Lake Victoria Wind Farm

State Significant Development Scoping Report

Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Unit Trust (WestWind)

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Executive summary

We acknowledge Aboriginal elders past and present and all members of the Aboriginal community, the original custodians of the land on which this Project resides.

Aurecon Australasia Pty Ltd (Aurecon) has been engaged by Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Trust (WestWind) to assist with the environmental and planning approvals for the Lake Victoria Wind Farm.

The Project

WestWind proposes to build the Lake Victoria Wind Farm, which would include the construction and operation of up to 203 wind turbine generators (WTGs) spread over an area of around 41,700 hectares about 24 kilometres northwest of Wentworth in south-western NSW (the Project). The Project would be located within the Wentworth Shire Local Government Area (LGA) and would be spread across three localities; Pine Camp, Rufus and Anabranch South.

The Project is a renewable energy development with a generation capacity of up to 1.5 gigawatts (GW), enough to power over 800,000 households across the national electricity market (NEM). The Project would also include battery energy storage systems (BESS), within (up to) four locations within the Project area. The Project is currently in the early stages of development, including stakeholder engagement and concept design.

The key components of the Project are as follows:

- Up to 203 (3 blade) WTGs (3 to 8 megawatt (MW) capacity each), with a maximum blade-tip height of 280 metres above ground level
- 3 to 6 permanent meteorological masts
- Four collector stations and one terminal station (co-located with a collector station)
- Provision for a 600MW battery energy storage system (up to a capacity of 2,400 MWh)
- Other operational infrastructure, including site offices, amenities, laydown areas and operational and maintenance facilities
- Temporary infrastructure areas including construction site compounds, workers accommodation, laydown and stockpile areas and batching plants
- Approximately 416 kilometres of access tracks throughout the Project area (minimum width of 5.5 metres on straight tracks, widened to 7 metres on tracks with corners)
- Internal collector network (electrical connections between the proposed wind turbine generators and the substation).

The Project is anticipated to be operational by 2031 and would operate for around 30 years. Around 375 workers would be required during construction and 70 workers would be required for the operation and maintenance of the Project (35 remote support workers and 35 site-based workers).

Need for the Project

The Project would contribute to the uptake of renewable energy generation required in NSW and Australia to reach the emissions reduction targets of a 43 per cent reduction in emissions by 2030 (compared to 2005 levels) and net zero by 2050 as legislated in the *Climate Change Act 2022* and *Climate Change (Net Zero Future) Act 2023*. The Project would also contribute to improved reliability, efficiency and security of electricity supply to NSW, including through the provision of the BESS infrastructure, at a time when large thermal generators are progressively being retired, including the Lidell Power Station, which closed in 2023, and the Eraring Power Station, which is scheduled for closure in 2025.

The Project would introduce a new industry to the Wentworth Shire LGA, which would provide opportunities for increased local employment in the renewable energy sector. The proposed benefits of the Project to the local economy has been well received by the community.

The Project would contribute to positive environmental outcomes. These environmental benefits would largely be associated with the Project's support of the NSW Electricity Infrastructure Roadmap, including participation in the transition of NSW to lower emissions while maintaining reliability at lowest cost to consumers. Environmental impacts would be associated with minor and short-term negative potential impacts during the construction of the Project that could be effectively managed with standard environmental management approaches.

Overall, the Project is consistent with national, State, and local strategic planning objectives and would be positive for the NSW economy, environment and society. By contributing to security of energy supply across the network, the Project would support the continued operation of the NEM.

Statutory framework

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

In accordance with Section 4.12(8) of the EP&A Act, the application for SSD is required to be accompanied by an Environmental Impact Statement (EIS) that meets the requirements of Part 8, Division 5 of the Environmental Planning and Assessment Regulation 2021 (NSW) (EP&A Regulation) and any other relevant legislative requirements that relate to the EIS.

This scoping report has been prepared to inform the provision of the Secretary's Environmental Assessment Requirements (SEARs) to be assessed in the EIS.

Engagement

WestWind has been engaging with key stakeholders about the Lake Victoria Wind Farm since February 2022 and with the community since March 2024, as part of its commitment to early, meaningful, respectful and effective engagement.

Key stakeholders who may have an interest in the Project have been identified through desktop research and stakeholder mapping of the local community, capturing those within 10 kilometres of the Project. The Project team have engaged in a range of activities including hosting community open days and meeting with neighbouring landowners and local stakeholders in-person to build and maintain genuine, trusting relationships.

Engagement activities in the local area have been well promoted through local channels. All landowners and neighbours within 10 kilometres have been contacted and have provided feedback on the Project, including their assessment of the area's visual amenity values. The open days garnered predominately neutral and positive feedback from the local community, offering initial Project insights and opportunities for in-depth feedback through stakeholder interviews.

WestWind conducted an open introductory meeting with the Barkandji Native Title Group Aboriginal Corporation RNTBC CEO to introduce personnel, provide an overview of the Project, address any concerns, and explore opportunities for involvement. The Barkandji CEO maintained a neutral stance towards the Project, and did not raise any significant concerns, noting Barkandji's engagement in various major infrastructure projects.

WestWind also met with Wentworth Shire Council. Overall, the Wentworth Shire Council Executive Team expressed support for the Project, laying a foundation for collaborative future consultation. WestWind will continue to consult with Wentworth Shire Council as the Project continues to be developed.

Engagement will remain a key focus for the Project and WestWind will continue to engage potentially affected landowners, the community and key stakeholders to ensure they receive comprehensive updates about the Project and are given opportunities to provide feedback on the Project and planning process.

Environmental considerations

A preliminary environment assessment has been undertaken as part of this scoping report to determine the potential for the Project to result in environmental impacts and benefits, and to describe the proposed impact assessment approaches that would be appropriate to undertake during the preparation of the EIS.

The following aspects have been identified as requiring further assessment during the preparation of the EIS:

- Landscape character and visual impacts: the Project would result in adverse landscape character and visual impacts through the establishment of WTGs throughout the Project area. WTGs would be visible from properties and publicly accessible locations around the Project area, meaning they would alter existing viewpoints in the locality and, in some cases, the overall landscape character. A detailed assessment would be required during the EIS stage, including consultation with sensitive receivers to undertake further visual assessment from selected sensitive viewpoints on private property. Additional viewpoints and areas of sensitivity may be identified as a result of further community consultation for the Project.
- Biodiversity: the establishment of WTGs, BESS infrastructure, ancillary infrastructure and temporary construction infrastructure would involve the clearing of native vegetation and potential impacts to native fauna. The operation of the WTGs would increase the potential for fauna mortality in the area through blade strike/barotrauma and vehicle/machine strikes. A detailed biodiversity assessment would be required during the EIS stage. The Project would require entry into the NSW Biodiversity Offset Scheme and the preparation of a Biodiversity Development Assessment Report (BDAR) in accordance with the NSW Biodiversity Assessment Method. The BDAR would assess the Project's impacts on threatened species, threatened ecological communities, and impacts on biodiversity values within the Project area. It would also provide guidance on how to avoid and minimise potential biodiversity impacts and would identify the number and class of biodiversity credits that need to be offset to achieve a standard of 'no net loss' of biodiversity. In addition, due to the potential presence of threatened and migratory species within the Project area, a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC referral) is being developed for the Project. This would be informed by a Significant Impact Assessment to determine the likely impacts to Matters of National Environmental Significance (MNES).
- Noise and vibration: potential noise and vibration impacts during construction would be associated with the operation of high noise-generating plant and equipment, road traffic noise and the use of construction compounds. The preliminary noise assessment carried out for the Project indicates that noise from WTGs during operation is predicted to be below the minimum noise criteria at all identified sensitive receivers, aside from one receiver located near the western boundary of the Project area. Further design development will be carried out during the EIS stage of the Project to reduce noise at this receiver. A detailed noise and vibration impact assessment would be prepared as part of the EIS to provide predictive noise modelling of the Project's construction and operational activities, assess road traffic noise from the Project, and assess vibration impacts at sensitive receivers.
- Socio-economic impacts: the Project would involve positive socio-economic impacts through the creation of a new industry in the Wentworth region and improved sustainability outcomes through the emissions savings of the Project and contribution to climate change policies and initiatives. Potential negative socio-economic impacts of the Project would include impacted amenity and visual aesthetics due as a result of construction activities and the establishment of WTGs and potential negative perceptions regarding Project opportunities and increased risk of distributive inequity perceptions. A detailed assessment of social impacts would be required as part of the EIS, including further consultation with affected stakeholders and community groups.
- Traffic and transport: construction traffic impacts would be largely limited to the transportation of turbine and BESS components on State and local roads. Due to the size of turbines (around 100 metres long), upgrades to public roads would likely be required for their transportation to the Project area. Around 35 remote support workers and 35 site-based workers are anticipated to be required during the Project's operation, which, given the size of the Project area, would result in a negligible increase in the number of vehicles using roads such as Renmark Road, Anabranch Mail Road and Tooperoopna Road. Existing access tracks would be used within the Project area. Widening of access tracks would be required during the construction phase, however this would result in negligible traffic impacts. Based on the identified impacts, a qualitative traffic and transport assessment is proposed for the EIS.

- Historic heritage: a search of the relevant registers indicated that there is one locally heritage listed site within the Project area (Nulla Nulla Homestead, Wentworth LEP #I82) and two locally heritage listed items located within three kilometres of the Project area. It is anticipated that the Project would avoid physical impacts to Nulla Nulla Homestead. As such, the construction phase is not anticipated to impact any known historic heritage sites. Construction of the Project would involve soil disturbance for the establishment of Project infrastructure. During soil disturbing works, should any unexpected heritage finds be uncovered, an unexpected finds procedure would be followed to minimise historic heritage impacts. There may be visual impacts to Nulla Nulla Homestead as a result of the operation of the Project due to the homestead being located on a rise. Outside of Nulla Nulla Homestead, the operation of the Project would not result in historic heritage impacts.
- Aboriginal heritage: the Project area is located on Barkandji Country. The Barkandji Traditional Owners #8 (Part A; NCD2005/001) and Barkandji Traditional Owners #8 (Part B; WCD2017/001) native title determinations are the determination areas for the Barkandji peoples. The Great Darling Anabranch is an offshoot of the Baaka (Darling River), which flows south into the very eastern most section of the Project area, before continuing south and joining with the Murray River. This anabranch connects to a series of lakes upstream to the north. Many of these lakes hold cultural significance and have associated heritage sites, such as camps and burials. Tar-Ru (Lake Victoria) is a freshwater lake and highly significant Aboriginal site. A search of the Aboriginal Heritage Information Management System (AHIMS) carried out on 4 April 2024 identified 82 Aboriginal heritage places within the Project area. Aboriginal heritage sites mapped on AHIMS are largely concentrated in the southwestern portion of the Project area, and eastern portion near the Great Darling Anabranch. Given the size of the Project area and the relatively concentrated locations of Aboriginal heritage sites, the Project is considered to pose a low risk to Aboriginal heritage. Further investigation would be required during the EIS stage to determine if any areas of cultural heritage or archaeological significance are present within the Project area.
- Soils and contamination: given construction of the Project would result in minimal soil disturbance, it is anticipated that negligible impacts to soil would result from the construction of Project infrastructure. Minimal soil disturbance would be required during the operation phase. Subsurface geotechnical investigations would be required during the EIS stage to provide information for the design of footings and hardstands for the WTGs and for the construction of other Project infrastructure.
- Water and hydrology: water usage for the Project would be predominately for civil foundations and concrete, potable construction worker consumption, compaction during earthworks and dust suppression. Water and hydrology impacts associated with the construction of the Project would include potential contaminated surface water runoff associated with earthworks and potential water pollution due to accidental spills or leaks from vehicles and equipment. The operation of the Project is anticipated to have negligible impacts on waterways. A qualitative water and hydrology assessment is proposed as part of the EIS.
- Aviation risk: operation of the Project may result in aviation safety risks and affect the existing operation of Wentworth Aerodrome, Mildura Airport and the aircraft landing areas (ALAs) within or in close proximity to the Project area. Potential safety risks for Wentworth Aerodrome and Mildura Airport may be associated with intrusions into their airspaces or potential effects on navigation instruments. In addition, WTGs may be considered potentially hazardous obstacles to nearby ALAs. An Aviation Impact Assessment would be carried out for the EIS to assess potential impacts on aviation safety and use of Wentworth Aerodrome, Mildura Airport and the ALAs within or in close proximity to the Project area. This would include consultation with the Civil Aviation Safety Authority, Airservices Australia, the Department of Defence, aerodrome operators, emergency services and ALA owners.
- Hazards and safety: detailed assessments of the storage and use of hazardous materials, electromagnetic interference, telecommunications, blade throw and bushfire would be required at the EIS stage.
- Matters considered to require no further assessment at the EIS stage would include:
  - Greenhouse gas
  - Rail facilities
  - Odour

- Coastal hazards
- Dam safety
- Land movement.

The final EIS assessment approach would be further informed by the SEARs and the requirements of the relevant agencies and stakeholders. The EIS would also consider cumulative impacts in addition to identifying the mitigation and management measures to minimise the impacts of the Project.

Next steps

This scoping report has been prepared for consideration in development of the SEARs. Once SEARs have been issued for the Project, they would then be addressed in an EIS, which would be publicly exhibited. The EIS is required in accordance with Part 4, Division 4.7 of the EP&A Act and must comply with the requirements in Part 8, Division 5 of the EP&A Regulation and have regard to the *State Significant Development Guidelines – preparing an environmental impact statement* (Appendix B to the State Significant Development Guidelines) (DPE, 2022a).

This scoping report provides a high-level overview of the Project and outlines potential environmental impacts in support of an application for the SEARs. Once prepared the EIS would be placed on public exhibition for at least 30 days in accordance with Division 5.1 of the EP&A Act.

Contents

1 Introduction 1

1.1 Project overview 1
1.2 The applicant 1
1.3 Project objectives 4
1.4 Related development 4
1.5 Purpose of this report 6

2 Strategic context and need 7

2.1 Strategic planning and policy framework 7
2.1.1 National policy context 7
2.1.2 NSW legislation and policy context 8
2.1.3 Regional context 9
2.1.4 Local context 10
2.2 Site setting and features 11
2.2.1 Local and regional community 11
2.2.2 Natural and built environment features 11
2.2.3 Key environmental risks and hazards 12
2.2.4 Relevant future projects 12
2.3 Agreements with other parties 13
2.4 Project justification 13

3 The Project 15

3.1 Project area 15
3.2 Project components 17
3.3 Project staging and timing 21
3.4 Construction 21
3.4.1 Construction features 21
3.4.2 Construction hours 21
3.4.3 Construction workforce 22
3.4.4 Transport access routes 22
3.5 Decommissioning 24
3.6 Project development and alternatives considered 24
3.6.1 'Do nothing' scenario 24
3.6.2 Project scenario 24
3.6.3 Other alternatives and Project refinements 25

4 Statutory context 26
5 Engagement 29

5.1 Engagement approach and processes 29
5.2 Community and stakeholder engagement 29
5.2.1 Engagement activities 33
5.3 Community and stakeholder feedback 33
5.3.1 Traditional owner feedback 34
5.3.2 Landowner feedback 34
5.3.3 Community feedback 35
5.3.4 Wentworth Shire Council feedback 35
5.4 Planned engagement 36

6 Proposed assessment of impacts 37
6.1 Landscape character and visual impacts 37
6.1.1 Existing environment 37
6.1.2 Potential impacts 43
6.1.3 Assessment approach 47
6.2 Biodiversity 48
6.2.1 Existing environment 48
6.2.2 Potential impacts 54
6.2.3 Assessment approach 55
6.3 Noise and vibration 56
6.3.1 Existing environment 56
6.3.2 Potential impacts 57
6.3.3 Assessment approach 58
6.4 Socio-economic 60
6.4.1 Existing environment 60
6.4.2 Potential impacts 64
6.4.3 Assessment approach 66
6.5 Traffic and transport 66
6.5.1 Existing environment 66
6.5.2 Potential impacts 66
6.5.3 Assessment approach 67
6.6 Historic heritage 67
6.6.1 Existing environment 67
6.6.2 Potential impacts 68
6.6.3 Assessment approach 68
6.7 Aboriginal heritage 69
6.7.1 Existing environment 69
6.7.2 Potential impacts 71
6.7.3 Assessment approach 71
6.8 Soils and contamination 71
6.8.1 Existing environment 71
6.8.2 Potential impacts 72
6.8.3 Assessment approach 72
6.9 Water and hydrology 74
6.9.1 Existing environment 74
6.9.2 Potential impacts 74
6.9.3 Assessment approach 75
6.10 Aviation risk 75
6.10.1 Existing environment 75
6.10.2 Potential impacts 77
6.10.3 Assessment approach 77
6.11 Hazards and safety 77
6.11.1 Hazardous materials and dangerous goods 77
6.11.2 Electromagnetic fields 78
6.11.3 Telecommunications 78
6.11.4 Blade throw 78
6.11.5 Bushfire 78
6.12 Cumulative impacts 79
6.12.1 Existing environment 79
6.12.2 Potential impacts 79
6.12.3 Assessment approach 80

