- investigate alternative construction processes where feasible and reasonable to reduce noise
- implement a Construction Environmental Management Plan (CEMP), including regular updates to the local community
- entering into impact agreements with impacted landholders.

6.2.3 Biodiversity

Biodiversity is a key consideration of the Project design and assessment work commenced in mid-2022 to progressively gather information to inform the Project design process, assisting to avoid and minimise impacts.

A preliminary biodiversity assessment was undertaken in August/September 2022 incorporating desktop analysis, vegetation mapping and a supplementary site inspection. The assessment identified potential ecological constraints present within the Project Site listed under the BC Act and the EPBC Act including Plant Community Types (PCTs), threatened species, populations or threatened ecological communities (TECs). Preliminary Category 1 – exempt land mapping process applied to the Project Site identified several areas of vegetation within the Project Area which may meet the criteria of Category 1 – exempt land under the *Local Land Services Act 2013*. Areas identified as potential Category 1 – exempt land within the Project Area occur:

- in patches in the north of the Project Area, between Jerrys Lane and Delta Creek
- in patches in the south of the Project Area, between Woodside Road and Yanco Creek.

Preliminary Category 1 – exempt land mapping will be further reviewed and verified during the BDAR process.

Umwelt commenced further survey work for the Project in January 2023, in accordance with the requirements of the BAM and to gather site specific information to inform Project design and the BDAR. Surveys are ongoing, however, a summary of the survey effort undertaken to date is provided in **Table 6.1**.

Table 6.1 Biodiversity Survey Effort to Date

Survey Aim	Method	Survey Effort
Preliminary biodiversity assessment	• Desktop analysis of biodiversity constraints within the Project Site. • Rapid vegetation points, floristic data, species diversity, changes in abiotic conditions (occurrence of creek lines and past disturbance), along with preliminary mapping of plant community types (PCTs) within the Project Site. • Recording of incidental threatened species and fauna habitat (i.e. semi-permanent waterbodies, creek lines, potential raptor nests and presence of hollow bearing trees).	• Rapid vegetation points and ground truthing PCT mapping during 12 to 14 September 2022, resulting in approximately 30 hours of survey effort.
Understand bird and bat site utilisation	• Bird and Bat Utilisation Surveys (BBUS). • Bird utilisation survey points, recording all bird species observed in 360 degrees, noting flight behaviour, flight orientation and estimating flight height. • Recording the location and behaviour of any raptor species observed at any point during the survey. • Bat utilisation survey points, installing Anabat units (microbat echolocation call detectors), at/near ground level as well as on an existing metrological mast.	• Summer 2023, Autumn 2023, Winter 2023 and Spring 2023 surveys, each comprising: ○ 10 survey points across the Project site, each comprising bird and bat utilisation surveys. ○ Bird utilisation points each surveyed 3 times, once in the morning, once at midday and once in the afternoon (not on the same day) for a total of 6 hours (i.e. 1 hour period each time). ○ Anabat call detectors installed approximately 2 meters above ground level, deployed for 7 nights at the same 10 survey points.

6.2.3.1 Preliminary Biodiversity Assessment Results

The Project Site is comprised primarily of disturbed agricultural land (with varying degrees of biodiversity value) and mixed remnant and modified woodlands/forests and grasslands. The preliminary biodiversity assessment has identified 20 PCTs across the Project Site (refer to **Table 6.2**). Preliminary PCT mapping across the Project Site is provided in **Figure 6.5**. Nine (9) of the PCTs are identified as having potential associations with TECs listed under the BC Act and EPBC Act (refer to **Table 6.3**). It is noted that the PCT and condition zone mapping is not yet finalised and will be refined as further survey is completed for the BDAR.

Table 6.2 Plant Community Types and Potential Threatened Ecological Community Associations

PCT ID	PCT Name	Area within Project Site (ha)
2	River Red Gum-sedge dominated very tall open forest in frequently flooded forest wetland along major rivers and floodplains in south-western NSW	31.98

PCT ID	PCT Name	Area within Project Site (ha)
7	River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion	155.67
8	River Red Gum - Warrego Grass - Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion)	17.86
9	River Red Gum - wallaby grass tall woodland wetland on the outer River Red Gum zone mainly in the Riverina Bioregion	138.97
11	River Red Gum - Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	17.04
12	Shallow marsh wetland of regularly flooded depressions on floodplains mainly in the semi-arid (warm) climatic zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	0.68
13	Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	164.42
15	Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	1.54
16	Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	14.44
17	Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	92.60
19	Cypress Pine woodland of source-bordering dunes mainly on the Murray and Murrumbidgee River floodplains	73.23
24	Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains	21.51
26	Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion	1,051.75
28	White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone	64.88
44	Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	4,625.94
45	Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion	491.58
46	Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain, Riverina Bioregion	2,084.13
47	Swamp grassland wetland of the Riverine Plain	425.51
74	Yellow Box - River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion	30.58
0	Not native vegetation	1,383.85
Total (ha)		**10,888.16**

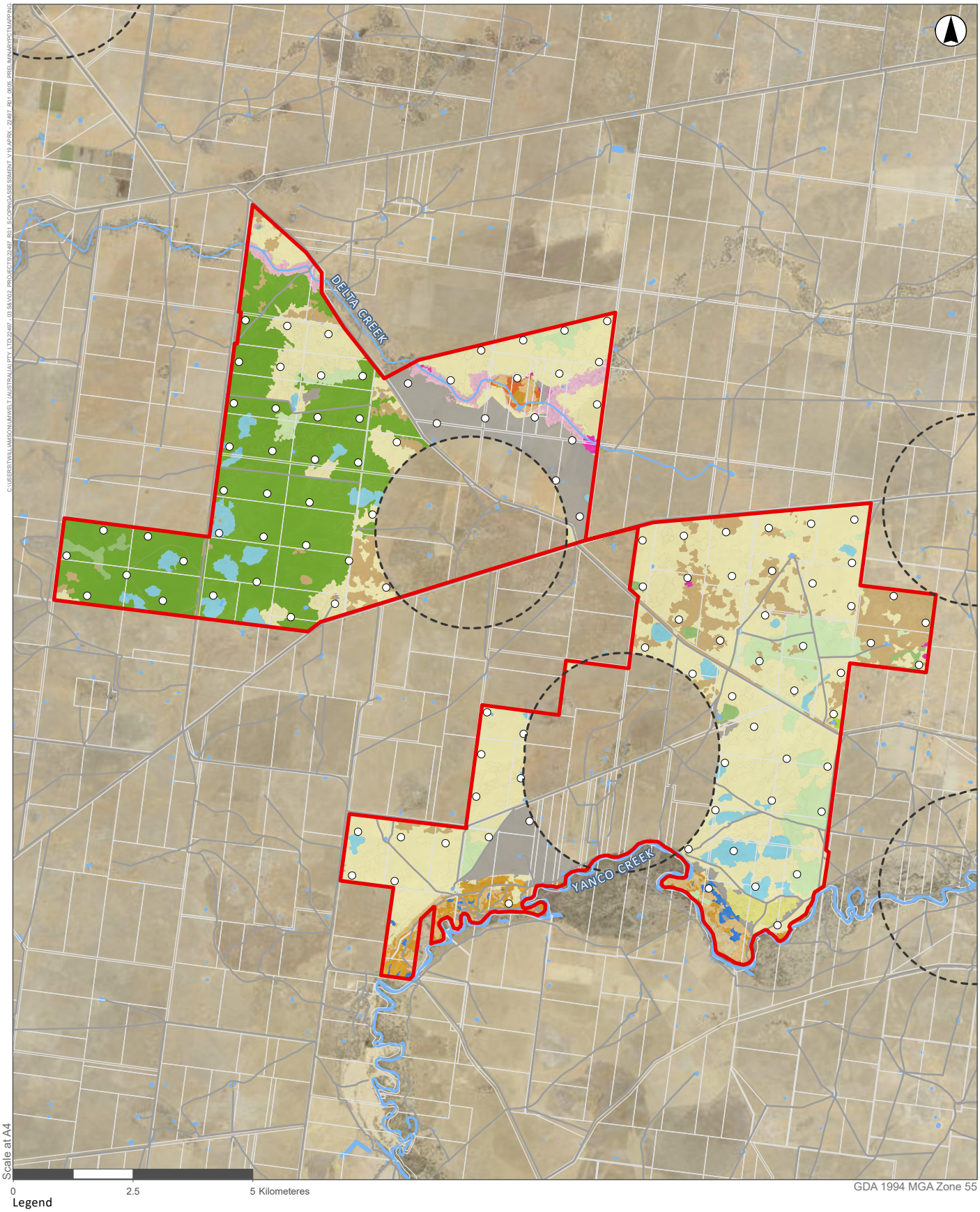


FIGURE 6.5

Preliminary PCT Mapping within Project site

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2021), NSW DSFI (2021); NPWS Estate (2019)

Potential Threatened Ecological Communities

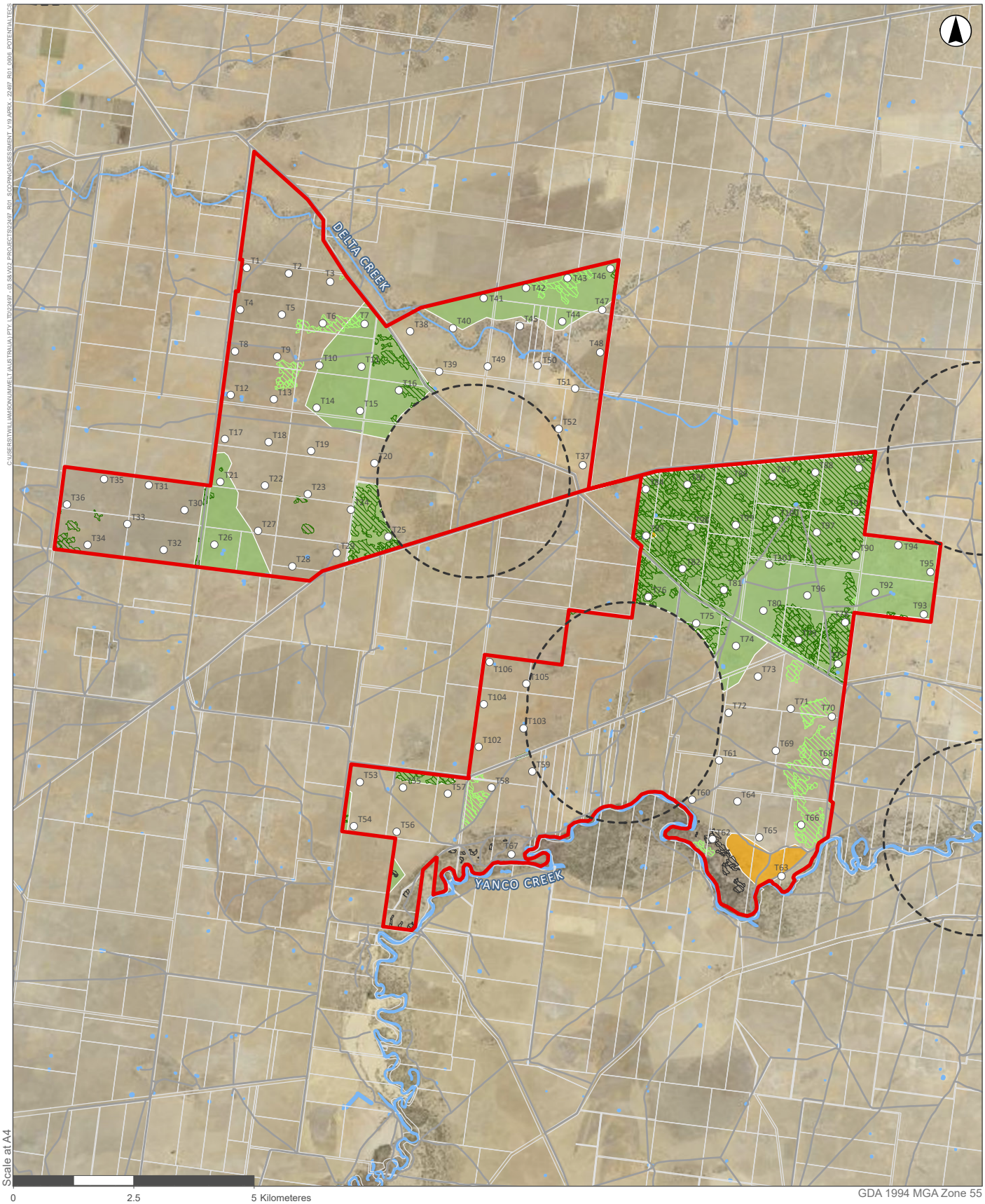
Table 6.3 below presents the TECs that have the potential to occur within the Project Site based on the biodiversity assessment completed to date. Also included, is an assessment of the potential for Serious and Irreversible Impact (SAII) and the likelihood of occurrence within the Project Site. **Figure 6.6** illustrates the potential TECs within the Project Site.