6.13 Other matters....81
6.14 Matters requiring no further assessment....81

7 Conclusion....82
8 References....83

Appendices

Appendix A

Scoping summary table

Appendix B

Community and Stakeholder Engagement Report

Appendix C

Preliminary Landscape Character and Visual Impact Assessment

Appendix D

Preliminary Biodiversity Assessment

Appendix E

Preliminary Noise and Vibration Assessment

Appendix F

Preliminary Social Impact Assessment

Figures

Figure 1-1 Project location
Figure 1-2 Regional context
Figure 1-3 Related development
Figure 2-1 Wind resource
Figure 3-1 Topographic contours
Figure 3-2a-b Preliminary Project layout
Figure 3-3 Indicative transport access routes
Figure 6-1 Key landscape features
Figure 6-2 Landscape character types
Figure 6-3 Viewpoints
Figure 6-4 PCTs within the Project area (SVTM)
Figure 6-5 Operational noise contours
Figure 6-6 Project social locality
Figure 6-7 Zones of risk for Aboriginal heritage
Figure 6-8 Land and soil capability
Figure 6-9 Certified and non-certified aerodromes in proximity to the Project

Tables

Table 3-1 Indicative operational components and approximate dimensions
Table 3-2 Indicative construction components and approximate dimensions
Table 4-1 Potentially relevant legislation
Table 5-1 Identified stakeholders and nature of engagement undertaken
Table 5-2 Stakeholder engagement activities
Table 5-3 Summary of visual amenity value of local landscape captured during stakeholder interviews
Table 6-1 Summary of preliminary impacts to landscape character
Table 6-2 Residential receivers and public viewpoints within 5.8 kilometres of a turbine
Table 6-3 Summary of preliminary visual impacts
Table 6-4 Threatened ecological communities within the Project area identified by previous field surveys
Table 6-5 TECs identified as having some likelihood of occurrence within the Project area
Table 6-6 Threatened biota recorded during field surveys
Table 6-7 Species assessed as having the potential to occur within the Project area
Table 6-8 Preliminary flora species credit species and field survey timing
Table 6-9 Preliminary fauna species credit species and field survey timing
Table 6-10 Ramsar Wetlands within proximity of the Project area
Table 6-11 Potential native vegetation impacts
Table 6-12 Social baseline for the Project based on ABS 2021 Census data
Table 6-13 Demographics of the Project's social locality
Table 6-14 Characteristics of the South Olary Plain subregion of the Murray Darling Depression bioregion
Table 6-15 Relevant future projects and cumulative considerations
Table 6-16 Matters requiring no further assessment in the EIS

Glossary and abbreviations

Acronym	Description
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AHIMS	Aboriginal Heritage Information Management System
ALA	Aircraft landing area
ALP	Australian Labor Party
BAM	Biodiversity Assessment Method
BCF	Biodiversity Conservation Fund
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BDAR	Biodiversity Development Assessment Report
BESS	Battery energy storage system
Biosecurity Act	*Biosecurity Act 2015* (NSW)
CASA	Civil Aviation Safety Authority
CEO	Chief Executive Officer
CLM Act	*Contaminated Land Management Act 1997* (NSW)
COP	Conference of the Parties
CRG	Community reference group
Crown Land Act	*Crown Land Management Act 2016* (NSW)
CSER	Community and Stakeholder Engagement Report
DPE	NSW Department of Planning and Environment
DPHI	NSW Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EMF	Electromagnetic field
EMI	Electromagnetic interference
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EPI	Environmental planning instrument
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	Environmental Planning and Assessment Regulation 2021 (NSW)
ESD	Ecologically sustainable development
FM Act	*Fisheries Management Act 1994* (NSW)
FNWJO	Far North West Joint Organisation
GDE	Groundwater dependent ecosystem
GHG	Greenhouse gas
GW	Gigawatts
Heritage Act	*Heritage Act 1977* (NSW)
ICNG	Interim Construction Noise Guideline
ICNIRP	International Commission on Non-iodising Radiation Protection
IND	Independent Member of Parliament

Acronym	Description
ISP	The 2022 Integrated System Plan
kV	Kilovolt
LALC	Local Aboriginal Land Council
LCT	Landscape character type
LEP	Local Environmental Plan
LGA	Local Government Area
MP	Member of Parliament
MNES	Matters of National Environmental Significance
MW	Megawatt
NBN	National Broadband Network
NEM	National electricity market
NPfI	Noise Policy for Industry
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
OEH	Office of Environment and Heritage
OSOM	Oversize over mass
PCT	Plant community type
Planning Systems SEPP	State Environmental Planning Policy (Planning Systems) 2021
PLCVIA	Preliminary Landscape Character and Visual Impact Assessment
PMST	Protected Matters Search Tool
PSIA	Preliminary Social Impact Assessment
RAP	Registered Aboriginal party
REZ	Renewable Energy Zone
RFS	Rural Fire Service
Rural Fires Act	*Rural Fires Act 1997* (NSW)
SA	South Australia
SAII	Serious and irreversible impact
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SES	State Emergency Services
SHR	State Heritage Register
SOHI	Statement of Heritage Impact
SSD	State Significant Development
SVTM	State Vegetation Type Mapping
SWMP	Soil and Water Management Plan
TEC	Threatened ecological community
TWh	Terawatt hours
UCL	Urban centres and localities
UNFCCC	United Nations Framework Convention on Climate Change
VIA	Visual Impact Assessment
VIC	Victoria
VP	Viewpoint
WARR Act	*Waste and Resource Recovery Act 2001* (NSW)

Acronym	Description
WM Act	*Water Management Act 2000* (NSW)
WTGs	Wind turbine generators
ZTV	Zone of theoretical visibility

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1 Introduction

1.1 Project overview

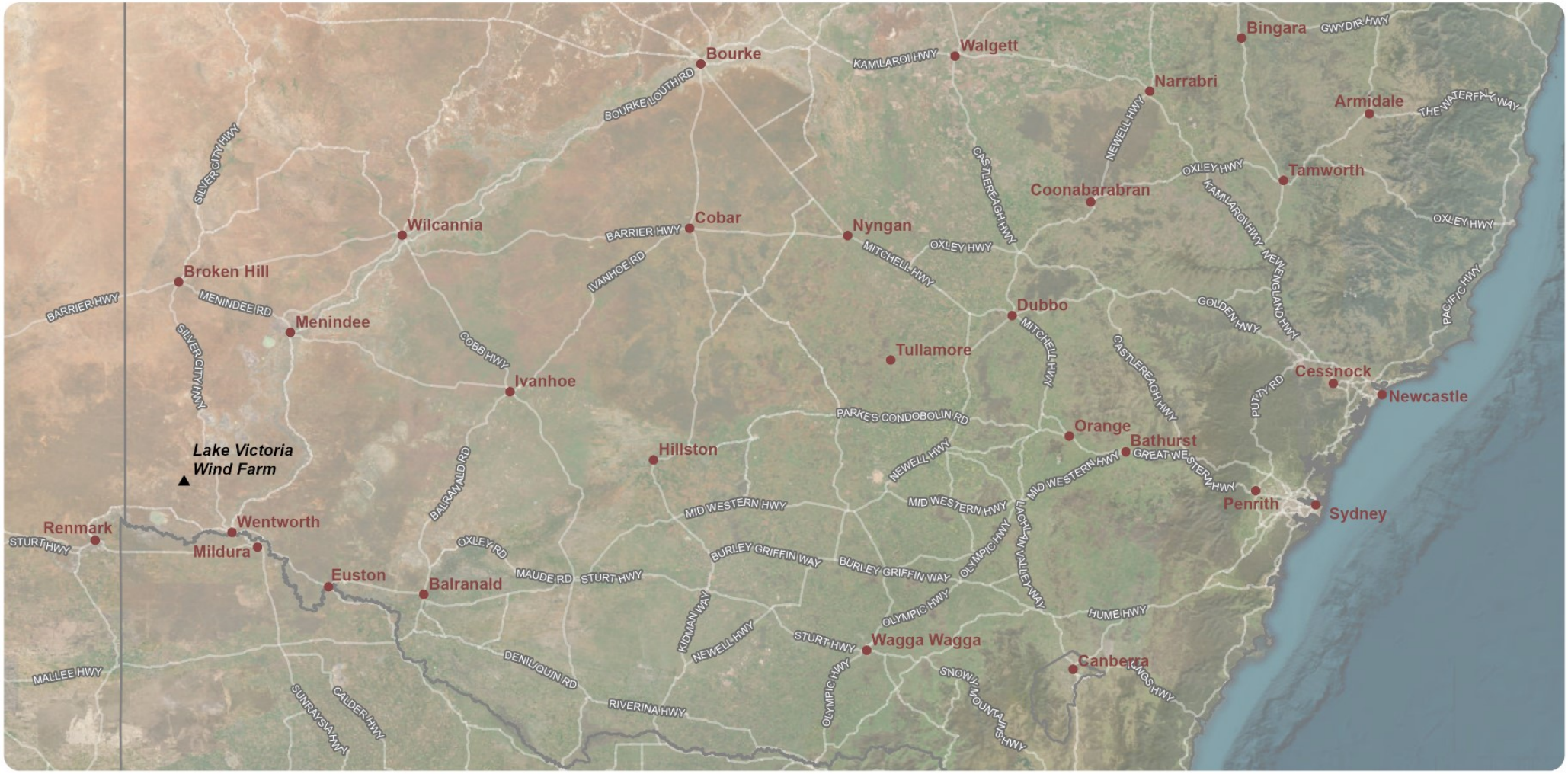
Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Trust (WestWind) proposes to build the Lake Victoria Wind Farm, which would include the construction and operation of up to 203 wind turbine generators (WTGs) spread over an area of about 41,700 hectares about 24 kilometres northwest of Wentworth in south-western NSW (the Project). The Project would be located within the Wentworth Shire Local Government Area (LGA) and would be spread across nine associated receivers. The location of the Project is shown in Figure 1-1 and Figure 1-2.

The Project is a renewable energy development with a generation capacity of up to 1.5 gigawatts (GW), enough to power over 800,000 households across the national electricity market (NEM). The Project would also include the installation of one to four battery energy storage systems (BESS) within the Project area. The Project is currently in the early stages of development, including stakeholder engagement and concept design.

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

1.2 The applicant

Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Trust (WestWind) is part of the WestWind Group of companies. The WestWind Group was launched with the establishment of the Wind Park Lemke project in the community of Marklohe in Germany in 1998. The establishment of WestWind Energy took shape in 2003 from the idea of expanding the activities of the WestWind Group of companies internationally. At the invitation of the Victorian and Commonwealth Governments the potential for establishing a new business in Australia was investigated and WestWind Energy Pty Ltd was established in Victoria, Australia in 2004. In 2022, Shell Energy recognised the importance of WestWind's contribution to the transition to renewable energy in Australia with an equity investment in the business. This enabled the acceleration of development activities across multiple new projects throughout Australia. WestWind has constructed three wind farms in Victoria (Mt Mercer Wind Farm with 64 turbines, Moorabool Wind Farm with 104 turbines, and Lal Lal Wind farm with 60 turbines). WestWind is also currently constructing the Golden Plains Wind Farm in Rokewood, Victoria, which is the largest wind farm in construction in Australia with 215 turbines. WestWind are also in the planning and approvals phase for five other projects across Victoria, NSW and Queensland.



State boundary

Major road

▲ Lake Victorial Wind Farm

● City or town



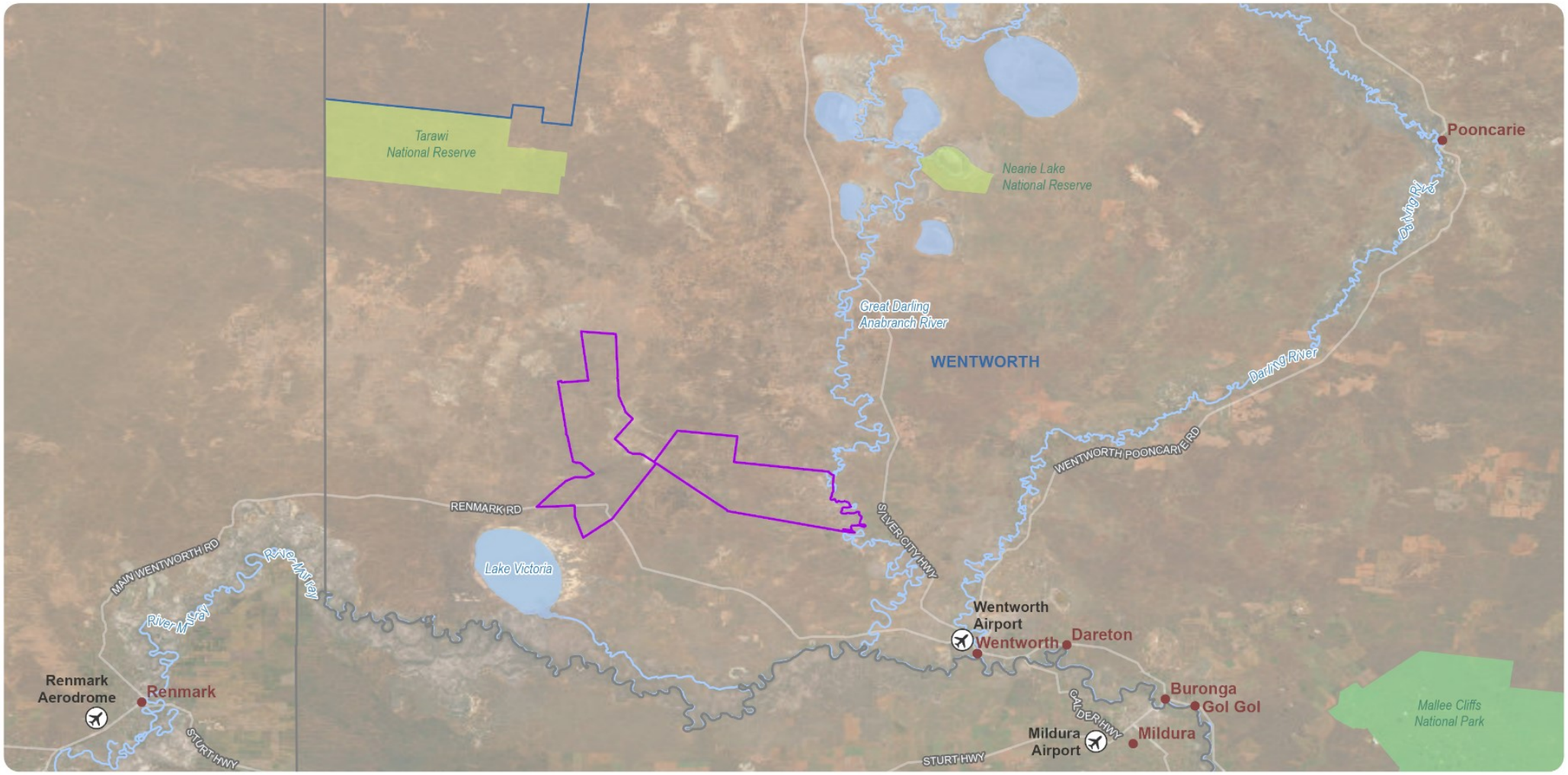
Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:5,500,000

0 70 140 km

Projection: GCS GDA 1994

Figure 1-1: Project location



Project area
State boundary
Local Government Area
Waterbody
Major road
Airport
Town or village
NPWS Estate
National Park
Nature Reserve



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:900,000
0 13 26 km

Projection: GCS GDA 1994

Figure 1-2: Regional context

1.3 Project objectives

The objectives of the Project are to:

- Contribute to renewable energy generation and storage capacity in NSW through improving the security, stability and resilience of the NEM
- Support the transition to renewable energy through additional capacity of up to 1.5 GW and the potential to power over 800,000 homes
- Contribute to the transition away from fossil fuels through emissions savings of approximately 3.3 million tonnes of CO_2 annually
- Contribute to on-farm income for associated landowners
- Avoid, minimise and mitigate adverse impacts on the environment and community during construction and operation
- Contribute to positive community and economic outcomes within the Wentworth Shire LGA.