It is noted that this preliminary assessment is based on preliminary survey results and mapping, and on the preliminary layout of the Project which is subject to change.

Table 6.3 Threatened Ecological Communities Potentially Occurring in the Project Site

Threatened Ecological Community	BC Act listing	EPBC Act listing	Entity with the potential for SAII	Likelihood of occurrence
Natural Grasslands of the Murray Valley Plains	Not listed	Critically Endangered	No	High
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	Endangered	Not listed	No	High
Weeping Myall Woodlands	Not listed	Endangered	No	High
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	Endangered	Not listed	No	High
Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions	Endangered	Not listed	No	Moderate
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Not listed	Critically Endangered	No	Low
White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina	Critically Endangered	Not listed	Yes	Low
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Not listed	Critically Endangered	No	Low
Artesian Springs Ecological Community in the Great Artesian Basin	Critically Endangered	Not listed	Yes	Low

As detailed vegetation surveys and analysis across the Project Site has not been carried out to date, the presence of other TECs occurring within the Project Site cannot be discounted. Furthermore, the likelihood of occurrence assigned to each TEC at this stage may change following further detailed assessment.



Legend

- Proposed Wind Turbine Generators
- Roads
- Watercourse
- Cadastre
- Housing Buffers (2km Buffer)
- Project Site

Indicative NSW Threatened Ecological Community Constraints

- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions
- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions

Commonwealth Threatened Ecological Communities

- Natural Grasslands of the Murray Valley Plains CEEC
- Weeping Myall Woodlands EEC
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC

FIGURE 6.6

Potential TECs within Project Site

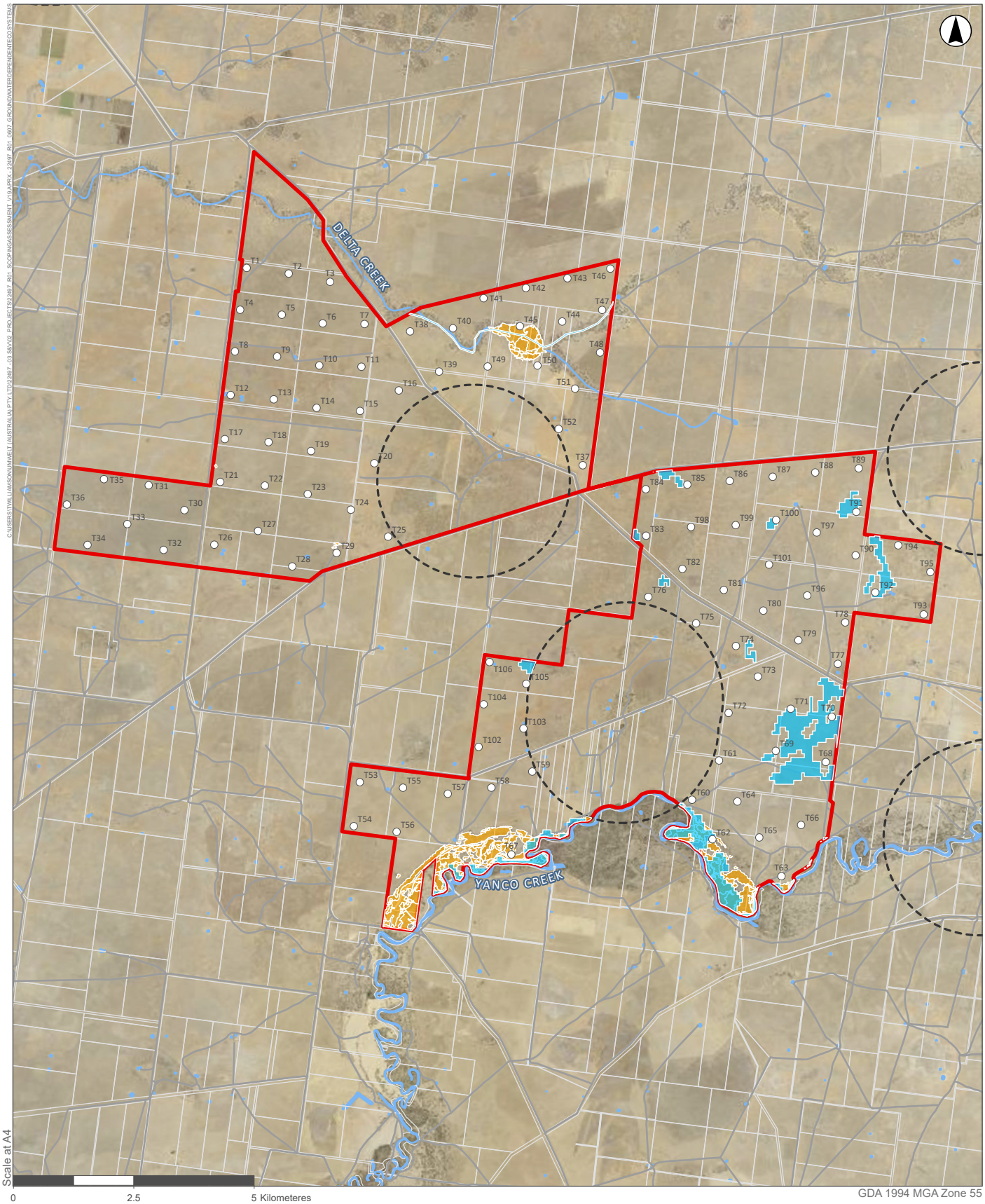
Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2021), NSW DSFI (2021); NPWS Estate (2019)

Groundwater Dependent Ecosystems

According to the GDE Atlas (Bureau of Meteorology, 2017), areas within the Project Site is mapped as containing aquatic and terrestrial GDEs as further detailed in **Table 6.4** and shown on **Figure 6.7**.

Table 6.4 Groundwater dependent ecosystems mapped in the Project Site

GDE type	Potential GDE	Landscape feature(s)	Location(s)
Aquatic	Low potential – national assessment	Yanco Creek	Throughout southern half of the Project Site.
Terrestrial	High potential – regional studies	Vegetation surrounding Yanco Creek and associated wetlands and soaks including the following potential vegetation communities: • River Red Gum - Warrego Grass - Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion). • River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland mainly in the Riverina. • River Red Gum - wallaby grass tall woodland wetland on the outer River Red Gum zone mainly in the Riverina Bioregion. • River Red Gum-sedge dominated very tall open forest in frequently flooded forest wetland along major. Vegetation surrounding Delta Creek and associated wetlands and flooded woodlands including the following potential vegetation communities: • River Red Gum - Warrego Grass - Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion). • River Red Gum - wallaby grass tall woodland wetland on the outer River Red Gum zone mainly in the Riverina Bioregion. • River Red Gum - Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm).	Yanco Creek in the southern half and Delta Creek in the northern half of the Project Site.



Legend

- Proposed Wind Turbine Generators
- Roads
- Watercourse
- Cadastre
- Housing Buffers (2km)
- Project Site

Groundwater Dependent Ecosystem - Terrestrial

- High potential GDE - from regional studies

Groundwater Dependent Ecosystem - Aquatic

- Low potential GDE - from national assessment

FIGURE 6.7

Groundwater Dependent Ecosystems within Project Site

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2021), NSW DSFI (2021); NPWS Estate (2019)

Threatened Species

Desktop database searches identified a number of potential threatened species that could occur within the Project Site, including 18 flora and 55 fauna species (refer to **Table 6.5**).

No threatened invertebrates, reptiles or fish were assessed as having a moderate or higher likelihood of occurring in the Project Site.

Table 6.5 Threatened species potentially occurring in the Project Site

Scientific Name	Common Name	BC Act	EPBC Act	Entity with Potential for SAII	Likelihood of Occurrence
Plants					
Amphibromus fluitans	River Swamp Wallaby-grass	V	V	No	Moderate
Austrostipa wakoolica		E	E	No	Moderate
Brachyscome muelleroides	Mueller Daisy	V	V	Yes	Moderate
Brachyscome papillosa	Mossgiel Daisy	V	V	No	Moderate
Caladenia arenaria	Sand-hill Spider Orchid	E	E	Yes	Moderate
Convolvulus tedmoorei	Bindweed	E	NL	Yes	Moderate
Cullen parvum	Small Scurf-pea	E	NL	No	Moderate
Diuris tricolor	Pine Donkey Orchid	V	NL	No	Moderate
Eucalyptus leucoxylon subsp. pruinosa	Yellow Gum	V	NL	No	Moderate
Lepidium aschersonii	Spiny Peppercress	V	V	No	Moderate
Lepidium monoplocoides	Winged Pepper-cress	E	E	No	Moderate
Leptorhynchos orientalis	Lanky Buttons	E	NL	No	Moderate
Maireana cheelii	Chariot Wheels	V	V	No	Moderate
Pilularia novae-hollandiae	Austral Pillwort	E	NL	Yes	Moderate
Sclerolaena napiformis	Turnip Copperburr	E	E	No	Moderate
Senecio macrocarpus	Turnip Copperburr	E	E	No	Moderate
Solanum karsense	Menindee Nightshade	V	V	No	Moderate
Swainsona murrayana	Slender Darling Pea	V	V	No	High
Swainsona plagiotropis	Red Darling Pea	V	V	No	High
Swainsona sericea	Silky Swainson-pea	V	NL	No	Moderate
Amphibians					
Crinia sloanei	Sloane's Froglet	V	E	No	Moderate
Litoria raniformis	Growling Grass Frog	E	V	No	High
Mammals					
Chalinolobus picatus	Little Pied Bat	V	NL	No	Moderate
Myotis macropus	Southern Myotis	V	NL	No	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	Entity with Potential for SAII	Likelihood of Occurrence
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	No	Low
Phascolarctos cinereus	Koala	E	E	No	Moderate
Pteropus poliocephalus	Grey-headed Flying fox	V	V	No	Moderate
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	NL	No	Moderate
Vespadelus baverstocki	Inland Forest Bat	V	NL	No	Moderate
Birds					
Anseranas semipalmata	Magpie Goose	V	NL	No	Low
Anthochaera phrygia	Regent Honeyeater	CE	CE	Yes	Low
Aphelocephala leucopsis	Southern Whiteface	NL	V	No	Known
Ardeotis australis	Australian Bustard	E	NL	No	Low
Artamus cyanopterus	Dusky Woodswallow	V	NL	No	High
Botaurus poiciloptilus	Australasian Bittern	E	E	No	Low
Burhinus grallarius	Bush Stone-curlew	E	NL	No	Low
Calidris ferruginea	Curlew Sandpiper	E	CE,M	Yes	Low
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	No	Low
Certhionyx variegatus	Pied Honeyeater	V	NL	No	Moderate
Chthonicola sagittata	Speckled Warbler	V	NL	No	Low
Circus assimilis	Spotted Harrier	V	NL	No	High
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	NL	No	High
Daphoenositta chrysoptera	Varied Sittella	V	NL	No	Moderate
Epthianura albifrons	White-fronted Chat	V	NL	No	High
Falco hypoleucos	Grey Falcon	E	V	No	Moderate
Falco subniger	Black Falcon	V	NL	No	High
Grantiella picta	Painted Honeyeater	V	V	No	High
Grus rubicunda	Brolga	V	NL	No	Low
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	NL	No	High
Hieraaetus morphnoides	Little Eagle	V	NL	No	Moderate
Hirundapus caudacutus	White-throated Needletail	NL	V,M	No	High
Lathamus discolor	Swift Parrot	E	CE	No	Low
Leipoa ocellata	Malleefowl	E	V	No	Low
Limosa limosa	Black-tailed Godwit	V	NL	No	Low
Lophochroa leadbeateri	Major Mitchell's Cockatoo	V	NL	No	Low
Lophoictinia isura	Square-tailed Kite	V	NL	No	Low

Scientific Name	Common Name	BC Act	EPBC Act	Entity with Potential for SAII	Likelihood of Occurrence
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	V	NL	No	Moderate
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	NL	No	High
Neophema pulchella	Turquoise Parrot	V	NL	No	Moderate
Ninox connivens	Barking Owl	V	NL	No	Moderate
Numenius madagascariensis	Eastern Curlew	NL	CE,M	Yes	Low
Oxyura australis	Blue-billed Duck	V	NL	No	Low
Pachycephala inornata	Gilbert's Whistler	V	NL	No	Low
Pedionomus torquatus	Plains-wanderer	E1	CE	Yes	High
Petroica boodang	Scarlet Robin	V	NL	No	Moderate
Petroica phoenicea	Flame Robin	V	NL	No	High
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	E	V	No	Low
Polytelis swainsonii	Superb Parrot	V	V	No	High
Pomatostomus temporalis	Grey-crowned Babbler (eastern subspecies)	V	NL	No	Known - Recorded (Umwelt)
Pyrrholaemus brunneus	Redthroat	V	NL	No	Low
Rostratula australis	Australian Painted Snipe	E	E	No	Low
Stagonopleura guttata	Diamond Firetail	V	NL	No	Moderate
Stictonetta naevosa	Freckled Duck	V	NL	No	Low
Tyto novaehollandiae	Masked Owl	V	NL	No	Moderate
Fish					
Bidyanus bidyanus	Siver Perch, Bidyan	V	CE	No	Low
Galaxias rostratus	Flathead Galaxias	CE	CE	N/A	Low
Macquaria australasica	Macquarie Perch	E	E	N/A	Low
Maccullochella macquariensis	Trout Cod	E	E	N/A	Low
Maccullochella peelii	Murray Cod	NL	V	N/A	Low

Note: NL = Not Listed, V = Vulnerable, E = Endangered, CE = Critically Endangered, M = Migratory.

Migratory Species

The Commonwealth Protected Matters Search Tool (PMST) (refer **Appendix 6**) identified the potential for 10 threatened migratory species or their habitat to occur within a 10 km radius of the Project Site, as listed in **Table 6.6.**

Table 6.6 Migratory species potentially occurring in the Project Site

Scientific name	Common name	Migratory Status	BC Act	EPBC Act
Actitis hypoleucos	Common Sandpiper	Migratory wetlands species	NL	M
Apus pacificus	Fork-tailed Swift	Migratory marine species	NL	M
Calidris acuminata	Sharp-tailed Sandpiper	Migratory marine species and Migratory wetland species	NL	M
Calidris ferruginea	Curlew Sandpiper	Migratory wetlands species	E	CE, M
Calidris melanotos	Pectoral Sandpiper	Migratory wetlands species	NL	M
Gallinago hardwickii	Latham's Snipe	Migratory marine species and Migratory wetland species	NL	M
Hirundapus caudacutus	White-throated Needletail	Migratory terrestrial species	NL	V, M
Motacilla flava	Yellow Wagtail	Migratory terrestrial species	NL	M
Myiagra cyanoleuca	Satin Flycatcher	Migratory terrestrial species	NL	M
Numenius madagascariensis	Eastern Curlew	Migratory wetlands species	NL	CE, M

Note: NL = Not Listed, V = Vulnerable, E = Endangered, CE = Critically Endangered, M = Migratory.

6.2.3.2 Threatened Species Survey Requirements

A preliminary BAM calculator assessment was completed to help guide the survey requirements for the Project. The candidate species-credit species considered to have the potential to occur within the Project Site and likely require targeted surveys are identified in **Table 6.7**. The darkened cells indicate suitable survey months as identified in the Threatened Biodiversity Data Collection (TBDC) (DPIE, 2022).

Table 6.7 Threatened Species Credit Species Likely Requiring Survey within the Project Site

Scientific name	Common name	BC Act	EPBC Act	Entity with the potential for SAII	Survey period (shaded)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Plants																
Austrostipa wakoolica	Austrostipa wakoolica	E	E	No												
Brachyscome muelleroides	Claypan Daisy	V	V	Yes												
Brachyscome papillosa	Mossgiel Daisy	V	V	No												
Caladenia arenaria	Sand-hill Spider Orchid	E	E	Yes												
Convolvulus tedmoorei	Bindweed	E	NL	Yes												
Cullen parvum	Small Scurf-pea	E	NL	No												
Diuris tricolor	Pine Donkey Orchid	V	NL	No												
Eucalyptus leucoxylon subsp. pruinosa	Yellow Gum	V	NL	No												
Lepidium monoplocoides	Winged Peppercress	E	E	No												
Leptorhynchos orientalis	Lanky Buttons	E	NL	No												
Maireana cheelii	Chariot Wheels	V	V	No												
Pilularia novae-hollandiae	Austral Pillwort	E	NL	Yes												
Sclerolaena napiformis	Turnip Copperburr	E	E	No												
Solanum karsense	Menindee Nightshade	V	V	No												
Swainsona murrayana	Slender Darling Pea	V	V	No												
Swainsona plagiotropis	Red Darling Pea	V	V	No												
Swainsona sericea	Silky Swainson-pea	V	NL	No												

Scientific name	Common name	BC Act	EPBC Act	Entity with the potential for SAII	Survey period (shaded)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Amphibians																
Litoria raniformis	Southern Bell Frog	E	V	No	■									■	■	■
Crinia sloanei	Sloane's Froglet	V	E	No							■	■				
Mammals																
Phascolarctos cinereus	Koala	E	E	No	■	■	■	■	■	■	■	■	■	■	■	■
Myotis macropus	Southern Myotis	V	NL	No	■	■	■							■	■	■
Birds																
Ardeotis australis	Australian Bustard	E	NL	No	■	■	■	■	■	■	■	■	■	■	■	■
Burhinus grallarius	Bush Stone-curlew	E	NL	No	■	■	■	■	■	■	■	■	■	■	■	■
Haliaeetus leucogaster	White-Bellied Sea-Eagle	V	NL	No							■	■	■	■	■	■
Hieraaetus morphnoides	Little Eagle	V	NL	No								■	■	■		
Lophochroa leadbeateri	Major Mitchell's Cockatoo	V	NL	No									■	■	■	■
Lophoictinia isura	Square-tailed Kite	V	NL	No	■								■	■	■	■
Ninox connivens	Barking Owl	V	NL	No					■	■	■	■	■	■	■	■
Pedionomus torquatus	Plains-wanderer	E	CE	Yes												
Polytelis anthopeplus monarchoides	Regent Parrot	E	V	No								■	■	■	■	
Polytelis swainsonii	Superb Parrot	V	V	No									■	■	■	
Tyto novaehollandiae	Masked Owl	V	NL	No					■	■	■	■				
Lathamus discolor	Swift Parrot	E	CE	Yes												
Limosa limosa	Black-tailed Godwit	V	NL	No												
Anthochaera phrygia	Regent Honeyeater	CE	CE	Yes												

Scientific name	Common name	BC Act	EPBC Act	Entity with the potential for SAII	Survey period (shaded)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Calidris ferruginea	Curlew Sandpiper	E	CE	Yes												

Note: NL = Not Listed, V = Vulnerable, E = Endangered, CE = Critically Endangered.

6.2.3.3 Bird Utilisation

Four rounds of bird utilisation surveys have been conducted during Summer 2023, Autumn 2023, Winter 2023 and Spring 2023 programs. Surveys were undertaken from 16 to 24 January 2023, 8 to 14 May 2023, 18 to 24 July 2023 and 19 to 25 September 2023. Bird sightings recorded during Summer 2023, Autumn 2023 and Winter 2023 appear in **Table 6.8**.