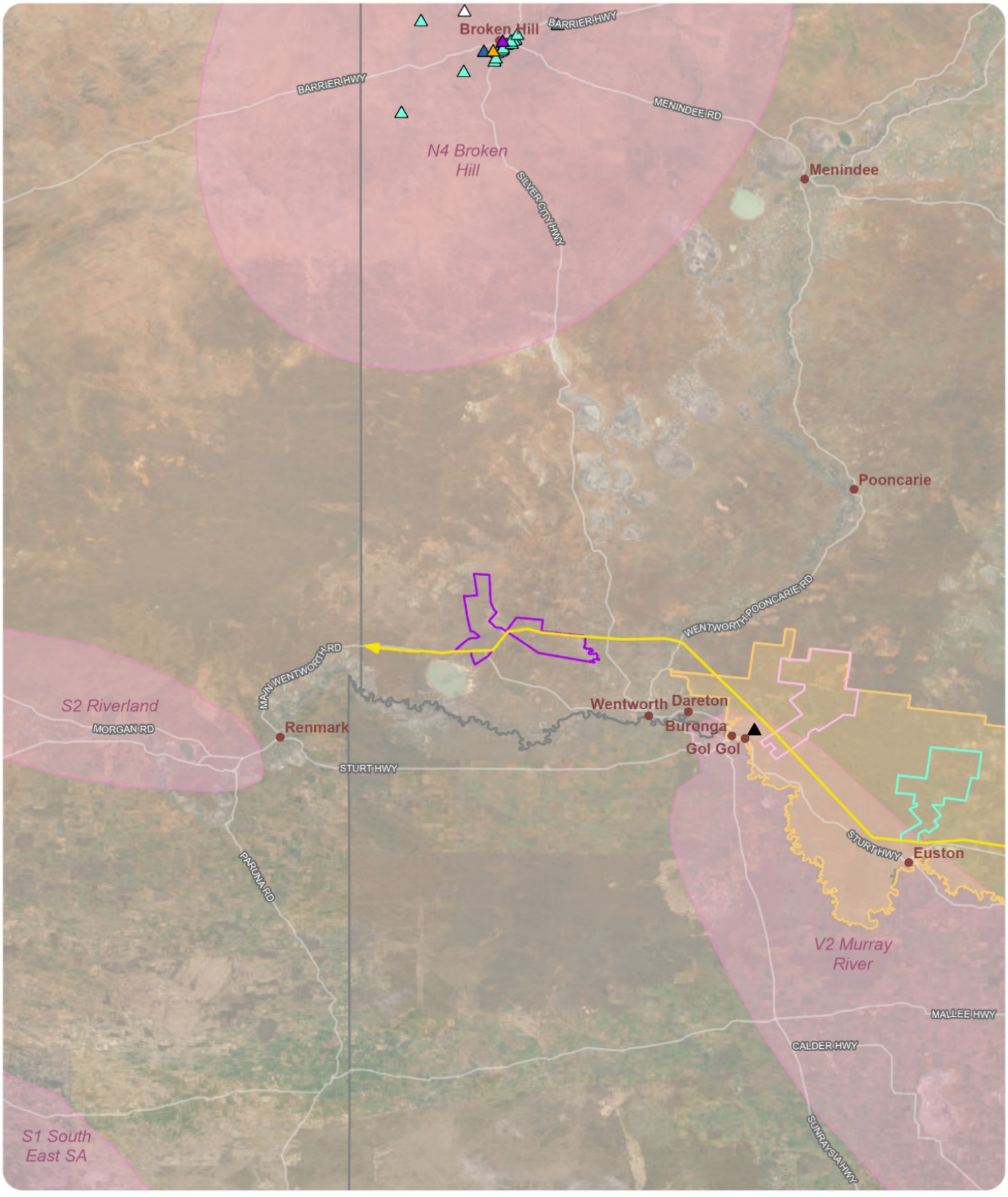
1.4 Related development

Project EnergyConnect (NSW – Western Section), which is currently under construction, passes through the south-western portion of the Project area near Renmark Road and near the northern boundary of the eastern section of the Project area (as shown in Figure 1-3). Project EnergyConnect (NSW – Western Section) involves constructing a new 330 kV transmission line and associated infrastructure between the SA/NSW border near Chowilla and the existing Buronga substation, upgrading the existing 220 kV transmission line between the existing Buronga substation and the NSW/Victoria border near Red Cliffs in Victoria, and upgrading and expanding the existing Buronga substation. In addition, Project EnergyConnect (NSW – Eastern Section) would connect to the Buronga Substation, which is located around 40 kilometres east of the Project area, and travel east towards Wagga Wagga, NSW. The Project aims to connect into Project EnergyConnect. A terminal substation would likely be placed in the centre of the Project area where Project EnergyConnect passes through the Project area.

In addition, the South West Renewable Energy Zone (REZ) extends to Mildura and areas of the Wentworth Shire LGA towards its western boundary. The Project is located about 24 kilometres west of the South West REZ. The closest renewable energy developments to the Project are located in the South West REZ and include the proposed Mallee Wind Farm and Euston Wind Farm, which would be located around 50 kilometres and 100 kilometres east of the Project, respectively.

Other candidate REZs surrounding the Project include N4 Broken Hill (located 76 kilometres north of the Project), V2 Murry River (located 36 kilometres south-east of the Project in Victoria), and S2 Riverland (located 68 kilometres south-west of the Project in South Australia).

The location of the above projects, REZs and other relevant future projects discussed in Section 2.2.4 are included in Figure 1-3.



Project area
Candidate Renewable Energy Zones
Southwest REZ
State boundary
Major road

Town or village
Underground Mine

Wind Farms
Operational

Solar Farms
Operational

In Planning
Under Construction

Emerging Energy Program
Battery Storage
Other

SSD/SDI energy projects within the Wentworth LGA
Project EnergyConnect
Mallee Wind Farm
Euston Wind Farm



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:1,900,000
0 31 62 km

Projection: GCS GDA 1994

Project No: P522028 Map Author: VR Revision: A Export Date: 6/11/2023 9:17 AM File Path: C:\Users\Virgil.Robinson\Aurecon Group\P522028 Special Operations Facilities Program (SOFP) - GIS\P522028_EST4507\Pro\P522028_SOFP_EST1508Pro2.aprx

Figure 1-3: Related development

1.5 Purpose of this report

WestWind Energy is seeking approval for the Project via the SSD approval pathway. This approach has been confirmed during a scoping meeting with the NSW Department of Planning, Housing and Infrastructure (DPHI) (formerly NSW Department of Planning and Environment (DPE)) on 18 April 2024.

This scoping report has been prepared in accordance with the '*State significant development guidelines – preparing a scoping report'* (Appendix A to the State Significant Development Guidelines) (DPE, 2022b).

As required by the guidelines this scoping report provides the following:

- A simple but accurate description of the Project (Chapter 3)
- The relevant strategic and statutory context (Chapter 2 and Chapter 4)
- A summary of the findings of any early community engagement and a description of the engagement that would be carried out during the preparation of the environmental impact statement (EIS) (Chapter 5)
- The identification of matters that would require further assessment in the EIS and how they would be assessed (Chapter 6).

2 Strategic context and need

2.1 Strategic planning and policy framework

2.1.1 National policy context

2.1.1.1 2015 Paris Agreement

On 12 December 2015, the Conference of the Parties (COP) adopted the Paris Agreement, made under the United Nations Framework Convention on Climate Change (also referred to as the UNFCCC) (UNFCCC, 2015) to strengthen the global response to climate change by:

- Keeping the increase in global average temperature to well below 2°C above pre-industrial levels
- Pursuing efforts to limit the temperature increase to 1.5°C.

Australia announced its ratification of the Paris Agreement on the 10 November 2016. By 2030, the Australian Government is committed to reducing emissions by 43 per cent below 2005 levels. In 2022, the Australian Government released *Australia's emissions projections 2022*, outlining Australia's progress towards its Paris commitments. The report details how Australia is on track to reduce emissions by 32 per cent below 2005 levels by 2030, and how improved energy efficiency and renewable uptake, including through the target of 82 per cent renewable energy in Australia's electricity grids, will allow Australia to exceed its Paris commitments.

Electricity generation contributes to about one-third of total carbon emissions in Australia, and improved efficiency in energy generation is crucial to achieving a low-emissions future and delivering on the Paris Agreement. The Project would contribute to the required renewable energy uptake to meet and exceed Australia's Paris commitments through an increase in renewable energy contribution to the NEM and emissions savings of approximately 3.3 million tonnes of CO_2 annually.

2.1.1.2 National Electricity Market

The NEM in Australia operates as a wholesale market across NSW, the Australian Capital Territory, Queensland, South Australia, Victoria and Tasmania. It comprises a wholesale market for electricity sales and the physical system comprising transmission infrastructure. The Australian Energy Market Operator (AEMO) manages the NEM. AEMO is responsible for monitoring electricity consumption and the flow of energy across the electricity network. In 2022, the NEM supplied more than 10 million customers.

Consistent with global trends seen across developed nations, the NEM in Australia has experienced a notable increase in generation from renewable energy sources over the past decade. This includes increasing energy generation from wind and solar farms across a more distributed network in a shift away from the high-capacity point generation provided by traditional power stations.

This rise in energy generation from renewable sources is driven by policies and agreements regarding climate change and targets to reduce greenhouse gas emissions, in addition to commercial drivers as renewable energy generation has become increasingly cost competitive. While energy generation from renewable sources is rising, multiple coal-fired power stations are planned to be retired in Australia in the coming decades. To compensate for the loss of traditional baseload energy generation an increasing number of new generation resources such as wind farms and batteries are required to meet market demands.

The Project would support the continued operation of the NEM by contributing to security of energy supply across the network and through increasing the supply of renewable energy within the market.

2.1.1.3 2022 Integrated System Plan

The 2022 Integrated System Plan (ISP) (AEMO, 2022) provides a comprehensive roadmap for the NEM. The ISP and its optimal development path support Australia's highly complex and rapid energy transformation towards net zero emissions, enabling low-cost renewable energy and essential transmission to provide consumers with reliable, secure and affordable power. This plan is for a true transformation of the NEM, from fossil fuels to firmed renewables. It calls for levels of investment in generation, storage, transmission, and system services that exceed all previous efforts combined.

The system today has approximately 43 gigawatts (GW) of firming capacity, including 23 GW from coal-fired generation, 11 GW from gas-fired and liquid-fuelled generation, 7 GW from hydro generation and 1.5 GW from dispatchable energy. Today, the NEM delivers just under 180 terawatt hours (TWh) of electricity to industry and homes per year. The ISP suggests that the NEM needs to almost double the electricity delivered to approximately 320 TWh per year by 2050 to serve the electrification of our transport, industry, homes, and offices.

The ISP acknowledges that resource diversity across the NEM helps reduce the need for firming and dispatchable resources, and reduce the volatility associated with a weather-powered energy system. Both geographic spread and a mix of wind and solar technologies provide that diversity. The Project would contribute to this diversity within the NEM and would provide an additional source of wind energy to contribute to network security in an increasingly renewable market.

2.1.1.4 Climate Change Act 2022

In September 2022, the Australian government passed legislation targeting a 43% reduction in emissions by 2030 (compared with 2005 levels) and to reach net zero by 2050. The aim of the act is to advance an effective and progressive response to the urgent threat of climate change. By drawing on the best available scientific knowledge and setting a greenhouse gas emissions reduction target, these actions will contribute to global goals, such as those agreed under the Paris Agreement.

The Project would contribute to emissions reductions of around 3.3 million tonnes of CO_2 annually through increased uptake of renewable energy in the NEM. This would contribute to the emissions reductions required for Australia to achieve its Paris targets, as is legislated under this Act.

2.1.2 NSW legislation and policy context

NSW legislation and policy have identified that increasing output from renewable generation within the NEM will help achieve the state's objective of reducing greenhouse gas (GHG) emissions and delivering reliable electricity at lower prices for consumers. Several strategies have been identified to facilitate reaching energy targets, some of which are outlined in the following sections.

2.1.2.1 Climate Change (Net Zero Future) Act 2023

The NSW *Climate Change (Net Zero Future) Act 2023* legislates NSW's targets to reduce GHG emissions by 50 per cent by 2030 and 70 per cent by 2035 to achieve net zero GHG emissions by 2050. The Act identifies NSW's approach to addressing climate change as a whole of government approach with the objective for NSW to be more resilient to a changing climate.

The Project would contribute to emissions reductions of around 3.3 million tonnes of CO_2 annually through increased uptake of renewable energy in the NEM. This would contribute to the emissions reductions required under this legislation.

2.1.2.2 NSW Electricity Infrastructure Roadmap

The purpose of the NSW Electricity Infrastructure Roadmap (DPE, 2020) is to deliver energy infrastructure and secure NSW's future as an energy superpower. The Electricity Infrastructure Roadmap is the NSW Government's 20-year plan to transform our electricity system into one that is cheap, clean and reliable. As the world shifts towards a greener future in reducing its carbon emissions, the roadmap identifies NSW as one of the best renewable energy resources in the world which can attract huge investments.

The roadmap recognises that power stations in NSW are retiring and that it is crucial that these power stations are replaced with new energy infrastructure to help support the network and protect consumers from substantial energy price rises.

It is expected that the roadmap will deliver $32 billion in private sector investment by 2030 and support 6,300 construction jobs and 2,800 ongoing jobs mostly in regional NSW in 2030. The Project would support the roadmap through the provision of cheap and clean renewable energy. The Project would allow for local construction and operational jobs to be created in the Wentworth Shire and would enable a greater share of the electricity supplied to the NEM to come from renewable sources in the context of the closure of the State's coal-fired power stations.

2.1.2.3 NSW Electricity Strategy

The NSW Electricity Strategy (DPE, 2019a) is the NSW Government's plan for a reliable, affordable, and sustainable electricity future. The purpose of the NSW Electricity Strategy is to improve the efficiency and competitiveness of the NSW electricity market and encourage investment in new lower cost generation and energy saving technology.

The strategy has outlined a three-layered approach that aims to achieve the objectives outlined in the strategy. The NSW Government will:

- Support the market to deliver reliable electricity at the lowest price, while protecting the environment
- Set an Energy Security Target to ensure that the State has sufficient generation capacity to cope with unexpected generator outages during periods of peak demand, such as during heatwaves
- Ensure the State has sufficient powers to deal with an electricity emergency if one arises.

The NSW Electricity Strategy identifies 'delivering more resilient electricity supplies' as a key action towards supporting a competitive and low-cost electricity market. It plans to do so through initiatives such as the setting of an energy security target and the avoidance of electricity emergencies. The Project would increase the supply of electricity to the market and contribute to providing a more sustainable electricity future. The inclusion of the BESS infrastructure in the Project would also improve the reliability of electricity supply in the context of increasing non-dispatchable sources of energy.

2.1.3 Regional context

2.1.3.1 Far West Regional Plan 2036

The Far West Regional Plan 2036 is a 20-year blueprint for the future of Western NSW. The Plan recognises the value of landscapes and their important role in leveraging opportunities for new economic ventures, and includes directions to support the Far West to become a leader in renewable energy and climate change adaption. The Plan is underpinned by three regionally focused goals:

- Goal 1: A diverse economy with efficient transport and infrastructure networks
- Goal 2: Exceptional semi-arid rangelands traversed by the Barwon-Darling River
- Goal 3: Strong and connected communities.

Direction 4 of Goal 1 involves diversifying energy supply through renewable energy generation. It is recognised that the Far West has many opportunities for investment in renewable energy, including large-scale wind and solar generation and bioenergy. The Project would contribute to this investment in renewable energy generation in the Far West through the establishment of wind energy generation in the Wentworth Shire. The relationships established in nearby communities by WestWind would also contribute to the best practice community engagement identified in the Plan as an important action towards realising the community benefits for renewable energy projects.

2.1.4 Local context

2.1.4.1 Wentworth Shire Council Local Strategic Planning Statement: A Vision to 2040 and Beyond

The Wentworth Shire Council Local Strategic Planning Statement: A Vision to 2040 and Beyond (Wentworth Shire Council, 2020) sets the land use framework for Wentworth Shire's economic, social and environmental land use needs over the next 20 years. It addresses the planning and development issues of strategic significance for the Shire through planning priorities and actions, spatial land use direction and guidance. The statement gives effect to the Far West Regional Plan 2036, implementing the directions and actions at a local level. It is also informed by other State-wide and regional policies.

Planning Priority 3 within the statement relates to managing resources and renewable energy development. Within this planning priority, the statement aims to diversify energy supply through renewable energy generation. The statement acknowledges the high wind speeds that exist within the Shire and notes the Buronga Substation as an appropriate connection point to supply electricity to the NEM. The Project would contribute to the diversification of energy supply within the Wentworth Shire LGA through the construction of a wind farm north of Lake Victoria. The statement also acknowledges the need for an adequate supply of worker accommodation for renewable energy developments and the need to assess the cumulative impacts of other nearby projects, including on worker accommodation availability. The Project would include the provision of a worker accommodation facility (refer to Figure 3-2), however further consultation with community stakeholders, Council and unions would be required to determine the feasibility of this accommodation facility, including its capacity. As such, the cumulative impacts from the Project and other nearby developments on local/regional worker accommodation would be dependent on the construction and capacity of this accommodation facility. Cumulative impacts are further discussed in Section 6.12.

2.1.4.2 Wentworth Shire: Our Future in Focus (Community Strategic Plan 2022-2032)

The Wentworth Shire Community Strategic Plan 2022-2032 (Wentworth Shire Council, 2022) outlines the future vision and aspirations of the community to assist with long term planning, prioritisation and decision making. The community strategic plan is a forward-looking aspirational plan, and while it recognises the rich and significant history of the region, it also explores new approaches to ensuring the community can move towards its aspirational vision through innovation, technology and strategic thinking. The community strategic plan is built around four priorities identified by the community:

- A vibrant, growing and thriving region (economic)
- A great place to live (social)
- A community that works to enhance and protect its physical and natural environment (environmental)
- A community that is supported by strong and ethical civic leadership with all activities conducted in an open, transparent and inclusive manner (civic leadership).

As part of the economic priority identified by the community, Council has developed objectives surrounding the promotion of the Shire as an ideal location for investment in and the establishment of innovative, sustainable and diversified industries, and encouraging and supporting industries that improve local employment opportunities. The Project would establish a new industry within the Wentworth Shire which would contribute to sustainable outcomes across the community. Additionally, the construction and operation of the Project would potentially allow for increased local employment opportunities, thereby improving economic outcomes in the local community.

2.2 Site setting and features

2.2.1 Local and regional community

The Project is spread over an area of around 41,700 hectares in the Wentworth Shire LGA. The south-eastern boundary of the Project area is located around 16 kilometres north-west of Pomona and around 24 kilometres north-west of Wentworth. The north-western boundary is around 48 kilometres north-west of the south-eastern boundary and around 72 kilometres northwest of Wentworth's town centre. The population of Pomona is around 160 people, while the population of Wentworth is around 1,600. The top industries of employment in the Wentworth Shire LGA from the 2021 Census were aged care, local government and accommodation.

The Project is expected to involve the direct participation of four farming families and New South Wales Crown Lands through the hosting of wind turbines and ancillary infrastructure. The current proposed Project area includes four leasehold families and NSW Crown Lands hosting wind turbines and wind farm infrastructure. The Project is within three localities; Pine Camp, Rufus and Anabranch South. The Project would fund several additional programs designed to give directly to the local communities around the wind farm's location. The details of these programs would be developed in consultation with the local community.