Table 6.8 Bird Species Recorded During Summer 2023, Autumn 2023 and Winter 2023

Species	EPBC Act	BC Act	Summer 2023	Autumn 2023	Winter 2023
Dromaius novaehollandiae (Emu)	NL	NL	x	x	x
Coturnix pectoralis (Stubble Quail)	NL	NL	x		
Synoicus ypsilophorus {Brown Quail}	NL	NL		x	
Anas gracilis (Grey Teal)	NL	NL	x	x	x
Anas superciliosa (Pacific Black Duck)	NL	NL	x	x	x
Chenonetta jubata (Australian Wood Duck)	NL	NL	x	x	x
Cygnus atratus (Black Swan)	NL	NL	x	x	x
Tadorna tadornoides (Australian Shelduck)	NL	NL			x
Tachybaptus novaehollandiae (Australasian Grebe)	NL	NL	x	x	x
Geopelia placida (Peaceful Dove)	NL	NL	x		x
Ocyphaps lophotes (Crested Pigeon)	NL	NL	x	x	x
Phaps chalcoptera (Common Bronzewing)	NL	NL	x		
Streptopelia chinensis (Spotted Dove)	NL	NL	x		
Chalcites basalis (Horsfield's Bronze-Cuckoo)	NL	NL	x		
Heteroscenes pallidus (Pallid Cuckoo)	NL	NL	x	x	
Fulica atra (Eurasian Coot)	NL	NL		x	
Gallinula tenebrosa (Dusky Moorhen)	NL	NL		x	
Platalea flavipes (Yellow-billed Spoonbill)	NL	NL		x	x
Threskiornis moluccus (Australian White Ibis)	NL	NL	x	x	x
Threskiornis spinicollis (Straw-necked Ibis)	NL	NL	x	x	x
Ardea alba (Great Egret)	NL	NL		x	x
Ardea pacifica (White-necked Heron)	NL	NL	x	x	x
Egretta garzetta (Little Egret)	NL	NL		x	x
Egretta novaehollandiae (White-faced Heron)	NL	NL	x	x	x
Microcarbo melanoleucos (Little Pied Cormorant)	NL	NL	x	x	x
Phalacrocorax carbo (Great Cormorant)	NL	NL	x		x
Anhinga novaehollandiae (Australasian Darter)	NL	NL	x		x
Vanellus miles (Masked Lapwing)	NL	NL	x	x	x
Vanellus tricolor (Banded Lapwing)	NL	NL		x	
Accipiter fasciatus (Brown Goshawk)	NL	NL	x	x	x
Aquila audax (Wedge-tailed Eagle)	NL	NL	x	x	x

Species	EPBC Act	BC Act	Summer 2023	Autumn 2023	Winter 2023
Circus assimilis (Spotted Harrier)	NL	V	x	x	x
Elanus axillaris (Black-shouldered Kite)	NL	NL	x	x	x
Haliastur sphenurus (Whistling Kite)	NL	NL	x	x	x
Hieraaetus morphnoides (Little Eagle)	NL	V		x	x
Milvus migrans (Black Kite)	NL	NL	x	x	x
Merops ornatus (Rainbow Bee-eater)	NL	NL	x		
Eurystomus orientalis (Dollarbird)	NL	NL	x		
Dacelo novaeguineae (Laughing Kookaburra)	NL	NL	x	x	x
Todiramphus sanctus (Sacred Kingfisher)	NL	NL	x		
Falco berigora (Brown Falcon)	NL	NL	x	x	x
Falco cenchroides (Nankeen Kestrel)	NL	NL	x	x	x
Falco longipennis (Australian Hobby)	NL	NL	x	x	x
Falco peregrinus (Peregrine Falcon)	NL	NL	x		x
Falco subniger (Black Falcon)	NL	V	x	x	
Cacatua galerita (Sulphur-crested Cockatoo)	NL	NL	x	x	x
Cacatua sanguinea (Little Corella)	NL	NL	x	x	x
Eolophus roseicapilla (Galah)	NL	NL	x	x	x
Barnardius zonarius (Australian Ringneck)	NL	NL	x	x	x
Glossopsitta pusilla (Little Lorikeet)	NL	V		x	
Glossopsitta concinna (Musk Lorikeet)	NL	NL			x
Northiella haematogaster (Blue Bonnet)	NL	NL	x	x	x
Platycercus elegans (Crimson Rosella)	NL	NL	x	x	x
Platycercus eximius (Eastern Rosella)	NL	NL	x	x	x
Polytelis swainsonii (Superb Parrot)	V	V	x	x	x
Psephotus haematonotus (Red-rumped Parrot}	NL	NL	x	x	x
Climacteris picumnus (Brown Treecreeper)	V	V	x		x
Malurus cyaneus (Superb Fairy-wren)	NL	NL	x	x	x
Malurus leucopterus (White-winged Fairy-wren)	NL	NL	x	x	x
Acanthagenys rufogularis (Spiny-cheeked Honeyeater)	NL	NL	x	x	
Entomyzon cyanotis (Blue-faced Honeyeater)	NL	NL	x	x	x
Gavicalis virescens (Singing Honeyeater)	NL	NL	x	x	x
Grantiella picta (Painted Honeyeater)	V	V	x		
Manorina flavigula (Yellow-throated Miner)	NL	NL	x	x	x
Manorina melanocephala (Noisy Miner)	NL	NL	x	x	x
Nesoptilotis leucotis (White-eared Honeyeater)	NL	NL	x		
Plectorhyncha lanceolata (Striped Honeyeater)	NL	NL		x	x
Melithreptus brevirostris (Brown-headed Honeyeater)	NL	NL			x

Species	EPBC Act	BC Act	Summer 2023	Autumn 2023	Winter 2023
Pardalotus striatus (Striated Pardalote)	NL	NL	x	x	
Acanthiza chrysorrhoa (Yellow-rumped Thornbill)	NL	NL		x	x
Acanthiza nana (Yellow Thornbill)	NL	NL		x	x
Acanthiza reguloides (Buff-rumped Thornbill)	NL	NL	x	x	x
Acanthiza uropygialis (Chestnut-rumped Thornbill)	NL	NL			x
Aphelocephala leucopsis (Southern Whiteface)	V	NL		x	x
Gerygone fusca (Western Gerygone)	NL	NL	x		
Smicrornis brevirostris (Weebill)	NL	NL	x	x	x
Pomatostomus temporalis (Grey-crowned Babbler)	NL	V	x	x	x
Colluricincla harmonica (Grey Shrike-thrush)	NL	NL	x	x	x
Pachycephala rufiventris (Rufous Whistler)	NL	NL	x	x	x
Pachycephala pectoralis (Golden Whistler)	NL	NL			x
Coracina maxima (Ground Cuckoo-shrike)	NL	NL		x	
Coracina novaehollandiae (Black-faced Cuckoo-shrike)	NL	NL	x	x	x
Coracina papuensis (White-bellied Cuckoo-shrike)	NL	NL		x	
Artamus cinereus (Black-faced Woodswallow)	NL	NL	x		
Cracticus nigrogularis (Pied Butcherbird)	NL	NL	x	x	x
Cracticus torquatus (Grey Butcherbird)	NL	NL		x	x
Gymnorhina tibicen (Australian Magpie)	NL	NL	x	x	x
Strepera graculina (Pied Currawong)	NL	NL		x	x
Rhipidura fuliginosa (Grey Fantail)	NL	NL		x	x
Rhipidura leucophrys (Willie Wagtail)	NL	NL	x	x	x
Grallina cyanoleuca (Magpie-lark)	NL	NL	x	x	x
Corvus coronoides (Australian Raven)	NL	NL	x	x	x
Corvus mellori (Little Raven)	NL	NL	x	x	x
Corcorax melanorhamphos (White-winged Chough)	NL	NL	x	x	x
Struthidea cinerea (Apostlebird)	NL	NL	x	x	x
Petroica goodenovii (Red-capped Robin)	NL	NL		x	
Petroica phoenicea (Flame Robin)	NL	V		x	
Mirafra javanica (Horsfield's Bushlark)	NL	NL	x		
Cincloramphus cruralis (Brown Songlark)	NL	NL	x	x	x
Cincloramphus mathewsi (Rufous Songlark)	NL	NL	x		
Hirundo neoxena (Welcome Swallow)	NL	NL	x	x	x
Petrochelidon ariel (Fairy Martin)	NL	NL	x		
Petrochelidon nigricans (Tree Martin)	NL	NL	x	x	x

Species	EPBC Act	BC Act	Summer 2023	Autumn 2023	Winter 2023
Acridotheres tristis (Common Myna)	NL	NL		x	
Sturnus vulgaris (Common Starling)	NL	NL	x	x	x
Dicaeum hirundinaceum (Mistletoebird)	NL	NL	x	x	x
Taeniopygia guttata (Zebra Finch)	NL	NL	x	x	x
Passer domesticus (House Sparrow)	NL	NL	x	x	
Anthus novaeseelandiae (Australasian Pipit)	NL	NL	x	x	x
Tyto alba (Barn Owl)	NL	NL			x

Note: NL = Not Listed, V = Vulnerable

At the time of writing this scoping report, the data for bird sightings from the Spring 2023 survey program were not yet available.

6.2.3.4 Bat Utilisation

Four rounds of bat utilisation surveys have been conducted during the Summer 2023, Autumn 2023, Winter 2023 and Spring 2023 programs. Surveys were undertaken from 16 to 24 January 2023, 8 to 14 May 2023, 18 to 24 July 2023 and 19 to 25 September 2023.

For the Summer 2023 program, an ultrasonic Anabat device was placed at nine of the ten vantage points (VP7 did not have an ultrasonic device). These devices were left for 7 nights and have been analysed by a suitably qualified and trained expert in the field. Bat sightings recorded during Summer 2023 appear in **Table 6.9** .

Table 6.9 Bat Species Recorded During Summer 2023

Species	EPBC Act	BC Act	Summer 2023
Austronomus australis (White-striped free-tailed bat)	NL	NL	x
Chalinolobus gouldii (Gould's wattled bat)	NL	NL	x
Myotis macropus (Large-footed Myotis)	NL	V	x
Nyctophilus corbeni (Corben's long-eared bat)	V	V	x
Ozimops petersi (Inland free-tailed bat)	NL	NL	x
Ozimops planiceps (Southern free-tailed bat)	NL	NL	x
Scotorepens greyii (Little broad-nosed bat)	NL	NL	x
Vespadelus vulturnus (Little forest bat)	NL	NL	x

Note: NL = Not Listed, V = Vulnerable

For the Autumn 2023, Winter 2023 and Spring 2023 programs, ultrasonic Anabat devices were placed at all ten vantage points. These devices were left for 5 to 6 nights and are still being analysed by a suitably qualified and trained expert in the field. Following completion of the bat call analysis, the list of microbat species requiring consideration and assessment will be validated.

6.2.3.5 Biodiversity Development Assessment

Additional detailed biodiversity surveys will be undertaken within the Project Site with a focus on the proposed development area and in the vicinity of proposed WTG and infrastructure locations. Following the completion of the surveys, a BDAR will be prepared. The BDAR will include:

- field surveys and GIS mapping:
    - PCT survey and GIS mapping
    - targeted species-credit survey
    - bird and bat utilisation survey.
- results of the literature review
- methods and results of vegetation surveys including a vegetation community map (based on PCTs and including TECs)
- methods and results of surveys targeting species-credit species
- assessment of prescribed impacts
- outcomes of the calculator assessment identifying the credits generated by the PCTs (and ecosystem-credit species) and species-credit species
- relevant data and mapping for Agency submission including field sheets, figures and associated GIS files.

Potential mitigation measures to reduce biodiversity impacts may include, but will not necessarily be limited to:

- avoiding areas of high value native vegetation (including TECs) as far as practicable
- implementation of a comprehensive biodiversity mitigation and management strategy to minimise the unavoidable impacts of the Project on biodiversity values, including:
    - salvage of biodiversity features, including habitat resources (e.g. hollow logs, tree hollows, fallen timber and rocks/boulders) from areas to be cleared
    - implementation of a pre-clearing procedures
    - weed management
    - bushfire management
    - erosion and sedimentation control.
- a biodiversity offset strategy.

6.2.4 Heritage

6.2.4.1 Aboriginal Heritage

The Project Site falls on the land of the Wiradjuri people within the Griffith and Cummeragunja Local Aboriginal Land Council (LALC) areas. Based on a review of the spatial database maintained by the National Native Title Tribunal on 15 January 2023, there are no registered or determined Native Title claims relating to the Project Site.

A search of the Aboriginal Heritage Information Management System (AHIMS) database has identified no known or recorded sites within the Project Site. It should however be noted that although no sites have been previously recorded within the Project Site, this may be reflective of the lack of prior assessment in this area.

It is expected that Aboriginal sites and values will be present in the Project Site and a detailed Aboriginal Cultural Heritage Assessment (ACHA) will be undertaken to assess potential impacts in accordance with the registered Aboriginal parties for the Project.

The ACHA will be undertaken in accordance with the following key guidelines:

- the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011)
- the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010a).

The ACHA will include consultation with the registered Aboriginal parties for the Project in determining and assessing impacts, developing and selecting options and mitigation measures, having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010b).

A range of management strategies may be available in relation to the Project that include varying levels of mitigation of identified sites or potential harm to Aboriginal cultural heritage. The micro-siting of infrastructure will allow for some flexibility in the management of Aboriginal cultural heritage. When impacts to sites or areas of archaeological potential are unavoidable, a strategy will be developed that involves implementing appropriate measures to manage and mitigate these impacts with reference to the archaeological and Aboriginal cultural significance of the sites/areas of potential.

6.2.4.2 Historical Heritage

Desktop searches of several databases were undertaken during September 2022 to identify any potential historical heritage values in the area within and surrounding the Project Site. No items of historical heritage were identified within or in proximity of the Project Site. This includes items on the World, National and Commonwealth Heritage Lists, in addition to items listed on the State Heritage Inventory and the Jerilderie LEP.

The nearest heritage item is approximately 3.4 km southeast of the Project Site (refer to **Figure 6.8**). This is the Yanco Store, listed on the Jerilderie LEP (item I19) and the NSW State Heritage Register (SHR). There are a number of other local heritage sites located in the broader area surrounding the Project Site. The location of these sites in relation to the Project Site is shown on **Figure 6.8**. None of these identified local heritage sites are anticipated to be impacted by the Project.

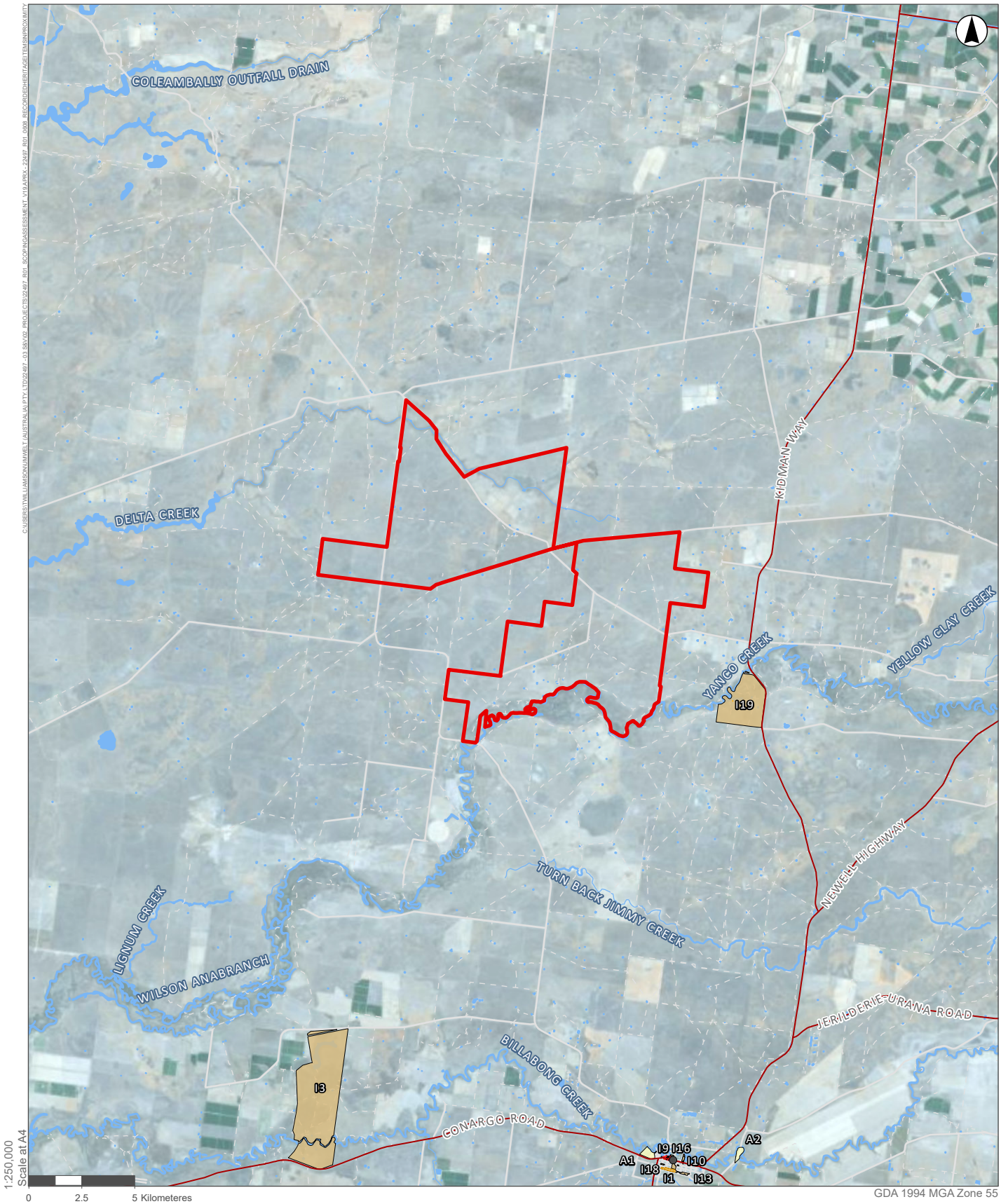


FIGURE 6.8

Recorded Heritage Items in Proximity to the Project Site

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)

The EIS will be supported by a historical heritage assessment (HHA) which will be prepared with regard to the NSW Heritage Manual, relevant Heritage Council of NSW guidelines and with consideration of the principles contained in *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance* (ICOMOS, 2013).

6.2.5 Traffic and Transport

The construction phase of the Project will result in increased traffic movements by both light vehicles transporting construction personnel and minor light construction materials, and also heavy vehicle movements (including OSOM vehicles) transporting the WTGs, blades and other heavy-duty equipment required for construction purposes. Traffic increases associated with the operational phase of the Project will be minimal and will generally only involve the movement of light vehicles transporting operational staff around the site intermittently.

The Project Site is located at Liddles Lane and will be accessed via the following local road network: Liddles Lane (north and south), Wilson Road (north) and Jerrys Lane (south). This local road network is accessed via Kidman Way (B87) which runs north-south to the eastern side of the Project Site. Kidman Way (B87) is classified as a State road and provides north-south connectivity between the township of Bourke and the Newell Highway (A39) north of Jerilderie. Both the Newell Highway (A39) and Kidman Way (B87) form part of the approved 25/26 metre B-double network and OSOM load carrying vehicle network.

As noted in **Section 3.4**, a preferred port and transport route have not yet been established but several options are available and will be further investigated and confirmed during the preparation of the EIS.

Access tracks will be constructed throughout the Project Site to provide access to the proposed WTG locations. Proposed access tracks and level of construction/maintenance required will be confirmed and assessed during the preparation of the EIS. Existing access tracks within the Project Sire will also be upgraded (where appropriate) to facilitate delivery of the WTGs and other heavy-duty equipment.
All access tracks will be maintained during the construction phase of the Project.

It is expected that upgrades to local roads (secondary access routes) will be required to allow access for heavy vehicles (where considered suitable) prior to any deliveries occurring as part of the construction phase of the Project. There may also be some minor works required along the primary transport route from the selected port to facilitate the path of OSOM vehicles, however, it is noted that this same route is being used by other preceding wind farm projects and the required works may be completed prior to this Project commencing.

A Traffic and Transport Impact Assessment (TTIA) and route assessment will be undertaken to assess the potential transport routes required for the construction of the Project and any potential impact to the road network. The assessments will be undertaken following relevant NSW Government guidelines and assessment standards including *Guide to Traffic Generating Developments* (RTA, 2002), Road Design Guide and relevant Austroads Standards and Austroads Guide to Traffic Management.

The TTIA will include:

- a review and assessment of the existing road network
- a review of any previous traffic impact assessments undertaken for the surrounding area

- traffic counts in selected areas along the proposed traffic routes (if data is not readily available)
- a detailed assessment of the likely Project-alone and cumulative traffic impacts during the construction and operational phases of the Project (including intersection performance, capacity, safety and site
- identification of any mitigation and management measures that may be required.

Potential mitigation measures to reduce traffic impacts may include, but will not necessarily be limited to:

- Preparation of a Construction Traffic Management Plan that will outline the controls required during the construction phase and will be prepared in consultation with relevant roads authorities.
- Undertaking any necessary road upgrade works to facilitate access to the site and along the proposed transport route.
- Undertake consultation with relevant Councils regarding an infrastructure or maintenance agreement to cover any required mitigation works to manage the expected pavement impacts of the Project on the lower order, local government-controlled road links.

6.2.6 Socio-Economic

A Social Impact Scoping Report (SISR) has been undertaken by Umwelt in accordance with the scoping phase requirements of the SIA Guideline (DPIE, 2023). The SISR has been provided in **Appendix 3** and is summarised in the subsequent section below.

6.2.6.1 Regional Setting

The Project is located within the Riverina Region of south-western NSW within the Murrumbidgee LGA. The Riverina is a productive agricultural area characterised by highly valued rural and biodiversity lands, the Murray and Murrumbidgee rivers, and an interdependent network of distinctive communities.