2.2.2 Natural and built environment features

The Project area is located on land primarily used for agricultural purposes. The land has been modified over time through agricultural practices, including livestock grazing and some cropping. Patches of wooded vegetation are scattered across the Project area. Early desktop investigations of the area indicate potential constraints for development due to the presence of native vegetation. Refer to Section 6.2 for further details on the biodiversity constraints within the Project area.

The Project area is bordered by the Great Darling Anabranch River towards the east and Lake Victoria is approximately 4.4 kilometres south-west. Early desktop investigations indicate that these waterways are likely going to be a source of some cultural heritage (refer to Section 6.7) and hydrology (refer to Section 6.9) constraints for the Project.

The Project area includes nine associated receivers and seven non-associated receivers located within five kilometres of the Project area. The closest town to the Project area is Pomona, which includes a local public school and community hall. The nearest shops and sources of accommodation are located in Wentworth.

The Project would likely connect to Project EnergyConnect, which would run through the Project area (refer to Figure 1-2). A terminal substation would likely be placed in the centre of the Project area where Project EnergyConnect passes through.

2.2.3 Key environmental risks and hazards

Prior to the assessment of impacts (Chapter 6), potential key environmental risks and hazards for the Project have been identified. These include:

- Landscape character and visual constraints – the turbines could extend up to 280 metres in height. These would be visible from a number of viewpoints surrounding the Project and would impact the overall landscape character of the rural setting.
- Biodiversity constraints – biodiversity mapping indicates the presence of various PCTs within the Project area. Protected bat and bird species have also been identified through desktop searches and during field visits.
- Noise and vibration constraints – as is outlined in Section 6.3.2, the current WTG layout would result in noise impacts at one sensitive receiver being above the relevant noise criteria. Further design development would be required to make sure that noise impacts at this receiver are below the relevant noise criteria.
- Aboriginal heritage constraints – a search of the Aboriginal Heritage Information Management System (AHIMS) carried out on 4 April 2024 identified 82 Aboriginal heritage places within the Project area (largely concentrated in the south-western and eastern portions of the Project area) (refer to Section 6.7.1). Design development would be required to take into account the locations of these Aboriginal sites and any sites identified during future site investigations.

Further details on the anticipated impacts of the Project and the proposed assessment methodologies for the EIS stage can be found in Chapter 6.

2.2.4 Relevant future projects

Relevant future projects have been identified based on a search of the Wentworth Shire LGA in March 2024 using the following data sources:

- DPHI's Major Projects register
- NSW Government's Western Regional Planning Panel project register
- NSW Independent Planning Commission project register
- EPBC Act Public Portal
- Transport for NSW Projects Map
- Far West Regional Plan 2036 and Draft Far West Regional Plan 2041.

In addition, due to the Project's location, neighbouring LGAs in Victoria and South Australia were also searched for major projects. The LGAs included Mildura Rural City Council LGA in Victoria, and Renmark Paringa Council and Outback Communities LGAs in South Australia. Searches of the following data sources were undertaken in March 2024:

- Victoria's Department of Transport and Planning's EES projects and referrals portal and Ministerial permits register
- Government of South Australia's PlanSA website.

Relevant future projects that could have cumulative impacts when considered with the Project include:

- Project EnergyConnect (NSW – Western Section), which involves constructing a new 330 kV transmission line and associated infrastructure between the SA/NSW border near Chowilla and the existing Buronga substation, upgrading the existing 220 kV transmission line between the existing Buronga substation and the NSW/Victoria border near Red Cliffs in Victoria, and upgrading and expanding the existing Buronga substation. Project EnergyConnect intercepts the Project.
- Copi Mineral Sands Project, which involves the development and operation of a mineral sands mine and associated infrastructure about 75 kilometres northwest of Wentworth. Copi Mineral Sands Project is immediately adjacent to the Project.

- Mallee Wind Farm, which involves the construction and operation of up to 150 WTGs and associated infrastructure, about 16 kilometres north-east of Buronga. Mallee Wind Farm is around 53 kilometres from the Project.
- Euston Critical Minerals Project, which involves the development and operation of a mineral sands mine and associated infrastructure about 25 kilometres south-east of Buronga. Euston Critical Minerals Project is around 58 kilometres from the Project.
- Euston Wind Farm, which involves the construction and operation of indicatively 96 WTGs and associated infrastructure, about 7.6 kilometres north of Euston. Euston Wind Farm is around 97 kilometres from the Project.

Further detail on the potential cumulative impacts of the Project and these relevant future projects are provided in Section 6.12.

2.3 Agreements with other parties

WestWind is currently in negotiations with Project Leaseholders and Project Landholders (NSW Crown Lands and Freehold Landholder) regarding securing agreements for the Project. Heads of Agreement, Licence Agreements and Exclusivity Agreements have been signed, while negotiations are in progress for Lease Agreements and Special Purpose Agreements.

2.4 Project justification

The Project would contribute to the uptake of renewable energy generation required in NSW and Australia to reach the emissions reduction targets of a 43% reduction in emissions by 2030 (compared with 2005 levels), and net zero by 2050 as legislated in the *Climate Change Act 2022* and *Climate Change (Net Zero Future) Act 2023.* The Project would also contribute to improved reliability, efficiency and security of electricity supply to NSW, including through the provision of the BESS infrastructure, at a time when large thermal generators are progressively being retired, including the Liddell Power Station, which closed in 2023, and the Eraring Power Station, which is scheduled for closure in 2025.

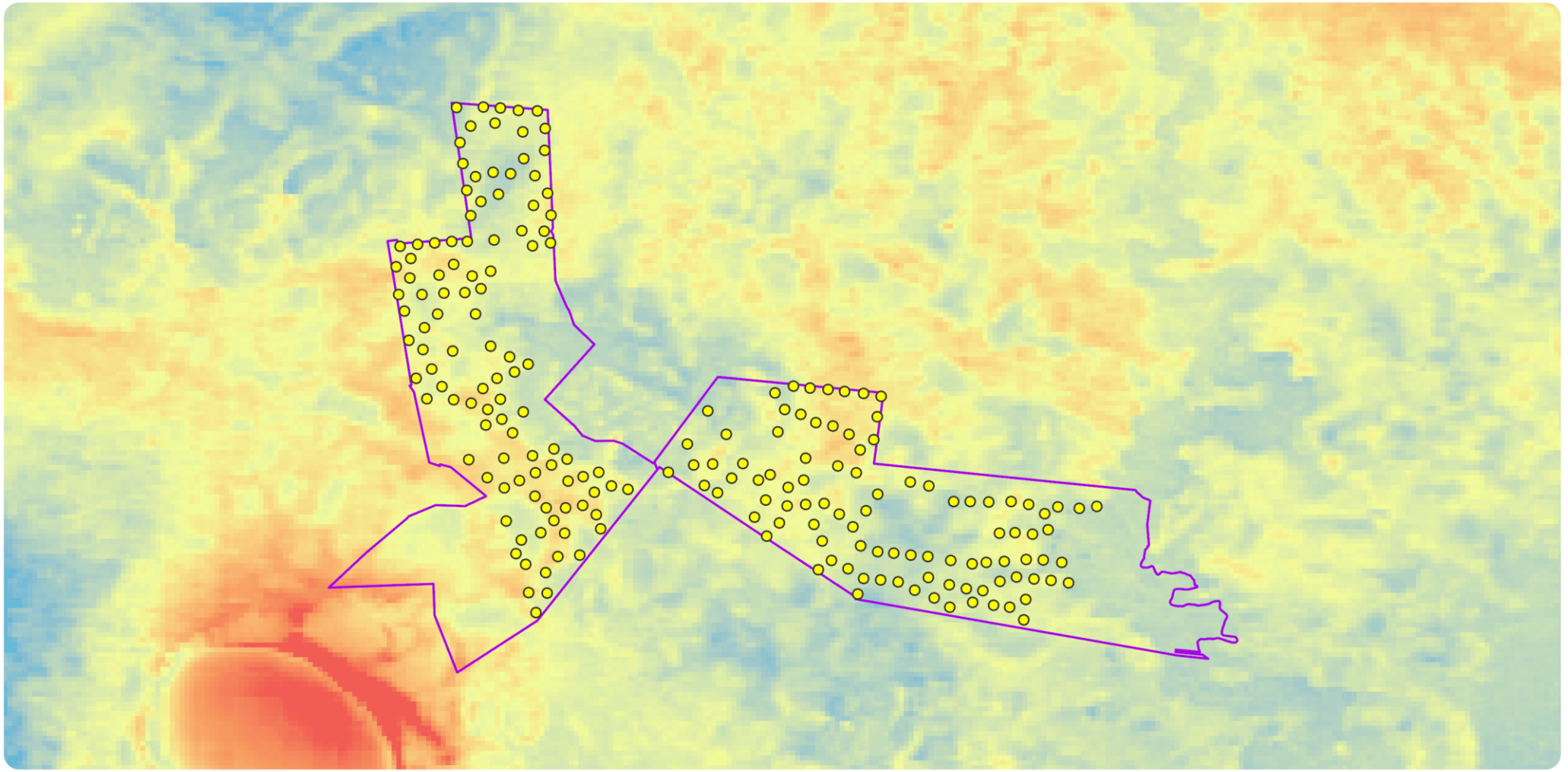
The Project is consistent with the ISP 2022, which states that resource diversity across the NEM helps to reduce the need for firming and dispatchable resources, as well as reduces the volatility associated with a weather-powered energy system. The Project would contribute to this diversity within the NEM and would provide an additional source of wind energy to contribute to network and NEM security. The BESS infrastructure would allow for further weather-powered energy solutions to be implemented in the NEM through improved security of supply from dispatchable sources.

Wind resource mapping indicates that the Project area would be suitable for development of a wind farm. The wind resource within and surrounding the Project area is outlined in Figure 2-1.

The Project would introduce a new industry to the Wentworth Shire LGA, which would provide opportunities for increased local employment in the renewable energy sector. The proposed benefits of the Project to the local economy have received overall positive feedback from the community.

The Project would contribute to positive environmental outcomes. These environmental benefits would largely be associated with the Project's support of the NSW Electricity Infrastructure Roadmap, including participation in the transition of NSW to lower emissions while maintaining reliability at lowest cost to consumers. Environmental impacts would be associated with minor and short-term negative potential impacts during the construction of the Project that could be effectively managed with standard environmental management approaches.

Overall, the Project is consistent with national, State, and local strategic planning objectives and would be positive for the NSW economy, environment, and society. By contributing to security of energy supply across the network, the Project would support the continued operation of the NEM.



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:325,000
0 5 10 km

Projection: GCS GDA 1994

Figure 2-1: Wind resource

3 The Project

This section provides an overview of the Project, including the following:

- Description of the site identified for development
- High-level description of the key features of the Project
- Anticipated Project staging and construction activities
- Operational aspects of the Project
- Project decommissioning
- Alternative options considered.

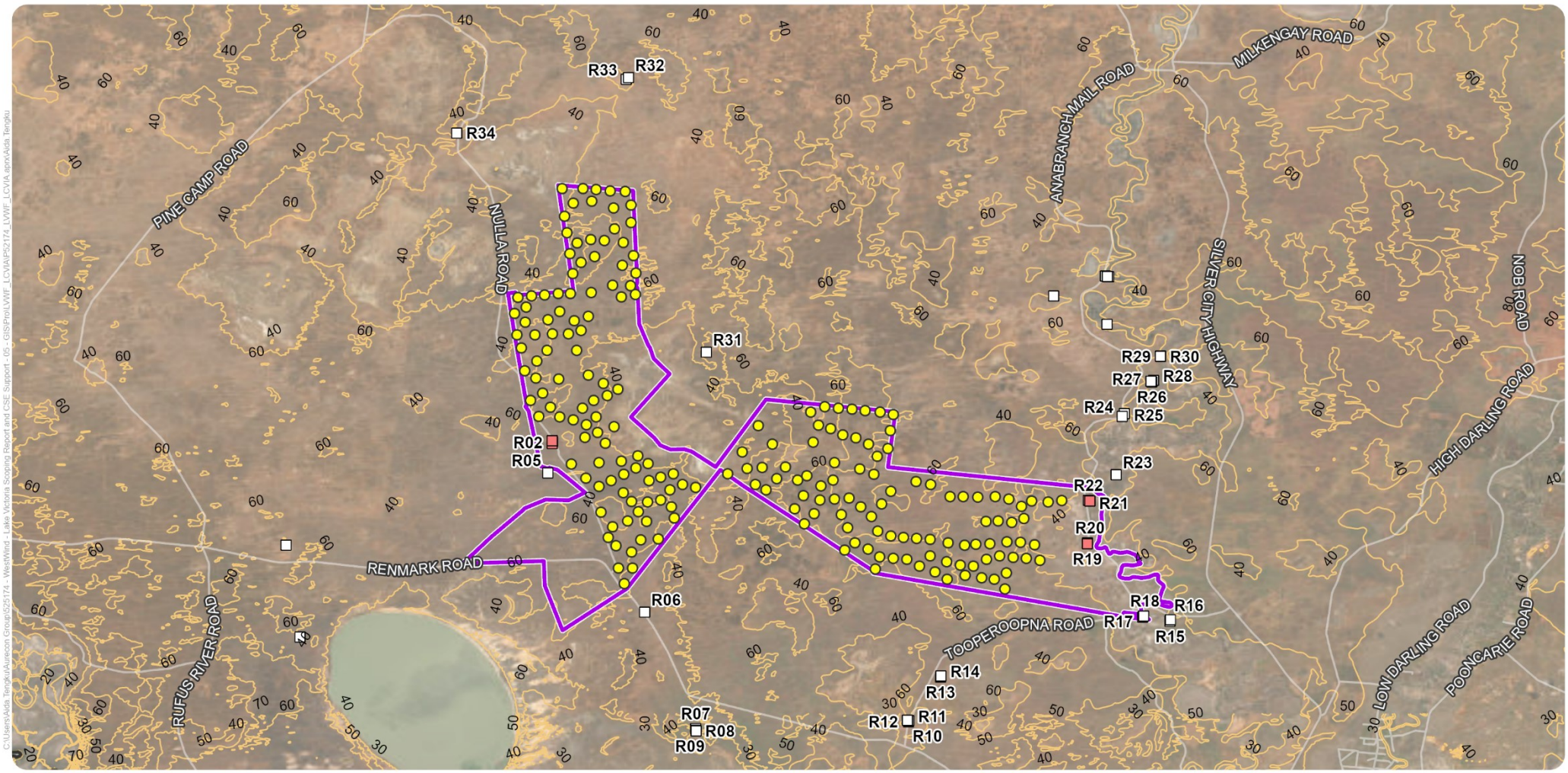
3.1 Project area

The Project area covers about 41,700 hectares. Around 259 hectares of overhead transmission lines would be installed as part of the Project, while the works footprint would amount to around 1,800 hectares, equivalent to around five per cent of the total Project area. The Project area includes nine associated receivers. The Project area is located across the following eight lots:

- Lot 4167 DP766733 – NSW Crown Lands
- Lot 500 DP761443 – NSW Crown Lands
- Lot 4168 DP766734 – NSW Crown Lands
- Lot 501 DP761444 – NSW Crown Lands
- Lot 4 DP1255308 – NSW Crown Lands
- Lot 4169 DP766735 – NSW Crown Lands
- Lot 502 DP761489 – Freehold Landholder
- Lot 12 DP756190 – Freehold Landholder

The Project is within the Wentworth Shire LGA.

Topographic contours across the Project area are shown in Figure 3-1.



Project area

10m contour

Associated receiver

Non-associated receiver

Lake Victoria Wind Farm Infrastructure

Turbine location



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:415,000

0 5 10 km

Projection: GCS GDA 1994

Figure 3-1: Topographic contours

3.2 Project components

The Project is seeking approval for up to 203 wind turbine generators (WTGs), with a maximum blade-tip height of 280 metres above ground level and a generating capacity of up to 1.5 GW. Grid-scale BESS infrastructure is also proposed and would allow for the capture and storage of dispatchable energy, to be distributed to the electricity grid as required and used to provide additional grid services. The power generated by the Project (from wind turbines or released from battery storage) would likely feed into the electricity grid (NEM) via Project EnergyConnect, which is proposed to run through the Project area (refer to Figure 1-2). The key components of the Project are as follows:

- Up to 203 (3 blade) WTGs (3 to 8 megawatt (MW) capacity each), with a maximum blade-tip height of 280 metres above ground level
- 3 to 6 permanent meteorological masts
- Four collector stations and one terminal station (co-located with a collector station)
- Provision for 600MW battery energy storage system (up to a capacity of 2,400 MWh)
- Other operational infrastructure, including site offices, amenities, laydown areas and operational and maintenance facilities
- Temporary infrastructure areas including construction site compounds, workers worker accommodation, laydown and stockpile areas and batching plants.
- Approximately 416 kilometres of access tracks throughout the Project area (minimum width of 5.5 metres on straight tracks, widened to 7 metres on corners)
- Internal collector network (electrical connections between the proposed wind turbine generators and the substation).