The Project Site is situated on predominately grazing land, with the closest larger population centres being Deniliquin (73 km southwest of the Project Site, population 7,862) and Griffith LGA (92 km northeast of the Project Site, population 27,086) (ABS, 2021). The closest townships are Jerilderie (21 km, population 922), Coleambally (33 km, population 1,152), Darlington Point (63 km, population 1,030), Griffith SAL[1] (92 km, population 19,505) and Leeton LGA (85 km, population 11,452). Beyond these townships, isolated rural residential properties surround the Project Site to the north, south, east, and west.

During 2021/2022, agriculture, forestry and fishing had the largest output by industry in the Riverina and Murray Region, generating $4,933 million. The total value of agricultural output in the region during this period was $3,604 million. The largest commodity produced was cereal crops, which accounted for 32.2% of the region's total agricultural output in value terms.

Agriculture across the LGA is largely focused on sheep, beef cattle and grain farming, cropping and agricultural services, with the local economy of the LGAs heavily reliant on these industries (ABS, 2021).

[1] The Suburbs and Localities (SAL) replaces the previous term 'State Suburb (SSC)' in the 2021 ABS data.

6.2.6.2 Perceived and Likely Social Impacts

Feedback from the community and other stakeholders' engagement activities outlined in **Section 5.0** identified perceived social impacts from the Project.

These social categories and perceived impacts are summarised in **Table 6.10** and will be subject to assessment as part of the SIA.

Table 6.10 Perceived Social Impacts

Category	Perceived Social Impact
Community and Way of Life	• Changing land use and how people work.
Community Cohesion	• Change in community character and composition, causing division or conflict.
Accessibility	• Access to land, transmission capacity, water supply, road capacity and short term accommodation.
Culture, Health, and Wellbeing	• Impacts to connection to Country, as well as physical stress and anxiety resulting from uncertainty around Project commencement.
Surroundings	• Fire management. • Visual amenity and views. • Impacts on flora and fauna, particularly the Plains-Wanderer.
Livelihoods	• Continuity of agricultural productivity in the region. • Local employment and procurement.
Decision Making Systems	• Inadequate communication between phases of the Project and those who manage it causing repeat consultation.
Cumulative	• Impacts caused by multiple concurrent projects, and the potential change in community dynamic.

A key part of addressing the perceived social impacts identified in **Table 6.10** will be the stakeholder engagement program. RES, with the support of Umwelt, will continue to implement the stakeholder engagement program to engage the community throughout the environmental assessment and approval process, and the operational life of the Project. This early engagement will inform the assessment of the social and economic impacts associated with the Project. The program has been designed in line with the following objectives:

- Keep the community informed about the Project, its likely impacts and likely benefits, through the provision of accurate and timely information.
- Provide multiple opportunities and mechanisms for meaningful information exchange with stakeholders.
- Ensure that the team developing the Project fully understands the local context, including any local impacts that it may have or opportunities that it could provide.
- Integrate feedback received into the Project planning and design as far as possible.
- Build and maintain positive, trust-based relationships with the local community.

6.2.6.3 Further Assessment

An SIA will be submitted with the EIS and will be prepared in accordance with the SIA Guideline (DPIE, 2023). Subsequent phases of the SIA program will involve the following key activities:

- A detailed update of the baseline social profile to ensure that any further baseline data relevant to the impacts identified is obtained.
- Further validation of the area of social influence and identification of affected communities and vulnerable groups.
- Provision of feedback to those consulted during the scoping phase on the outcomes and issues raised and communication of the Project SEARs (once issued), including an outline of the next steps in the assessment process and opportunities for community input.
- Further engagement with a range of community and stakeholder groups, including but not limited to near neighbours, host property owners, local government, community members, interest groups, local businesses and service providers. This consultation will focus on the detailed investigation into social impacts associated with the Project. Further, it will involve the provision of feedback on the outcomes of EIS technical studies and will provide opportunities for community input to the development of appropriate mitigation and enhancement measures to address impacts and residual effects.
- All viable accommodation options would be considered in the SIA, including the potential use of temporary workers accommodation camps.
- A comprehensive assessment and evaluation of social impacts against existing baseline conditions.

6.2.7 Hazards and Safety

The following section addresses the proposed approach to assessing potential hazards and safety impacts associated with the Project including aviation safety, electromagnetic fields (EMF), impacts to telecommunications, blade throw, shadow flicker, blade glint and bushfire threat.

6.2.7.1 Aviation Safety

The Project, like all wind farms, will need to consider the potential for interaction with air services. WTG height and placement will consider potential safety hazards for aircraft including intrusion into the airspace and potential for effects on navigation instruments. Jerilderie Airport is located approximately 22 km south of the Project Site, as shown on **Figure 1.1**. There are also a number of small private airstrips and runways located within the vicinity of the Project Site which will be considered in the assessment.

The EIS will include an Aviation Impact Assessment (AIA) which will include the following specific requirements as advised by Airservices Australia:

- Aerodromes:
    - specify all registered/certified aerodromes that are located within 30 nautical miles (55.56 km) of the Project Site
    - nominate all instrument approach and landing procedures at these aerodromes
    - review the potential effect of the Project on the operational airspace of the aerodromes.

- Air Routes:
    - nominate published air routes which are located near/over the Project Site and review potential impacts of the Project on aircraft using those air routes.
- Airspace:
    - nominate the airspace classification where the Project Site is located.
- Navigation/Radar:
    - nominate radar navigation systems with coverage overlapping the Project Site.

A risk assessment in relation to night lighting of the WTGs will also be undertaken in accordance with Australian Standard AS/NZS ISO 31000:2018 Risk Management – Guidelines.

During the development of the AIA, consultation will be undertaken with Airservices Australia, the Department of Defence, relevant local Councils and aerodrome operators.

6.2.7.2 Electromagnetic Fields

Electromagnetic Fields (EMFs) are present where electric current flows, including overhead and underground transmission lines and substations and electrical appliances. The standard SEARs for wind farm developments require proponents to *"consider and document any health issues having regard to the latest advice of the National Health and Medical Research Council, and identify potential hazards and risks associated with electric and magnetic fields and demonstrate the application of the principles of prudent avoidance."*

The EIS will include an EMF assessment which will consider potential health issues and risks associated with EMF produced by the wind farm and associated electrical infrastructure within the Project Site in accordance with the ICNIRP *Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields* (1998).

6.2.7.3 Telecommunications

Telecommunications and radar services (civil and meteorological) can be impacted by WTGs through electromagnetic interference (EMI).

As part of the preliminary constraint assessments undertaken to inform the design of the Project, a review of telecommunications services in the area was undertaken. This included point to point microwave links, meteorological radar, mobile voice-based communications, wireless and satellite internet services, broadcast and digital radio, and broadcast, digital and satellite television.

Appropriate buffer distances have been applied in the current Project layout to avoid potential interference from WTGs with these communication links.

The EIS will include an EMI Assessment which will address any impact to radiocommunication services within and surrounding the Project Site as a result of the Project and identify any required mitigation measures.

6.2.7.4 Blade Throw

Blade throw typically involves the failure of the turbine rotor which has the potential to result in the turbine blade becoming detached from the turbine. This risk is addressed by the WTG design, however, an assessment will be undertaken for the Project. The blade throw assessment will consider the potential risk of blade throw associated with the proposed WTG layout. The assessment will include:

- general review and assessment of the likelihood of blade throw occurring and typical blade throw distances
- calculation of the separation distance between WTGs and neighbouring dwellings and property boundaries
- consideration of mechanisms to reduce the likelihood of blade throw occurring, including:
    - relevant standards against which WTGs should be certified
    - typical overspeed and failsafe protection mechanisms
    - management and maintenance procedures, including regular inspections
    - provisions for blade replacement.

6.2.7.5 Shadow Flicker and Blade Glint

Shadow flicker is a moving shadow cast by the blades of a WTG from the sun which can cause a nuisance at surrounding dwellings and in rare cases can cause health impacts such as photosensitive epilepsy or motion sickness. Blade glint can result from sunlight reflecting off the white components of the WTGs. The risk of blade glint from WTG is low given majority of manufacturers treat the WTGs with non-reflective finishes to reduce the risk of this occurring.

The EIS will include a Shadow Flicker Assessment which will:

- review sensitive receiver locations
- estimate the annual hours of shadow flicker received at each dwelling
- identify any dwellings where there is potential for the shadow flicker duration to exceed the limits specified in the relevant guidelines
- identify the specific WTGs contributing to the shadow flicker for each dwelling
- assess the likely reduction in shadow flicker duration due to WTG orientation and cloud cover
- generate maps of theoretical and predicted actual shadow flicker duration
- consider the potential sources of conservatism in the assessment.

The Shadow Flicker Assessment will also include an assessment of blade glint.

As discussed in **Section 6.2.1**, a number of visual mitigation measures will be considered for the Project.

6.2.7.6 Bushfire Hazard

The Project Site is not identified as bushfire prone land by NSW Rural Fire Service (RFS) Bush Fire Prone Land mapping. Although the Project Site has been subject to extensive cultivation associated with agricultural land use there are areas of remnant vegetation, which form a potentially significant fuel load capable of sustaining and spreading bushfire. Areas of vegetation within the Project Site also represent a potential linkage between vegetated areas within and adjoining the Project Site, with the potential to support the spread of bushfire.

A bushfire threat assessment will be undertaken in accordance with the requirements of *Planning for Bushfire Protection (PBP) 2019* (NSW Rural Fire Service, 2019). Consultation with the RFS will also be undertaken during the preparation of the EIS.

6.2.7.7 Preliminary Hazard Analysis

The Project will result in the introduction of a limited number of hazardous materials, including lithium-ion batteries (LIBs), that present potential risks to the environment and public safety. Hazardous materials that are likely to be transported to the Project Site, stored and used at the Project Site and transported from the Project Site are presented in **Table 6.11** below.

Table 6.11 Project Hazardous Materials

Material	Dangerous Goods Class/Division and (Packing Group)	Phase(s) of Project
Lithium-Ion Batteries (LIBs)	9 (II)	Construction, Operations and Decommissioning
Unleaded Petrol	3 (II)	Operations
Diesel Fuel	C1	Construction, Operations and Decommissioning
Herbicides	9 (II)	Operations
Transformer Oil	-	Construction, Operations and Decommissioning
Aerosols	Class 2.1	Construction, Operations and Decommissioning
Solvents	3 (II)	Construction, Operations and Decommissioning

A preliminary risk screening for all hazardous materials and dangerous goods to be stored and transported to/from the Project will be undertaken during the EIS in accordance with Chapter 3 (Hazardous and Offensive Development*)* of *State Environment Planning Policy (Resilience and Hazards)* 2021 (Resilience and Hazards SEPP) to determine the requirement for a Preliminary Hazard Analysis (PHA).

Notwithstanding the preliminary risk screening process, it is anticipated that a PHA incorporating a Level 1 Qualitative Risk Analysis and Level 2 Semi-quantitative will be required to estimate the level of risk posed to surrounding off-site land users due to the large capacity of the proposed BESS.