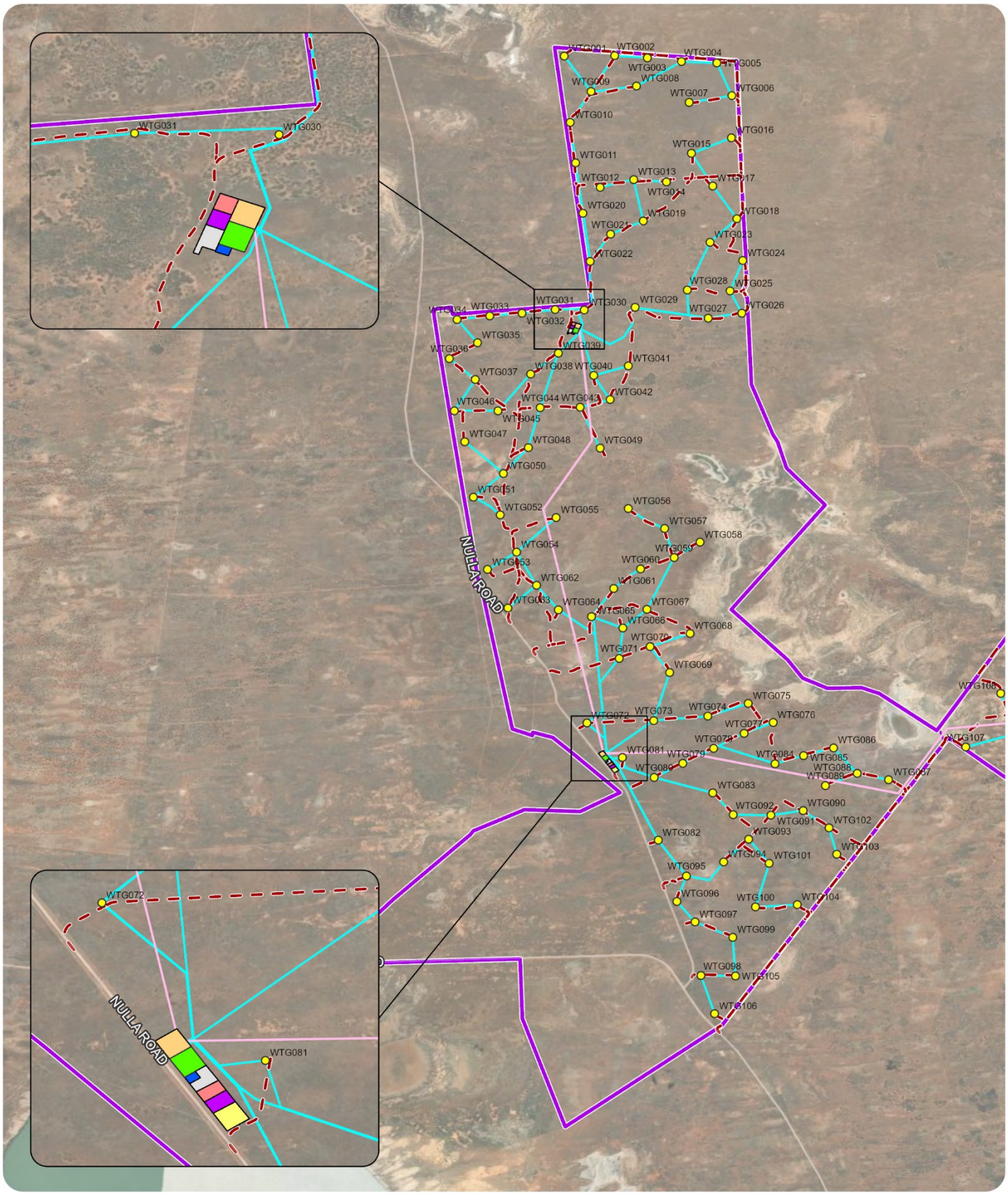
The preliminary layout of the Project is included in Figure 3-2a-b. The indicative Project components are provided in Table 3-1. All Project components would be subject to further refinement as part of ongoing design development and the planning approvals process.

The temporary construction facilities required for the Project are described in Section 3.4.

Table 3-1 Indicative operational components and approximate dimensions

Project component(s)	Approximate dimensions	Quantity
WTGs		
WTG height	Up to 280 m above ground level	Up to 203
Rotor diameter	Up to 200 m	
Upper most blade tip	280 m	
Lowermost blade tip	~ 50 m	
Hub height	110-180 m	
WTG foundations	25-30 m diameter, 3.5-4 m deep	
Ancillary infrastructure		
Operations and maintenance facility	50 m x 70 m	1
Main (on-site) substations	150 m x 290 m	4
Internal underground cable network	269 km in length	N/A
Internal access tracks	Up to 416 km	N/A
Primary site access point	Off Nulla Road (however alternative access points on Anabranch Mail Road and Tooperoopna Road may be used if they meet the necessary requirements such as load limits)	1
Meteorological masts	125 m to 200 m high	3 to 6
Battery Energy Storage System(s)		
Facility/compound	140 m x 140 m	4
Capacity	Up to 2,400 MWh (up to 600 MW over 4 hours)	N/A

The Project is anticipated to be operational by 2031 and would operate for around 30 years. Around 70 workers would be required for the operation and maintenance of the Project (35 remote support workers and 35 site-based workers).



Project area

Lake Victoria Wind Farm Infrastructure

- Turbine location
- Access Track
- Overhead 220kV line
- Underground cable
- Operation and maintenance facility
- Collector station
- BESS compound
- Laydown area
- Concrete batching plant
- Site compound
- Temporary worker accommodation



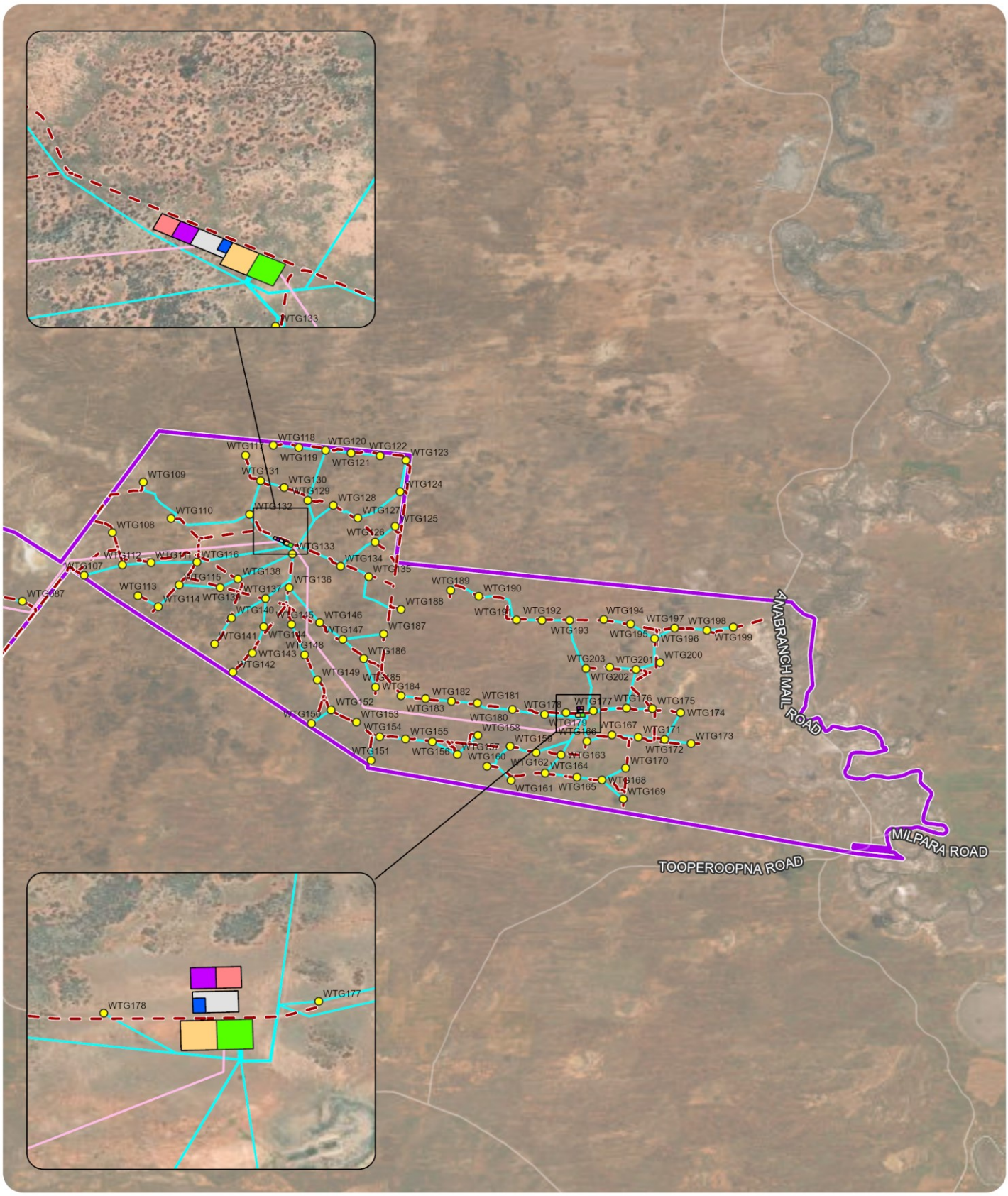
Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:160,000

0 2.6 5.2 km

Projection: GCS GDA 1994

Figure 3-2a: Preliminary Project layout



Project area

Lake Victoria Wind Farm Infrastructure

- Turbine location
- Access Track
- Overhead 220kV line
- Underground cable
- Operation and maintenance facility
- Collector station
- BESS compound
- Laydown area
- Concrete batching plant
- Site compound



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:200,000

0 3.3 6.5 km

Projection: GCS GDA 1994

Lake Victoria Wind Farm **Scoping Report**

Figure 3-2b: Preliminary Project layout

3.3 Project staging and timing

Construction works will commence as soon as practical following Project approval (which is estimated to be in 2028). The timing of construction would 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 2 to 3 years. The Project has an estimated operational life of 30 years after which it may be decommissioned or re-powered. The anticipated timeframes for the Project are:

- Planning and approvals: in progress and aiming to be complete by mid 2026
- Detailed design and securing finance: 2026-2027
- Construction and commissioning: planned to commence in 2028, for around 2 to 3 years
- Operation: planned to commence in 2031.

WestWind aims to construct the Project as a single stage of development but is seeking flexibility to construct the Project in stages, if required, depending on factors such as grid connection capacity.

3.4 Construction

3.4.1 Construction features

Key components for Project construction are shown in Figure 3-2a-b, and are detailed in Table 3-2.

Table 3-2 Indicative construction components and approximate dimensions

Project component(s)	Approximate area	Quantity
Temporary construction facilities		
Site compound	12,000 to 18,000 m^2	2 – 4
On-site concrete batching plants	13,000 m^2	2 – 4
Balance of plant laydown	11,000 m^2	3
Temporary workers accommodation	20,000 m^2	
Stockpiles and materials storage compounds	Subject to construction requirements	
Laydown areas	Subject to construction requirements	
Turnaround bays	Subject to construction requirements	

Existing access tracks within the Project area would be used during the construction and operation of the Project. This would minimise environmental impacts that would be associated with the construction of new access tracks.

The Project would likely connect to the grid via Project EnergyConnect, which would run through the Project area (refer to Figure 1-2). A terminal station would likely be placed in the centre of the Project area where Project EnergyConnect would pass through.

3.4.2 Construction hours

Construction of the Project would take place during standard working hours as follows:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 1pm
- Sunday and public holidays: no work.

3.4.3 Construction workforce

It is estimated that 375 full time equivalent workers would be required during the peak of construction activities. A worker accommodation facility has been included in the current Project layout, however further consultation with community and regulatory stakeholders would be required to determine the feasibility of this accommodation facility, including its capacity. The potential accommodation facility would be located in the western extent of the Project area (refer to Figure 3-2).

3.4.4 Transport access routes

Project components sourced from Melbourne would be transported by truck via the Calder Freeway, Calder Alternative Highway, Calder Highway, Sturt Highway, Meridian Road, Silver City Highway, Renmark Road and Nulla Road, passing through regional centres such as Kyneton, Wedderburn, Charlton, Red Cliffs and Wentworth. Project components sourced from Adelaide would be transported by truck via the Port River Expressway, the North South Motorway, the Northern Expressway, Sturt Highway, Meridian Road, Silver City Highway, Renmark Road and Nulla Road, passing through regional centre such as Nuriootpa, Blanchetown, Barmera, Berri and Wentworth. The Project is also exploring alternative transport routes that originate at Whyalla Port and Portland Port.

Site access would be off Nulla Road, however alternative access points on Anabranch Mail Road and Tooperoopna Road may be used if they meet the necessary requirements (e.g. load limits). Investigations into whether road upgrades would be required for the delivery of WTG components, including swept path analyses, would be carried out during the EIS phase.

The transport route of WTG components and other Project related materials would be investigated further during the preparation of the EIS with the outcomes considered as part of the traffic study described in Section 6.5. Indicative transport routes near the Project area are outlined in Figure 3-3.



Project area
State boundary
Transport route from Adelaide
Transport route from Melbourne



Sources: Aurecon, Spatial Services (DCS), Australian Bureau of Statistics (ABS), Esri Basemap

1:4,750,000
0 70 140 km

Projection: GCS GDA 1994

Figure 3-2: Indicative transport routes

3.5 Decommissioning

Decommissioning of the Project would involve dismantling the WTGs and transporting them offsite for disposal or reuse, with preference given to reusing or recycling WTG components where possible. In line with the indicative timeframes for the Project outlined in Section 3.3, this would occur after the estimated operational life of 30 years. Decommissioning activities may result in noise, dust and traffic impacts, however these are anticipated to be minimal given the isolated location of the Project. The land used for the Project would then be rehabilitated back to previous condition or otherwise agreed with relevant landholders.

3.6 Project development and alternatives considered

During the scoping stage of the Project, consideration has been given to the 'do nothing' scenario and the 'Project scenario', as outlined below. In addition, other alternatives and Project refinements would be further considered in the EIS as identified within this section.

3.6.1 'Do nothing' scenario

The 'do nothing' scenario would mean that the 203 WTGs and BESS infrastructure would not be constructed at the proposed Project location, which would forego the benefits of the Project. The outcomes of the 'do nothing' scenario would include:

- Not delivering the estimated emissions savings of the Project of 3.3 million tonnes of CO_2 per year
- Not contributing towards Australia's 2050 net zero targets, as legislated in the *Climate Change Act 2022*
- Not contributing towards NSW's 2050 net zero targets, as legislated in the *Climate Change (Net Zero Future) Act 2023*
- Not providing economic benefits, including approximately 375 construction and 70 operational jobs that would be created as part of the Project
- Not supporting policies, such as the *NSW Electricity Strategy* and *2022 Integrated System Plan*, which aim to increase the uptake of renewable energy generation in NSW and Australia.

The 'do nothing' scenario is not the preferred option.

3.6.2 Project scenario

The Project would involve the establishment of up to 203 WTGs and BESS infrastructure at the proposed Project location northwest of Wentworth, NSW. This would increase the amount of renewable and dispatchable energy in the NEM in the context of the closure of coal-fired power stations across NSW and Australia. The Project scenario would have the following benefits:

- Delivery of the estimated emissions savings of the Project of 3.3 million tonnes of CO_2 per year
- Contribution towards Australia's 2050 net zero targets, as legislated in the *Climate Change Act 2022*
- Contribution towards NSW's 2050 net zero targets, as legislated in the *Climate Change (Net Zero Future) Act 2023*
- Providing economic benefits, including approximately 375 construction and 70 operational jobs that would be created as part of the Project
- Supporting policies, such as the *NSW Electricity Strategy* and *2022 Integrated System Plan*, which aim to increase the uptake of renewable energy generation in NSW and Australia
- Minimised environmental impacts.

The Project location was selected due to:

- It having a reliable wind source and access to this wind source consistently across the Project area
- Its proximity to transmission line infrastructure (Project EnergyConnect)
- Very low density of housing near the Project area, with the closest town of Pomona located around 16 kilometres to the south-east
- Generally flat topography within the Project area resulting in a simplified construction methodology
- Much of the Project area being historically cleared for agricultural use, resulting in generally large areas of grazing land within the surrounding the Project area.

3.6.3 Other alternatives and Project refinements

No other alternative locations were considered for the Project.

The Project scenario (as represented in this scoping report) is proposed to be progressed to the EIS stage following receipt of the SEARs, noting that the Project layout would be subject to further refinement during the EIS and ongoing design development to minimise impacts on the environment and community and to best address the Project objectives. This would be informed by the further technical and environmental studies and continued community and stakeholder engagement.

The Project layout has undergone four major design changes during the scoping phase. The first Project layout was designed around wind resource optimisation. Project infrastructure was placed across the Project area based on maximising the extraction of wind resources. Environmental, social and some commercial factors were not considered for this Project layout design.

A second Project layout design was created due to the results of a fatal flaws assessment and also to improve landholder equity. A consultant (NGH) undertook the fatal flaws assessment, which identified a range of environmental, social and commercial constraints that needed to be factored into the Project layout design. Project infrastructure was redesigned to avoid and minimise impacts to various environmental, social and commercial constraints identified in the fatal flaws assessment. In addition to this, WTGs were rearranged around the Project area to spread these more evenly among landholders, ultimately improving landholder equity for the Project. BESS and substation infrastructure was moved to avoid disturbance of hollow bearing trees within the Project area.

The Project area has been subject to preliminary biodiversity and cultural heritage assessments, which identified various sensitive areas and high-value biodiversity areas. This new information led to the creation of the third Project layout design. The original optimisation layout was abandoned as it conflicted with newly identified biodiversity and cultural heritage constraints within the Project area. Another significant change was the utilisation of existing access tracks within the Project area in order to minimise impacts to native vegetation and potential cultural heritage artefacts. Five hundred metre buffers were established between WTGs and farm dams to avoid and minimise potential water bird strikes. In addition, WTGs were moved to minimise noise and visual impacts from Project landholders.