During normal use LIBs are sealed and, unlike lead acid batteries, do not vent to the atmosphere during normal operation. However, if subject to abnormal heating (external or internal) or other abuse, flammable electrolyte and electrolyte decomposition products can vaporise, rupture the battery cell and be vented. Vented electrolyte and electrolyte decomposition products may ignite (resulting in fire or explosion) if exposed to an ignition source including sparks, open flames and LIB cells undergoing thermal runaway.

Thermal runaway occurs when the internal temperature of a LIB cell increases beyond its operating range leading to exothermic decomposition reactions generating additional heat. If the additional heat is not dissipated, the cell temperature is further elevated accelerating the process of decomposition and heat generation. LIBs are susceptible to thermal runaway which can be initiated by a range of mechanisms including electro-chemical abuse (e.g. from overcharging, over-discharging and over voltage charging), mechanical abuse (e.g. physical damage to cell causing a short circuit), thermal abuse (overheating from an external source), manufacturing defects (e.g. internal short circuits) and design faults (e.g. inadequate clearance between cells or modules to allow heat dissipation).

The vented gases from LIBs during thermal runaway can exceed 600^{o}C and are likely to include flammable (alkyl-carbonates, methane, ethylene, ethane, hydrogen gas) and toxic species (carbon monoxide, hydrogen fluoride), soot and particulates containing oxides of nickel, aluminium, lithium, copper and cobalt. The PHA will involve:

- A preliminary risk screening for all hazardous materials and dangerous goods to be stored and transported to/from the Project will be undertaken in accordance with Chapter 3 of the Resilience and Hazards SEPP.
- Risk classification and prioritisation and estimation of societal risk in accordance with *Multi Level Risk Assessment* (NSW Department of Planning, 2011).
- A qualitative risk assessment (for the Level 1 analysis) workshop to identify Project hazards that pose an off-site risk.
- Consequence (e.g. fire, explosion, toxic release) and frequency analysis (Level 2 analysis) for hazard scenarios identified as requiring further assessment in the qualitative risk assessment.
- Assessment of the Level 2 analysis results with respect to *Hazardous Industry Planning and advisory Paper No 4 Risk Criteria for Land Use Planning* (NSW Department of Planning, 2011).
- Consultation with Fire and Rescue NSW (FRNSW) regarding fire and life safety systems as well as the unique challenges posed by BESSs during incident response.

The PHA will consider relevant contemporary standards and guidelines with respect to BESSs including:

- UL 9540 Standard for Safety of Energy Storage Systems and Equipment, Underwriters Laboratory, 2020.
- UL 9540A Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, Underwriters Laboratory, 2019.
- NFPA 855 Standard for the Installation of Stationary Energy Storage Systems, National Fire Protection Association, 2020.

- AS/NZS 5139:2019 Electrical Installations – Safety of battery systems for use with power conversion equipment, Standards Australia, 2019.
- Property Loss Prevention Data Sheet 5-33, Electrical Energy Storage Systems, FM Global, 2020.

6.2.8 Water and Soil Resources

6.2.8.1 Existing Environment

Hydrology and Topography

The Project is located on broad floodplain between the Murrumbidgee River and Murray River alignments. Mapped watercourses within the Project Site are of 1st, 2nd and 3rd order, with the southern boundary of the Project Site bordering Yanco Creek, a 9th order watercourse. A small 3rd order section of Delta Creek flows through the northern region of the Project Site. Yanco Creek and Delta Creek are tributaries of the Billabong Creek which ultimately discharges to the Murray River via the Edward-Wakool River system. The hydrological features and local topography in the vicinity of the Project Site are shown in **Figure 6.9**.

The Project Site is located on predominantly flat land, with typical ground slopes less than 0.5%. The relatively flat topography coupled with local surface depressions increases the likelihood of areas of ponding. The natural surface drains from the east to the west through the Project Site, with the northern section of the Project Site draining towards Delta Creek, and the southern section of the Project Site draining towards Yanco Creek.

Soils and Land Capability

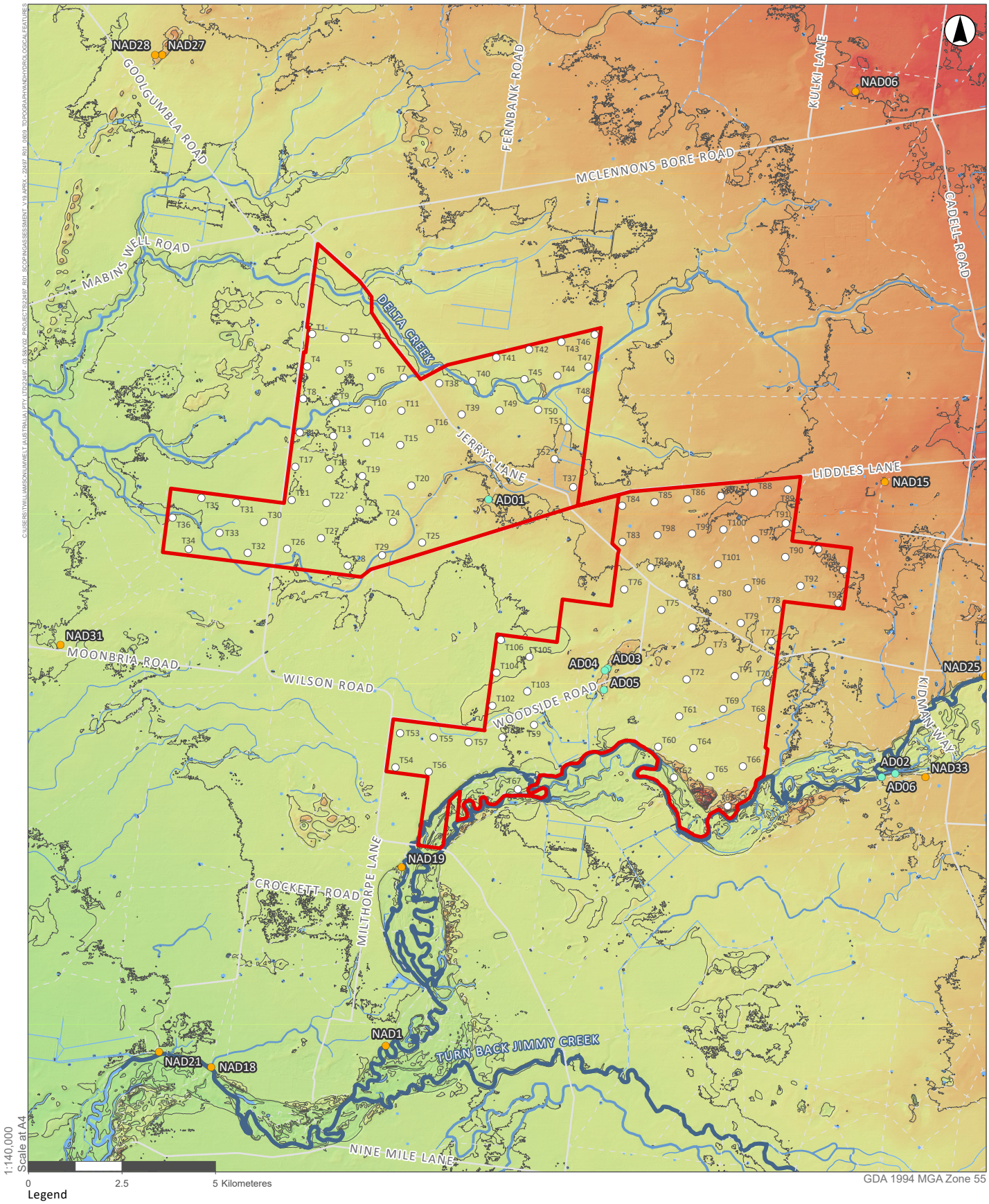
There is no BSAL present within or in the vicinity of the Project Site. Additionally, there are no mapped Class 1-3 soils under the Land and Soil Capability Assessment Scheme (LSC) present within the Project Site (refer to **Figure 6.10**). Land within the Project Site is predominantly mapped as Class 4, with small areas of Class 5 and Class 6. Existing agricultural activities within the host properties will continue and co-exist with the Project.

There are no mapped high-risk areas for acid sulfate soils within the Project Site.

Groundwater Resources

Locations of WaterNSW registered groundwater bores are shown on **Figure 6.11**. There are 37 groundwater bores within the Project Site with approximately 100 groundwater bores within 50 m of the Project Site. The year in which the bores have been installed range between 1908 and 2021, with bore depths varying between 9 m and 362 m.

Areas of mapped groundwater vulnerability within the Project Site are shown on **Figure 6.11** and include the Yanco Creek floodplain as well as an area located to the east of the Project Site.



Legend

- Proposed Wind Turbine Generators
- Host Dwelling
- Non-associated Dwelling (potential receiver)
- Tracks/Trails
- Roads
- Contours (2m)
- Project Site