The current Project layout is the fourth iteration. This new design includes further rearranging of Project infrastructure to avoid and minimise impacts to natural environments. This design update was partially influenced by additional biodiversity assessments undertaken for the Project. In addition to this, some project infrastructure was moved or rearranged in response to landholder consultation. Changes included rerouting underground services, access tracks and hardstands.

Design modifications will continue through the EIS process as detailed impact assessments are undertaken, ensuring the final design avoids impacts to the greatest extent possible.

4 Statutory context

Legislation that is potentially relevant to the Project has been included in Table 4-1. These have been grouped according to the requirements of Table 1 of the *State significant development guidelines – preparing a scoping* report (DPE, 2022b).

Table 4-1 Potentially relevant legislation

Matter	Discussion
Power to grant consent	
Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulation 2021	The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) provide the framework for land use planning and development control in NSW. The EP&A Act and Regulation are supported by several Environmental Planning Instruments (EPIs), which include State Environmental Planning Policies (SEPPs) and Local Environment Plans (LEPs). Part 4 of the EP&A Act establishes the framework for assessing development that is permissible with consent. Section 4.36 of the EP&A Act includes the following: 1. *For the purposes of this Act, State significant development is development that is declared under this section to be State significant development.* 2. *A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.* In accordance with the above, the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) is used to declare a development as State significant development. Clause 2.6(1) of the Planning Systems SEPP notes: 1. *Development is declared to be State significant development for the purposes of the Act if* a) *the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and* b) *the development is specified in Schedule 1 or 2.* The Project is specified in Schedule 1 (Claude 20) of the Planning Systems SEPP, in that it is: *Development for the purpose of electricity generating works or hear or their co-generation (using any energy source, including gas, biofuel, distillate, waste, hydro, wave, solar or wind power) that* a) *has a capital invrestment value of more that $30 million, or* b) *has a capital investment value of more that $10 million and is located in an environmentally sensitive area of State significance* The Project would have a capital investment value of more that $30 million and is accordingly State significant development for the purposes of the Act. In accordance with Section 4.12(8) of the EP&A Act, the application is therefore required to be accompanied by an EIS that meets the requirements of Part 8, Division 5 of the EP&A Regulation and any other relevant legislative requirements that relate to the EIS.
Permissibility	
Native Title Act 1993	The *Native Title Act 1993* recognises and protects native title. Section 8 of the Act states that it is not intended to affect the operation of any law of a State or a Territory that is capable of operating concurrently with the Act. A search of the registers maintained by the National Native Title Tribunal (www.nntt.gov.au) for Wentworth Shire Council indicated that the Project area would intersect with the Barkandji Traditional Owners #8 (Part A) native title area (determined). This native title area was determined in June 2015 and covers a large portion of western NSW, including areas of seven LGAs. On 22 March 2024, WestWind hosted a meeting with the Barkandji Native Title Group Aboriginal Corporation RNTBC Chief Executive Officer (CEO) to provide an overview of the Project and discuss any initial concerns. The Barkandji CEO maintained a neutral stance towards the Project, and did not raise any significant concerns, noting Barkandji's engagement in various major infrastructure projects.

Matter	Discussion
Other approvals	
Biodiversity Conservation Act 2016	The *Biodiversity Conservation Act 2016* (BC Act) seek to conserve biological diversity, promote ecologically sustainable development (ESD), prevent extinction, and promote the recovery of threatened species, populations, and ecological communities and to protect areas of outstanding biodiversity value. Preliminary ecological surveys are being carried out within the Project area, and a summary of the results of these investigations can be found in Section 6.2. During the EIS, ecological fieldwork and assessment will determine the potential impacts to biodiversity as a result of the Project.
Fisheries Management Act 1994	The *Fisheries Management Act 1994* (FM Act) aims to conserve, develop, and share the fishery resources of the State for the benefit of present and future generations. Key fish habitat is mapped along the Great Darling Anabranch, which intersects with the eastern section of the Project area. The Project would not obstruct fish passage as the majority of the river would be passable to fish at any given time (no work would be carried out within the watercourse). A permit would not be required for the Project under Section 219 of the FM Act. Additionally, Section 199 of the FM Act states that a public authority that proposes to carry out dredging or reclamation must provide the Minister written notice of the proposed work and consider any matters concerning the proposed work that are raised by the Minister within 21 days after the giving of the notice. It is anticipated that no dredging or reclamation work would be required within the Great Darling Anabranch given WTGs would be located away from this watercourse.
Water Management Act 2000	The *Water Management Act 2000* (WM Act) aims to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations. The WM Act is based on the principles of ESD, aiming to ensure the fundamental health of rivers, groundwater systems and associated wetlands, floodplains and estuaries are protected. The Project area intersects with the Great Darling Anabranch and so is covered by the Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016. The potential water requirements during construction and operation will be assessed part of the EIS. Any necessary licences would be obtained for the Project should water extraction be required.
Contaminated Land Management Act 1997	The *Contaminated Land Management Act 1997* (CLM Act) outlines the circumstances in which notification of the NSW EPA is required in relation to the contamination of land. A search of the NSW EPA's Contaminated Land Register was carried out on 27 February 2024, which found no contaminated land records within the Wentworth Shire LGA. Additionally, the Project is not anticipated to result in major contamination incidents. As such, no aspects of the Project are expected to trigger requirements under the CLM Act.
Heritage Act 1977	The *Heritage Act 1977* (Heritage Act) is concerned with all aspects of conservation ranging from the most basic protection against indiscriminate damage and demolition of buildings and sites, through to restoration and enhancement. Matters protected under the Act include items listed on the State Heritage Register, the heritage schedules of local council LEPs, and/or the conservation registers (or Section 170 Registers) of NSW State government agencies, as well as items subject to an Interim Heritage Order. No aspects of the Project are expected to trigger requirements under the Heritage Act. Refer to Section 6.6 for a summary of the preliminary historic heritage assessment carried out for the Project.
National Parks and Wildlife Act 1974	The *National Parks and Wildlife Act 1974* (NPW Act) provides for the management and conservation of land declared as National Park or conservation areas, as well as regulating the management of Aboriginal cultural heritage objects. No part of the Project falls within land reserved under the NPW Act or NSW National Parks owned or managed lands. There are no known Aboriginal heritage items, therefore the NPW Act is not applicable to the Project. Further surveys and an on-Country visit would be carried out with traditional owners to map any heritage values and sites within the Project area and to better understand the local cultural landscape. This would confirm whether there are any Aboriginal heritage items within the Project area and if an Aboriginal Heritage Impact Permit is required (if impacts to Aboriginal heritage cannot be avoided).

Matter	Discussion
Biosecurity Act 2015	The *Biosecurity Act 2015* (Biosecurity Act) manages biosecurity risks in Australia. The Act aims to protect natural resources from the adverse impacts of pests, disease, weeds and contaminants on agricultural land and parks and reserves. The construction of the Project would be required to comply with the provisions of the Biosecurity Act. This would include the management of any invasive species found on site, which would be considered in the Biodiversity Development Assessment Report as part of the EIS.
Rural Fires Act 1997	The *Rural Fires Act 1997* (Rural Fires Act) regulates the suppression and management of bushfires. The Act details duties and requirements regarding the NS Rural Fire Service (NSW RFS), Neighbourhood Safer Places, Fire Trails, and Bushfire Prevention. The Project is located on land mapped as bushfire prone land (largely mapped as Vegetation Category 3). The bushfire risk of the Project is considered further in Section 6.11.
Waste Avoidance and Resource Recovery Act 2001	The *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) was established to promote waste avoidance and resource recovery. The Act encourages the most efficient use of resources to reduce environmental harm. Waste management and resource use for the Project would be carried out in accordance with the WARR Act.
Crown Land Management Act 2016	The *Crown Land Management Act 2016* (Crown Land Act) provides the legislative framework for the administration of land that is vested in the Crown in NSW. Crown Land may not be occupied, used, sold, leased, licensed, dedicated, reserved or otherwise dealt with unless authorised by the Crown Land Act. The Project area is located on NSW Western Crown Land that is primarily used for livestock grazing and some cropping. Consultation with NSW Crown Lands would occur during development of the EIS. Approval would be required under the Crown Land Act prior to construction of the Project.

5 Engagement

5.1 Engagement approach and processes

A Community and Stakeholder Engagement Report (CSER) has been prepared for the Project (Aurecon, 2024a), which has been included in Appendix B. WestWind has been engaging with key stakeholders about the Lake Victoria Wind Farm since February 2022 and with the community since March 2024 as part of its commitment to early, meaningful, respectful and effective engagement.

WestWind's best practice approach is being planned and delivered in line with:

- *NSW Government 'Undertaking Engagement Guidelines for State Significant Projects'* (DPE, 2022c)
- *NSW Department of Planning, Industry and Environment Community Participation Plan* (DPE, 2019b)
- *NSW Department of Planning, Industry and Environment Draft Energy Policy Framework* (DPE, 2023a)
- *State Significant Infrastructure Guidelines - Preparing a scoping report*' (DPE, 2022b)
- *Clean Energy Council Best Practice Charter for Renewable Energy Projects* (Clean Energy Council, 2021)
- *Clean Energy Council Community Engagement Guidelines for the Australian Wind Industry* (Clean Energy Council, 2018)
- International Association of Public Participation core values and public participation spectrum, as globally internationally recognised standards and tools.

The above guidelines and plans outline several objectives for engagement, including that it should be open and inclusive, easy to access, relevant, timely and meaningful. The NSW Government *Undertaking Engagement Guidelines for State Significant Projects* (DPE, 2022c) also establish that at this stage of the Project, WestWind is required to:

- Identify any early engagement that has been carried out that is relevant to the Project (addressed in Section 5.2)
- Identify the key stakeholders for further engagement (addressed in Section 5.2)
- Identify key feedback received from stakeholders, the community and landowners (addressed in Section 5.3)
- Plan how they intend to engage with the community, Council and government agencies, so that engagement is proportionate to the scale and nature of the Project and the likely level of community interest in the Project (addressed in Section 5.4).

5.2 Community and stakeholder engagement

Key stakeholders who may have an interest in the Project have been identified through desktop research and stakeholder mapping of the local community, capturing those in geographical proximity to the proposed Project. The Project team have engaged in a range of activities, including hosting community open days and meeting with neighbouring landowners and local stakeholders in-person to build and maintain genuine, trusting relationships. The overall approach to consultation with stakeholders and the community is to be flexible, inclusive, open and responsive.

Community and stakeholder engagement has been undertaken early in the scoping phase to:

- Proactively inform Project design and development
- Identify perceived issues/impacts to be addressed in the assessment process
- Establish relationships with landowners, the community and key stakeholders for the Project.

The key stakeholders identified for the Project within each stakeholder group are outlined in Table 5-1.

Table 5-1 Identified stakeholders and nature of engagement undertaken

Stakeholder group	Stakeholder	Engagement to date
Nearby landowners	Landowners within 10 kilometres of the Project area	Direct
Traditional owners	Registered Aboriginal Parties	Broad
	Barkandji Native Title PBC	Direct
Nearby residents	Residents of Wentworth Shire Local Government Area	Direct/broad
Nearby mining companies	Arumpo Bentonite Pty Ltd	Direct
	Millers Civil Contractors (VIC)	Direct
	Illuka Resources Limited (VIC)	Direct
Business	Clean Technology Partners	Direct
	Platinum Electricians	Broad
	SecureEnergy	Direct
	JamesPrint	Broad
	Mitch Oxley Plumbing	Broad
	Jason Moss Plumbing	Direct
Industry	Australian Energy Market Operator (AEMO)	Broad
	Australian Energy Market Commission (AEMC)	Broad
	Clean Energy Council	Direct
Agricultural organisations	NSW Farmers' Association – Wentworth Branch	Broad
	National Farmers' Federation	Broad
	Western Local Land Service	Broad
Tourism	Wentworth Visitor Centre (part of Wentworth Shire Council)	Direct
	Mildura Visitor Information and Booking Centre (part of Mildura Rural City Council)	Broad
Local government	Wentworth Shire Council	Direct
	Far West Joint Organisation (FNWJO) (comprises 4 shire councils of Balranald, Broken Hill, Central Darling and Wentworth)	Broad
Local government - Representatives	Wentworth Shire Council Mayor Daniel Linklater	Broad
	Wentworth Shire Council Deputy Mayor Clr Sue Nicholas	Broad
	Wentworth Shire Council Clr Tony Elstone	Broad
	Wentworth Shire Council Clr Steve Haywood	Broad
	Wentworth Shire Council Clr Jo Rodda	Broad
	Wentworth Shire Council Clr Brian Beaumont	Broad
	Wentworth Shire Council Clr Jane Mac Allister	Broad
	Wentworth Shire Council Clr Steve Cooper	Broad
	Wentworth Shire Council Clr Peter Crisp	Direct
	Wentworth Shire Council Clr Tony Chaplain	Broad
	Wentowrth Shire Council General Manager Ken Ross	Direct
State government	NSW Department of Planning and Environment	Direct
	NSW Environment Protection Authority (EPA)	Broad
	NSW Department of Industry	Broad
	Department of Regional NSW	Broad

Stakeholder group	Stakeholder	Engagement to date
	Crown Lands	Direct
	Transport for NSW	Broad
	Safe Work NSW	Broad
	NSW Independent Planning Commission	Broad
State government - Representatives	Member for Murray, Helen Dalton MP (IND)	Broad
	Minister for Climate Change, Minister for Energy, Minister for the Environment and Minister for Heritage, Penny Sharpe (ALP)	Broad
	Minister for Planning and Public Spaces, Paul Scully (ALP)	Broad
Commonwealth government	Department of Climate Change, Energy, the Environment and Water	Broad
	Clean Energy Regulator	Broad
	Australian Energy Regulator (AER)	Broad
Commonwealth government - Representatives	Member for Farrer, Hon Susan Ley MP (LP)	Broad
	Minister for Climate Change and Energy, Hon Chris Bowen MP, Member for McMahon (ALP)	Future phases
Utilities	TransGrid	Broad
	Essential Energy	Broad
	Telstra	Broad
	National Broadband Network (NBN)	Broad
	Water NSW	Broad
Emergency services	NSW Rural Fire Service - Far West	Broad
	Fire and Rescue NSW	Broad
	NSW Police	Broad
	NSW Ambulance	Broad
Sporting groups	Gol Gol Hawks Football and Netball Club	Direct
	Sporting groups	Broad
Community and interest groups	Buronga Gol Gol Lions Club	Direct
	Buronga Gol Gol Senior Citizens	Broad
	Coomealla-Dareton Community Action Team	Broad
	Coomealla Senior Citizens	Broad
	Country Womens Association	Broad
	Delta Scout Group	Broad
	Friends of PS Ruby	Broad
	Friends of Wentworth Library	Broad
	Hospital Auxiliaries of NSW - Wentworth Branch	Broad
	Lower Anabranch Sporting & Landcare Group	Direct
	Men in a Shed Inc.	Broad
	Neighbourhood Watch - Buronga	Broad
	Neighbourhood Watch - Dareton	Broad
	Neighbourhood Watch - Wentworth	Broad
	Pomona P & C Association	Broad
	Pooncarie & District Development Association	Broad
	Pooncarie Field Day Group Inc.	Broad

Stakeholder group	Stakeholder	Engagement to date
	Rotary Club of Wentworth	Broad
	State Emergency Services (SES)	Broad
	Wentworth Arts	Broad
	Wentworth Agricultural Show	Direct
	Wentworth District Community Medical Centre Inc.	Broad
	Wentworth & District RSL Sub Branch	Broad
	Wentworth Historical Society	Direct
	Wentworth Meals on Wheels	Broad
	Wentworth Senior Citizens	Broad
	Wentworth Show Society	Broad
Churches	St Francis Xavier Catholic Church	Broad
	St John's Anglican Church	Broad
	St Andrew's Uniting Church	Broad
Education	Buronga Public School	Broad
	Coomealla High School	Broad
	Dareton Public School	Broad
	Gol Gol Public School	Broad
	Palinyewah Public School	Broad
	Pomona Public School	Broad
	Pooncarie Public School	Broad
	TAFE Riverina Coomealla Campus	Broad
	Wentworth Public School	Broad
Early learning	Gyndarna Preschool	Broad
	Gol Gol Preschool	Broad
	Wentworth Preschool	Broad
Media	Sunraysia Daily Newspaper ■ Online https://www.sunraysiadaily.com.au/6263484/wind-farm-project-a-breeze	Direct
	Renew Economy ■ Online WestWind eyes new 1.5GW wind project in south-west NSW | RenewEconomy ■ Facebook https://www.facebook.com/reneweconomynews/posts/pfbid02xETw8d1D89wya5zD6sxj5kRcm2VmMhzTD5w2fgDv7WsLa53nviuVb9bsuxhapB7yl	Direct
	FarmOnline ■ Online https://www.farmonline.com.au/story/8577196/wind-farm-project-in-southern-nsw-has-footprint-of-416-square-km/	Direct
	ABC News	Future phases
	The Guardian Australia	Future phases
	The Australian	Future phases
	Australian Financial Review	Future phases

5.2.1 Engagement activities

A range of engagement activities have been implemented to identify, inform and consult stakeholders and the community about the Project. These activities are detailed in Table 5-2.

Table 5-2 Stakeholder engagement activities

Stakeholder	Description of engagement activities
Landowners within a ten kilometre radius of the Project area	WestWind has engaged with all landowners within 10 kilometres of the Project area. Discussions with landowners covered: ■ Proposed Project area, preliminary turbine layouts, access routes and potential locations of ancillary infrastructure ■ Visual amenity value ■ Proposed siting and alternatives ■ Community benefit opportunities ■ Conversations and interviews with landowners, stakeholders and community members to understand potential issues
Wentworth Shire Council	On 19 March 2024, WestWind met with Wentworth Shire Council to discuss the Project, including approval pathways and early site investigations. Wentworth Shire Council participants included the Managing Director, the Director of Finance and Policy, the Director of Roads and the Engineering and Planning Lead. On 9 June 2023, WestWind met with Wentworth Shire Council to introduce the Project and discuss potential benefits and issues that may be encountered. Wentworth Shire Council participants included the Managing Director, the Director of Finance and Policy, the Director of Roads and the Engineering and Planning Lead.
Barkandji Native Title Group Aboriginal Corporation RNTBC	On 22 March 2024, WestWind hosted a meeting with Barkandji Traditional Owners, to provide an overview of the project and discuss any initial concerns. The Chief Executive Officer of the Barkandji Native Title Group Aboriginal Corporation RNTBC was in attendance.
General community and key stakeholders	<u>Promotion of the Lake Victoria Energy Park Open Days</u> The Lake Victoria Energy Park Open Days were held on 22 and 23 March 2024 and were promoted through the following media: ■ New South Western Standard Bulletin Facebook page on 17 March 2024. Page has 488 followers. ■ WestWind Facebook page on 27 March 2024 (post event). Page has 751 followers. ■ WestWind Linkedin post on 8 April 2024 (post event). Page has 4724 followers. The open days provided an opportunity for WestWind to introduce the Project and provide general information to community members and stakeholders. The Project team provided information relating to community benefit schemes and how they are developed, inviting all community members to be involved in the process. Project information sheets and maps were shared, and community members were encouraged to attend and participate via social media posts and local media advertising. Community members were invited to provide feedback regarding the existing visual amenity of the region and any concerns they may have about the Project.
	<u>WestWind website dedicated Project page and enquiry channels</u> The WestWind website features information about the Project, community benefits and a dedicated email address and phone number for enquiries. It promoted the Lake Victoria open days in the lead up to the events.

5.3 Community and stakeholder feedback

Engagement activities in the local area have been well promoted through local channels. All landowners and neighbours have been contacted and have provided feedback on the Project, including their assessment of the area's visual amenity value. The open days garnered predominately neutral to positive feedback from the local community, offering initial Project insights and opportunities for in-depth feedback through stakeholder interviews.

5.3.1 Traditional owner feedback

WestWind conducted an open introductory meeting with the Barkandji Native Title Group Aboriginal Corporation RNTBC CEO to introduce personnel, provide an overview of the Project, address any concerns, and explore opportunities for involvement.

The Barkandji CEO maintained a neutral stance towards the Project, and did not raise any significant concerns, noting Barkandji's engagement in various major infrastructure projects.

The following points were raised for consideration:

- The importance of Barkandji involvement during both the assessment and construction phases to manage cultural heritage features, citing similar practices on other projects and the availability of a ranger team for the task.
- Utilising the Barkandji ranger team for pest, animal and weed control during the construction and operational phases.
- Establishing future meetings and site visits to discuss opportunities as the Project progresses.

5.3.2 Landowner feedback

Early engagement with landowners within a 10-kilometre radius of the Project has indicated that most landowners were supportive or neutral towards the Project. Positive feedback received from landowners can be summarised as follows:

- There was genuine interest in the Project, including its location, design and delivery timeline.
- There was support for new local industry and interest in local employment and procurement opportunities.
- There was interest in the possibility of hosting turbines on privately owned land as a potential new revenue stream, indicating a potential avenue for future collaboration.

The concerns raised across the early engagement can be categorised into key themes:

- **Property access and infrastructure damage:** Some landowners expressed concern that potential workers may not follow designated access tracks, that work activities would degrade road conditions, damage gates or fences, and concerns about increased biosecurity risk.
- **Traffic Management:** Concerns of increased traffic and its impact on roads, as well as disruptions to moving stock and agricultural activities, were mentioned.
- **Operational risks:** Concerns were expressed relating to noise from turbines, potential interference with future cropping activities, and disruption to lambing and livestock.
- **Visual impacts:** Some landowners expressed concerns relating to visual impacts from turbines on local landscapes.
- **Community consultation and trust:** Some landowners expressed feedback relating to promises not being fulfilled, consultation fatigue, impacts post-decommissioning, and a lack of trust in both the Project developers and government institutions.
- **Safety and Governance:** Concerns were raised about safety, both in terms of potential accidents due to turbine failure and broader worries about governance, oversight, and public safety.

During initial engagement, 16 landowners in proximity to the Project provided feedback relating to visual amenity. Twelve residents do not make mention of any key viewpoints in the locality (beyond their own properties) that were important to them or the broader community. Ten residents identified key landscape features valued by the broader community, which are summarised in Table 5-3.

Table 5-3 Summary of visual amenity value of local landscape captured during stakeholder interviews

Location	Scenic quality
Anabranch River	Medium to High
Anabranch Hall	Medium to High
Lake Victoria	High
Bushland (Flood plain, woodlands and salt bush)	High
Murray and Darling River	High
Unnamed Bluff	Medium

Overall, these themes represent multifaceted concerns spanning environmental, social, economic and governance aspects of the Project, highlighting the need for comprehensive risk management, transparent communication, and meaningful community engagement throughout the Project lifecycle.

WestWind will continue conversations with landowners to address the matters raised during initial engagement. Further options including engagement initiatives will be explored to find solutions that best align with the community's needs as the Project advances.

5.3.3 Community feedback

Feedback from the broader public engagement was sought during the community open days held at Anabranch Hall and the Wentworth Memorial Room Tourist Information Centre on 22 and 23 March 2024, respectively.

Several concerns were voiced by local residents, primarily revolving around traffic management during construction, the potential for disruptions to agricultural activities, and damage to property gates. These concerns may stem from other energy infrastructure projects in the immediate area, suggesting a historical influence on current sentiment.

One participant articulated a profound distrust in governmental entities and renewable energy developments. They raised apprehensions regarding safety associated with the proposed wind turbines, particularly focusing on the potential hazard of blades detaching from the turbines.

Community engagement on these matters and others will continue as the Project continues to be developed.

5.3.4 Wentworth Shire Council feedback

Overall, the Wentworth Shire Council Executive Team expressed support for the Project, laying a foundation for collaborative advancement.

The following points were raised for consideration:

- The importance of tangible community benefits and minimal impact on public infrastructure, particularly roads. They proposed the involvement of WestWind in various community events, such as the Wentworth Races and Junction Rally event, highlighting the potential for positive community engagement.
- Council also recognised Secure Energy's contribution to Wentworth's financial well-being, reflecting a positive precedent for the Project's potential impact.

WestWind will continue to consult with Wentworth Shire Council as the Project continues to be developed.

5.4 Planned engagement

Community engagement in line with the current approach will continue during preparation of the EIS. The approach may be refined as the Project progresses if needed (e.g. in response to community feedback, identification of new issues or changes to the Project design).

Stakeholders and the community (as identified in Section 5.2) will be engaged with through future stages of the Project, with more stakeholders to be directly engaged as increased detail about the Project becomes available. Where additional stakeholders and community groups are identified either through engagement with identified stakeholders, or where stakeholders self-identify to express an interest, they will also be engaged.

A range of engagement activities will be implemented to continue to inform and consult stakeholders and the community about the Project:

- Direct engagement with nearby landowners
- Consultation with Registered Aboriginal Parties and the Wentworth Local Aboriginal Land Council
- Wentworth Shire Council ongoing meetings
- Correspondence with local, State and federal agencies and representatives
- WestWind website dedicated Project page and enquiry channels
- Establishment of a Community Reference Group (CRG), comprising volunteers living near the Project area.

6 Proposed assessment of impacts

A review of the environmental, social and economic matters relevant to the Project has been carried out to determine issues that need to be assessed as part of the EIS and the level of assessment that is required. This review has been carried out with reference to the categories of assessment matters identified in the SSD Scoping Report Guideline (DPE, 2022b).

The environmental, social and economic matters relevant to the Project are identified and have been characterised as follows:

- Matters requiring further assessment in the EIS (refer to Section 6.1 to Section 6.13)
- Matters requiring no further assessment in the EIS (refer to Section 6.14).

The environmental, social and economic matters discussed in the sections below 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 with consideration of the NSW DPE Draft Energy Policy Framework (DPE, 2023a).

Appendix A presents a scoping summary table showing the outcome of the scoping stage review of matters as required under the SSD Scoping Report Guidelines.

6.1 Landscape character and visual impacts

A Preliminary Landscape Character and Visual Impact Assessment (PLCVIA) has been prepared for the Project (Aurecon, 2024b), which has been included in Appendix C. The assessment outlines the existing landscape and visual environment and assesses the potential landscape character and visual impacts of the Project. The PLCVIA responds to the requirements set out in the *Wind Energy Visual Impact Assessment Bulletin* (DPE, 2016a) (VIA Bulletin).

6.1.1 Existing environment

6.1.1.1 Landscape context

The Project is located within the Murray Darling Depression bioregion in southwest NSW. The bioregion is characterised by shallow lakes, swamps and depressions with a range of vegetation character.

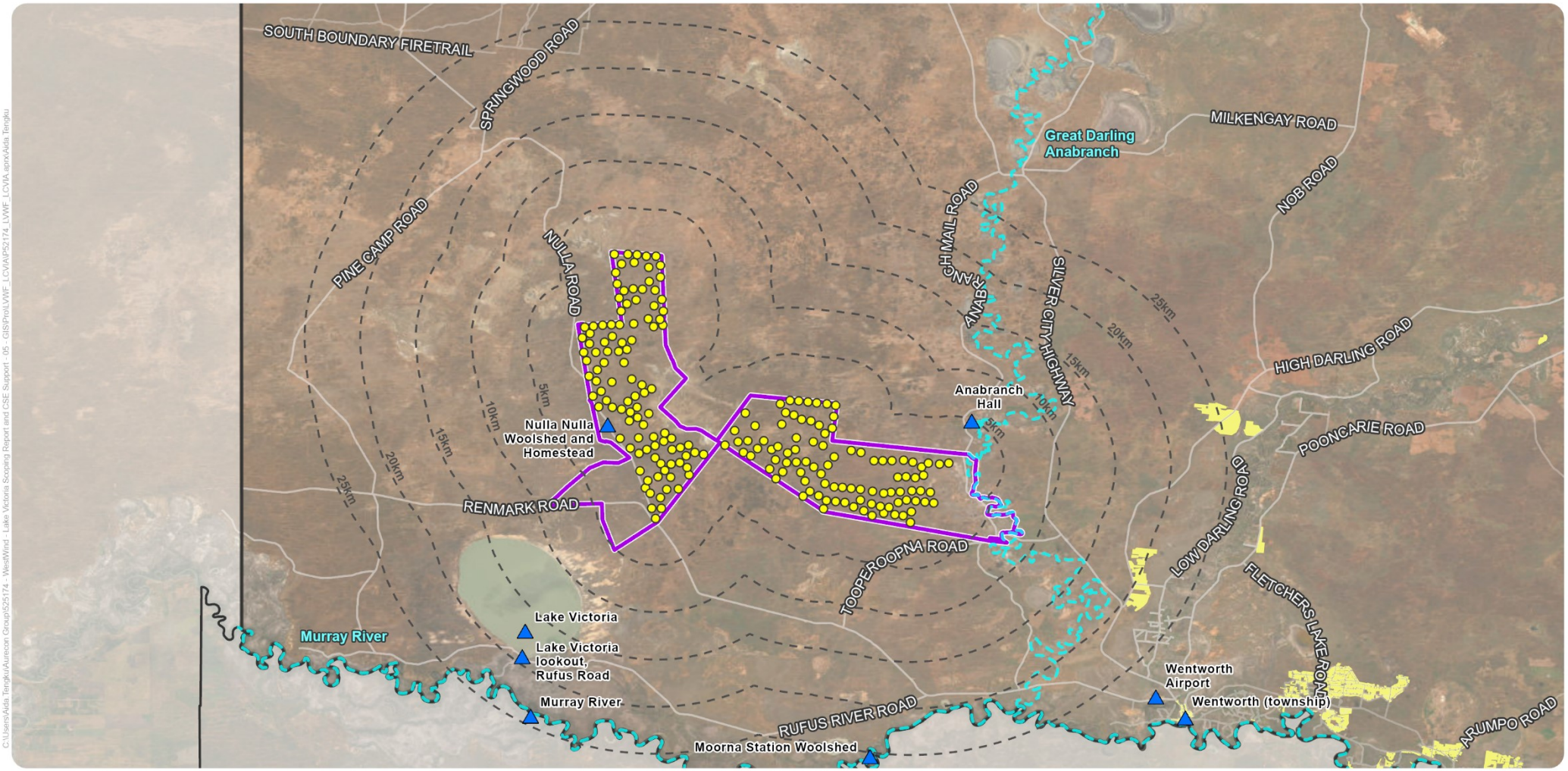
During a field visit carried out in October 2023, wildlife was observed including lizards, snakes, birds and kangaroos. The water in the Great Darling Anabranch was present and steady. Low lying areas appeared to be green with only one significant water body observed adjacent to the Anabranch Mail Road. This area was large and had an array of wildlife including pelicans.

The landscape in the region is characterised by dune fields, sandplains, and undulating plains. The soils in the region differ depending on the landform. On the dune fields, red, brown, and yellow calcareous sands are prevalent, with more clayey materials found in the swales. On the sandplains, the soil tends to be heavier, displaying brown gradational or texture contrast profiles. Lakes and depressions have clay floors, while salt lake floors carry little to no vegetation.

The Great Darling Anabranch is an ephemeral system branching from the main course of the Darling River, that is refreshed in times of flood. The Darling River is regulated by releases from the Menindee Lakes Scheme (to the north of the Project area). Inflows to the Menindee Lakes come from the Barwon-Darling River and its tributaries. Several large overflow lakes connected to the anabranch are important habitat for birds, fish and other species, and work as important ecological assets between the Murray and Darling River systems.

Lake Victoria is a shallow lake that occurs naturally, situated downstream of the junction of the Murray-Darling River. The lake covers an area of 12,200 hectares and has a relatively shallow maximum depth of around 5.5 metres when it reaches its full capacity.

Key landscape features are included in Figure 6-1.



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:620,000

0 8 15 km

Projection: GCS GDA 1994

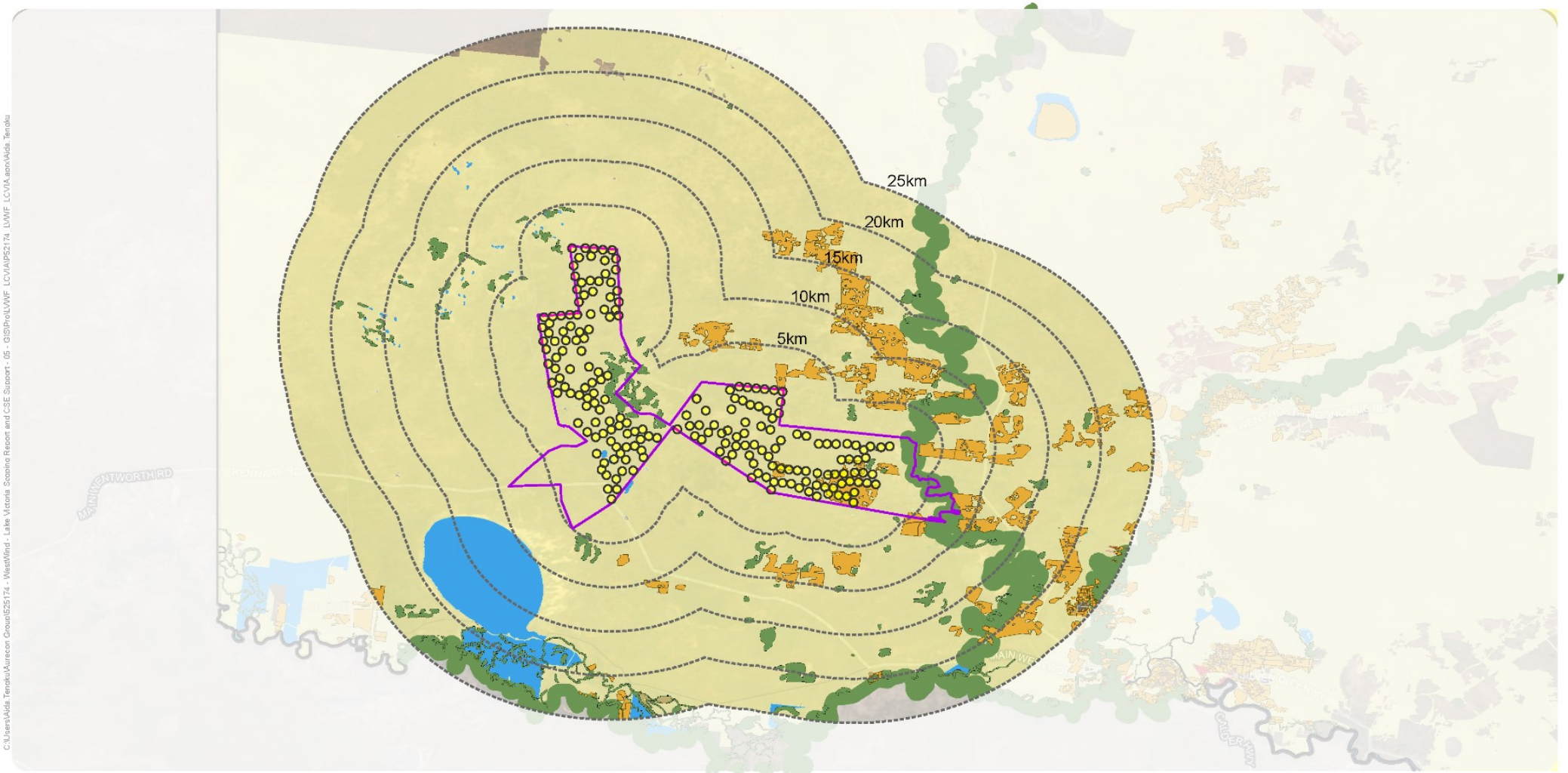
Figure 6-1: Key landscape features

6.1.1.2 Landscape character

Landscape character types (LCTs) help to identify unifying aspects of the landscape and distinguish why one landscape is visually distinct from another. The LCT zones have been established through a desktop assessment and field analysis to determine if the Project has the potential to have an effect on the LCTs within and surrounding the Project area. Four LCTs have been identified for the Project, including:

- LCT 1: Plain and Dune Woodlands and shrublands
- LCT 2: Floodplains and Riverine Forests
- LCT 3: Plains and floodplain pastures
- LCT 4: Lakeland conservation.