Strahler Stream Order

- 1
- 2
- 3
- 4
- > 5

Elevation Surface

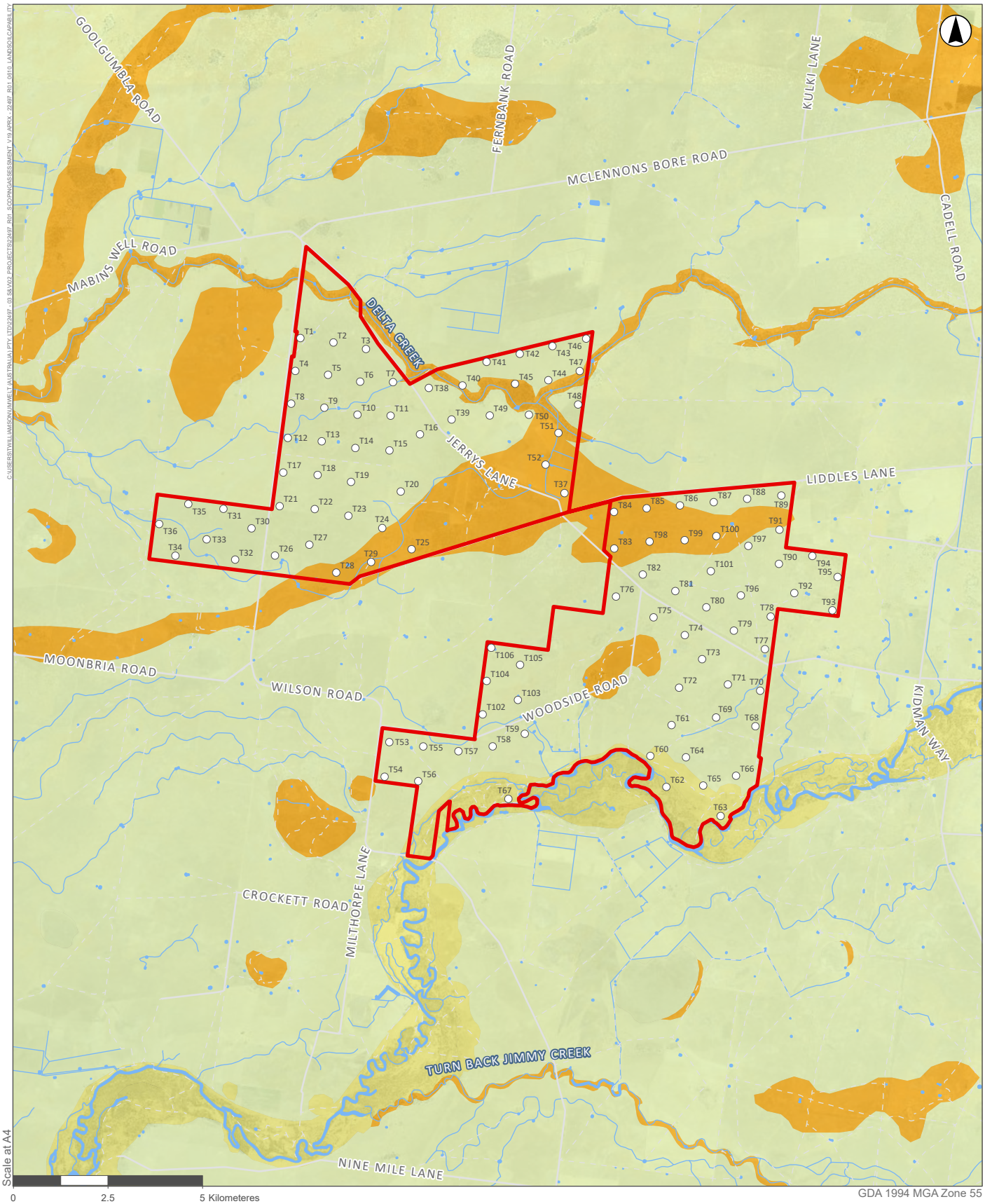
122m

90m

FIGURE 6.9

Topography and Hydrological Features

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)



1:140,000
Scale at A4

0 2.5 5 Kilometeres

GDA 1994 MGA Zone 55

Legend

- Proposed Wind Turbine Generators
- Tracks/Trails
- Roads
- Watercourse
- Project Site

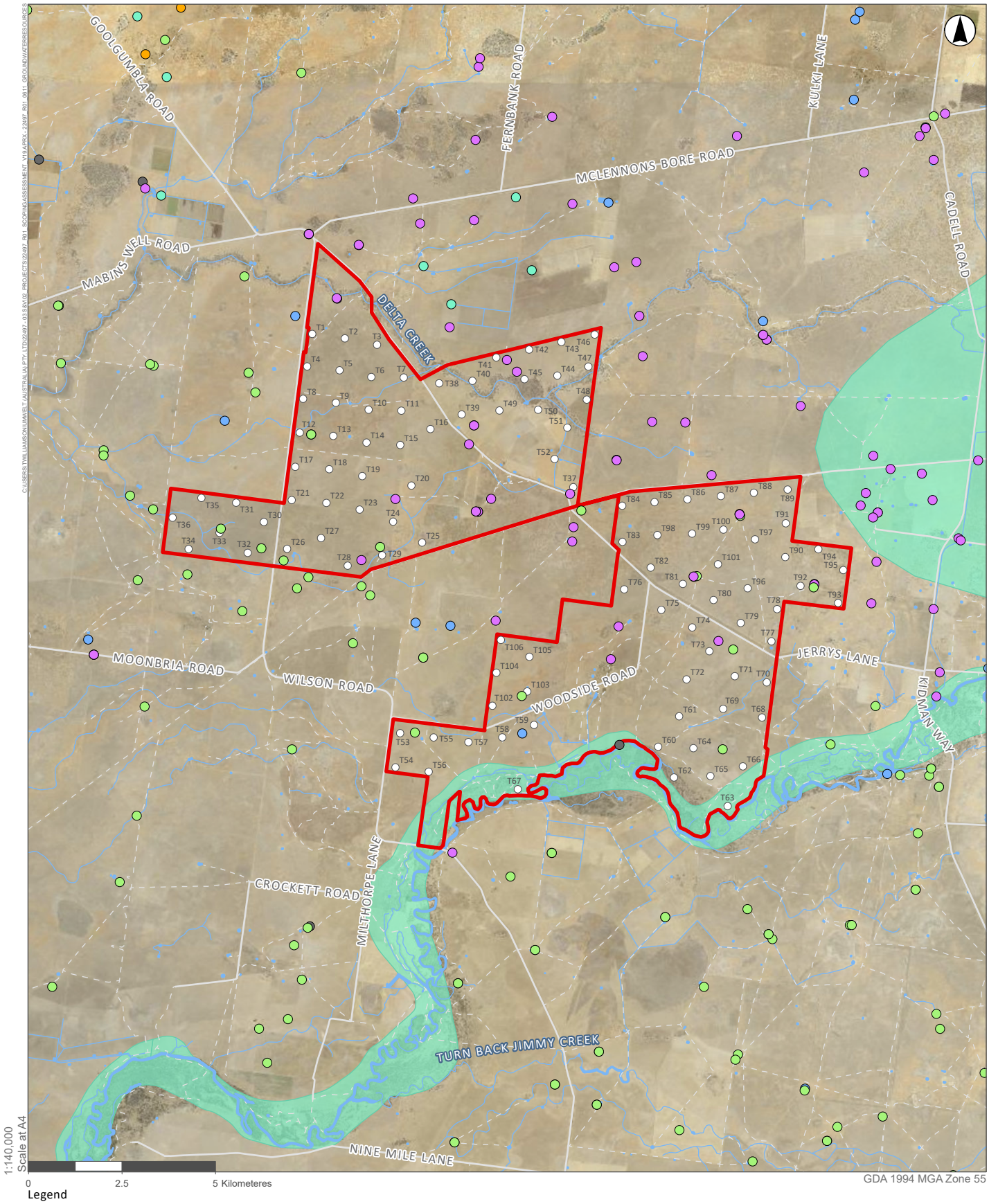
Land and Soil Capability

- 4 - Moderate to severe limitations
- 5 - Severe limitations
- 6 - Very severe limitations

FIGURE 6.10

Land and Soil Capability

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)



Legend

- Proposed Wind Turbine Generators
- Project Site
- Tracks/Trails
- Roads
- Watercourse
- Waterbody
- Groundwater Vulnerability

Groundwater Bores

- Exploration
- Irrigation
- Monitoring
- Stock and Domestic
- Water Supply
- Unknown

FIGURE 6.11

Groundwater Resources

Image Source: NSW Public Imagery (2022) **Data source:** NSW LPI (2022), NSW DSFI (2022); NPWS Estate (2022)

6.2.8.2 Further Assessment

A Water and Soils Impact Assessment (WSIA) will be undertaken as part of the EIS that will consider potential impacts on water resources and the catchment, including flooding, erosion and sediment control, water quality, water users, water sourcing and licence, and any required management and mitigation measures to minimise the potential impacts of the Project on water and soil resources.

Potential mitigation measures to reduce water and soil impacts will include, but will not necessarily be limited to:

- minimising works within protected lands along waterways
- appropriate construction of waterway crossings to minimise impacts on flows and maintain fish passage in accordance with relevant guidelines
- implementation of appropriate erosion and sediment control measures, developed in accordance with relevant guidelines
- minimising the disturbance footprint and rehabilitating areas impacted during the construction phase that are not required for ongoing operations.

6.2.9 Cumulative Impacts

As detailed in **Section 2.3**, the Project is located within the South-West REZ and there are a number of existing and proposed renewable energy projects within the region (as shown on **Figure 2.1**). The relevant detailed environmental assessments will include an assessment of the potential cumulative impacts associated with the Project and will follow the relevant guidelines.

Appendix 2 outlines where a cumulative impact assessment (CIA) will be undertaken for the relevant matters including the level of assessment and engagement. **Table 6.12** provides a summary of the key considerations in relation to CIA for the Project.

Table 6.12 Cumulative Impact Assessment Considerations

Scoping Cumulative Impact Assessment	Detail
What to assess?	As outlined in **Appendix 2**, the following key matters will require consideration of CIA: • visual amenity • noise and vibration • biodiversity • traffic and transport • socio-economic.
What study area?	The study area will vary depending on the specific characteristics of the assessment matter and the scale and nature of the potential impacts on the matter resulting from the Project with other relevant future projects. Each CIA will be undertaken in accordance with the relevant guidelines, where applicable, and broad enough to capture all relevant cumulative impacts.
Over what time period?	Life of the Project including construction, operation and decommissioning.

Scoping Cumulative Impact Assessment	Detail
What projects to include?	The effects of past developments and actions, as well as currently operating projects will be captured in the baseline environmental studies for the Project. The CIA will consider the cumulative impacts of the Project on key matters with other proposed developments, including those outlined in **Table 2.1**, as relevant. This includes changes to existing projects, approved projects or projects under assessment.
What is the approach to assessment?	All CIAs will be undertaken in accordance with approved assessment methods for relevant matters, e.g. the NPfI and the BAM.
What are the key uncertainties?	Key uncertainties to undertaking the CIAs will include availability and quality of data on proposed future projects at the time of preparation of assessments. Relevant CIAs will identify realistic development scenarios with the relevant future projects over the life of the Project.

6.2.10 Other Matters

The EIS will also address other issues relating to:

- Land use – the EIS will assess the potential interactions of the Project with other land uses, including agricultural land uses. This assessment will draw on the findings of other related assessments including impacts on visual amenity, water, soil, noise, air quality, traffic, hazards and safety.
- Waste – the EIS will describe the likely waste streams to be generated during construction and operation and describe measures to manage, reuse, recycle and dispose of this waste in accordance with relevant guidelines.
- Air quality – in accordance with relevant NSW guidelines in relation to construction via a qualitative assessment, including specifying relevant construction phase air quality controls.
- Decommissioning and rehabilitation.

Whilst these matters will be appropriately assessed in the EIS, detailed assessments are not proposed as the issues can be readily defined, assessed and mitigated using well recognised approaches.

6.3 Matters Requiring No Further Assessment in the EIS

Table 6.13 outlines the matters that are considered to not require further assessment in the EIS based on the scoping phase assessment along with a comment justifying why no further assessment is required.

Table 6.13 Matters Requiring No Further Assessment in the EIS

Issue	Comment
Greenhouse gas and energy	As the Project will generate renewable energy, the emissions resulting from the construction, operation or decommissioning will be readily offset by the reduction in energy generation emissions. Greenhouse gas emissions will be addressed in the justification for the Project as part of the EIS.

Issue	Comment
Port and airport facilities	The Project does not result in any change to port or airport facilities. Other than the delivery of Project components to the port, the transportation of Project components to the Project Site will be assessed as part of the TIA.
Rail facilities	The Project does not propose to utilise any rail facilities.
Odour	The Project is not anticipated to cause any odour.
Coastal hazards	The Project is not located within a coastal zone and will not result in any impacts to coastal zones.
Dam safety	The Project does not require the construction or maintenance of a dam.
Land movement	The Project is not anticipated to result in any land movement. The Project results in relatively minor excavation works only.

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