Roads are assumed to take on the character of adjacent LCTs. The location of LCTs used for the PLCVIA relative to the location of the Project are shown in Figure 6-2. Further details on each LCT are presented in Appendix C.



Project area

Lake Victoria Wind Farm Infrastructure

Turbine location

LANDSCAPE CHARACTER TYPES

LCT 1: Plain and Dune Woodlands and shrublands

LCT 2: Floodplains and Riverine Forests

LCT 3: Plains and floodplain pastures

LCT 4: Lakeland conservation



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:650,000

0 8.3 16.5 km

Projection: GCS GDA 1994

Figure 6-2 : Landscape Character Types

6.1.1.3 Visual baseline

The assessment of potential visual impacts is based on the sensitivity of the view and the degree of modification or changes to the view as part of the Project during operation. The zone of theoretical visibility (ZTV) has been analysed to identify a preliminary representation of the likely 'worst case' visual envelope of the wind turbine layout. Using the height of the proposed WTGs (280 metres) and the distance of WTGs from sensitive receivers or key public viewpoints, visual magnitude thresholds of 3.85 kilometres for private receivers and 5.8 kilometres for sensitive public viewpoints were established. A radius of 12 kilometres surrounding the Project area was used as the PLCVIA Study Area (refer to Figure 6-3) to capture impacts to public and private views in line with the VIA Bulletin.

The following is relevant when interpreting the findings of the ZTV:

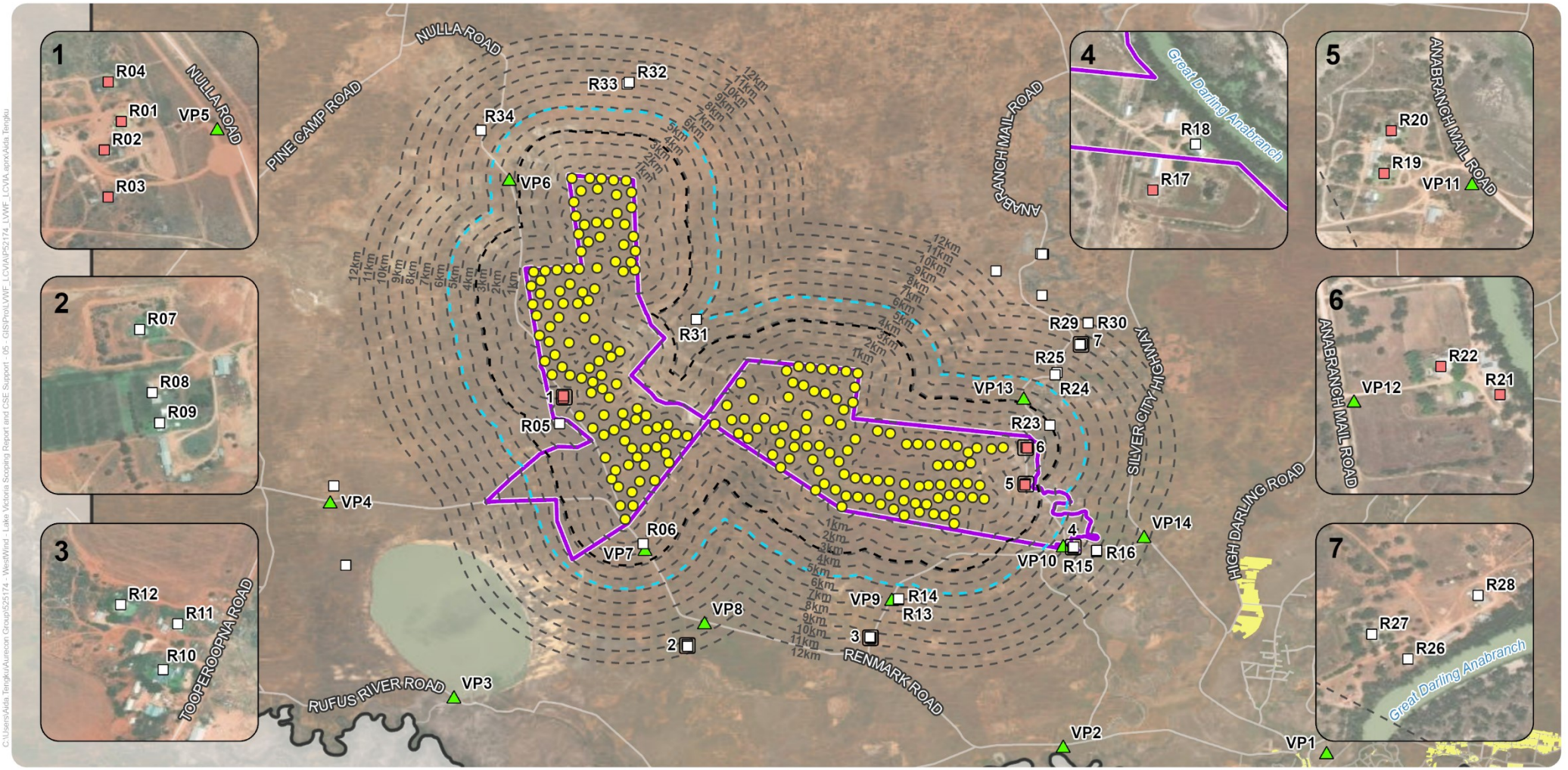
- It takes into account the topographic constraints of the view and does not include land cover factors such as the presence of buildings and vegetation. As it only uses the landform, it is considered a worst-case scenario of the potential visual extents.
- It does not consider the effect of distance. Generally, the greater the distance from the wind farm, the less prominent it will be within the view due to its perceived scale and fading due to atmospheric conditions.
- It identifies increased visibility due to altitude and ridgelines, as well as decreased visibility caused by intervening topography.

A total of 10 representative viewpoints were identified within the PLCVIA Study Area based on the design, viewing distance and aspect, and significant views. A further four public viewpoints were assessed outside the PLCVIA Study Area due to being either a sensitive viewpoint or being used by a high number of people. The locations of the assessed viewpoints are shown in Figure 6-3.

These viewpoints were selected based on a four-stage process:

- Identification of the ZTVs
- Desktop studies identifying places within close proximity of potential sensitive receptors
- Significant viewpoints
- Viewpoints that are publicly accessible.

Further details on each viewpoint are presented in Appendix C.



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:480,000

0 6 12 km

Projection: GCS GDA 1994

Figure 6-3: Viewpoints

6.1.2 Potential impacts

6.1.2.1 Construction

Construction is anticipated to last for two to three years and would include civil works, mechanical and structural works, electrical works, testing and commissioning.

Views of the Project area would be altered through the construction phase through the presence of construction vehicles and equipment and through the establishment of temporary construction infrastructure and BESS infrastructure. This would likely only impact views within and adjacent to the Project area, including from associated receivers. Following this, the establishment of the WTGs throughout the Project area would be visible from each of the viewpoints outlined in Figure 6-3 given the WTGs would be constructed to their operational height during this phase.

6.1.2.2 Operation

Potential landscape character impacts

A summary of preliminary impacts to landscape character during the operation of the Project is included in Table 6-1.

The Project area falls within LCT 1 Plain and Dune Woodlands and shrublands, LCT 2 Floodplains and Riverine Forests and LCT 3 Plains and floodplain pastures. Due to the visual influence dictated by the height of the turbines, there is a potential for landscape character impacts to adjacent LCTs.

Table 6-1 Summary of preliminary impacts to landscape character

LCT	Sensitivity	Magnitude	LCT Impact
LCT 1 – Plain and Dune Woodlands and shrublands	**Low** ■ The LCT is relatively unmodified with a generally unremarkable character. ■ The LCT covers an extensive area.	**Low** ■ The proposed Project infrastructure in this LCT would result in a minor evident change in landscape characteristics in close range. However, the extent of this change is considered minor in relation to the extent and use of this LCT. ■ The scale and form of the Project infrastructure is a contrast to the existing character.	**Low**
LCT 2 – Floodplains and Riverine Forests	**Moderate** ■ Riverine areas are of contrast to semi-arid surrounds and of cultural, environmental and recreational value.	**Negligible** ■ The Project impacts are indirect, with placement of turbines and ancillary infrastructure avoided in forested areas or wetlands.	**No impact**
LCT 3 – Plains and floodplain pastures	**Low** ■ Highly modified patchwork within vast rural landscape with no features.	**Very Low** ■ The proposed Project infrastructure in this LCT would result in a minimal change to the existing landscape in close range. The extent of this change is considered minor in relation to the extent and use of this LCT.	**Very Low**
LCT 4 – Lakeland conservation	**High** ■ High cultural and environmental value, with modification limited to the south shore.	**Negligible** ■ The Project impacts are indirect, without modification to this LCT.	**No impact**

Potential visual impacts

To understand the potential visual impacts of the proposed WTGs, the visual assessment tools identified in the VIA Bulletin have been employed to provide an early indication of where turbine locations require careful consideration. The preliminary assessment tools apply to both dwellings and key public viewpoints in the assessment area. The tools provide an early indication of where placement of turbines will require further assessment and justification, and where consultation with potentially affected landowners needs to be focused – including discussions for landowner agreements.

As is detailed in Section 6.1.1, the visual magnitude threshold is based on the height of the proposed WTGs to the tip of the blade and distance from receivers or key public viewpoints. The assessment of visual impacts from the proposed WTGs is based on a worst-case scenario with a tip height of 280 metres. The setback and threshold distances in which private receivers and sensitive public viewpoints are to be identified and assessed include the following:

- Private receivers within 5.8 kilometres of a proposed turbine: three non-associated receivers (R05, R06 and R23)
- Sensitive public viewpoints within 5.8 kilometres of a proposed turbine: one (Anabranch Hall).

The residential receivers assessed in the PLCVIA within 5.8 kilometres of a WTG (as outlined in Figure 6-3) and their potential visual conditions are outlined in Table 6-2.

Table 6-2 Residential receivers and public viewpoints within 5.8 kilometres of a turbine

ID	Receiver or view	Distance / direction from closest turbine	Screening factors
R01-R04	Nulla Nulla Station, Nulla Road, Pine Camp Associated landowner	R01: 1,825 m southwest of WTG064 R02: 1,879 m southwest of WTG064 R03: 1,866 m northwest of WTG072 R04: 1,763 m southwest of WTG064	■ Low amount of vegetation screening in the direction of the Project area. ■ Generally open views to surrounds. ■ Within 8 kilometres there are 10 potentially visible turbines from the ground up and 49 visible upwards of rotor swept path.
R05	Nulla Road, Pine Camp Non-associated landowner	1,559 m west of WTG072	■ Low-stratum vegetation with minimal screening value in the direction of the Project area. ■ Within 8 kilometres, there are 7 potentially visible turbines from the ground up and 49 visible upwards of rotor swept path.
R06	Renmark Road Non-associated landowner	2,391 m southeast of WTG106	■ Low amount of vegetation screening in the direction of the Project area. ■ Generally open views to surrounds. ■ Within 8 kilometres, there are 3 potentially visible turbines from the ground up and 53 visible upwards of rotor swept path.
R19, R20	2551 Anabranch Mail Road Associated landowner	R19: 3,084 m east of WTG173 R20: 3,124 m east of WTG173	■ Moderate level of upper-stratum vegetation screening in the direction of the Project area and surrounding receivers. ■ Within 8 kilometres, there are 4 potentially visible turbines from the ground up and 26 visible upwards of rotor swept path.
R21, R22	2860 Anabranch Mail Road Associated landowner	R21: 1,680 m northeast of WTG199 R22: 1,594 m northeast of WTG199	■ High level of screening vegetation surrounding receivers in the direction of the Project area. ■ Within 8 kilometres, there are 4 potentially visible turbines from the ground up and 24 visible upwards of rotor swept path.
R23	Anabranch Mail Road Non-associated landowner	3,754 m northeast of WTG199	■ Moderate to high level of upper-stratum vegetation screening in the direction of the Project area and surrounding receivers. ■ Within 8 kilometres, there are 2 potentially visible turbines from the ground up and 13 visible upwards of rotor swept path.

ID	Receiver or view	Distance / direction from closest turbine	Screening factors
VP13	Anabranch Hall	4,210 m northeast of WTG199	■ Moderate level of upper-stratum vegetation and earth bund screening in the direction of the Project area. ■ Within 8 kilometres, there are 12 potentially visible turbines upwards of rotor swept path.

A multiple wind turbines analysis was also carried out. The VIA Bulletin provides a distance of 8 kilometres from a receiver or public viewpoint for the analysis of multiple wind turbines. At 8 kilometres, turbines are likely to visibly recede into the background. The location in which wind turbines are potentially visible from the representative viewpoint are mapped within 360°. Should wind turbines be visible in three or more 60° sectors, the potential cumulative impacts of multiple turbines should be considered as part of the visual impact assessment. The non-associated receivers with turbines within 8 kilometres covering three or more sectors of the view from the proposed Project layout include:

- R05 (receiver within 5,800 metres): 3x 60° sectors
- R31 (closest turbine: 5,951 metres): 4x 60° sectors.

A summary of the preliminary visual impacts on each of the assessed viewpoints is presented in Table 6-3. This is based on the level of sensitivity and visual modification potentially experienced from representative viewpoints.

Table 6-3 Summary of preliminary visual impacts

Viewpoint no. and location	Visual sensitivity	Visual modification	Potential visual impact
VP1 Wentworth Airport, Renmark Road 29 km southeast	**Low** ■ Airport users/visitors.	**Negligible** ■ Turbines indistinguishable due to distance and narrow field of view. ■ Open views in highly modified setting.	**Negligible**
VP2 Fort Courage Caravan Park, 1703 Old Renmark Road 17.8 km south	**Low** ■ Temporary tourists and visitors.	**Very Low** ■ Turbines are at a distance that would be barely visible and would cover a narrow horizontal and vertical field of view. ■ Existing intervening vegetation and few open views from park towards Project area.	**Very low**
VP3 Lake Victoria lookout 18.9 km southwest	**Moderate** ■ Lookout of regional significance.	**Very low** ■ Turbines are at a distance that would be barely visible and would cover a narrow horizontal and vertical field of view. ■ Open views across lake.	**Low**
VP4 Renmark Road west 17.6 km west	**Moderate** ■ Rural receivers.	**Very low** ■ Visibility of a turbines to the background view in a narrow field of view would be of low prominence. ■ Vegetation surrounding receivers provides screening, with some potential views to the background.	**Low**
VP5 Nulla Nulla Station Landowner associated with Project (R01-04) 1.763 km west	**Moderate** ■ Rural receivers.	**High** ■ 35 turbines visible within 5.8 km, covering a 225-degree horizontal field of view. ■ 18 turbines are within the high visibility threshold of 3.85 km. ■ Low intervening vegetation surrounding residential receivers.	**Moderate**

Viewpoint no. and location	Visual sensitivity	Visual modification	Potential visual impact
VP6 Huntingfield Station, Nulla Road (R34) 7.504 km northwest	**Moderate** ■ Rural receivers.	**Low** ■ 0 turbines visible within 5.8 km. ■ Turbines are likely to be visible in a narrow field of view at a distance where they begin to recede into the background. ■ Moderate amount of scattered intervening vegetation.	**Low**
VP7 Renmark Road - central receiver (R06) 2.391 km south	**Moderate** ■ Rural receivers.	**High** ■ Turbines are within the high visibility threshold. ■ 11 turbines visible within 5.8 km, covering a 60-degree field of view. ■ Limited intervening vegetation screening.	**Moderate**
VP8 Renmark Road – central-south receiver (R07-9) 11.293 km south	**Moderate** ■ Rural receivers.	**Very low** ■ Turbines are potentially visible in the background of the view, at diminishing visibility. ■ Moderate amount of intervening vegetation surrounding receivers.	**Low**
VP9 Tooperoopna Road receivers (R10-14) 6.974 km south	**Moderate** ■ Rural receivers.	**Low** ■ Turbines are potentially visible in the far middle ground of the view. ■ Turbine blades noticeable between scattered vegetation.	**Low**
VP10 Tara Downs – Anabranch Mail Road Landowner associated with Project (R17-18) 7.393 km southwest	**Moderate** ■ Rural receivers.	**Very low** ■ Turbines are potentially noticeable in the far middle ground at a distance where elements start to diminish. ■ There is a moderate amount of low to medium stratum intervening vegetation.	**Low**
VP11 2551 Anabranch Mail Road Landowner associated with Project (R19-20) 3.084 km west	**Moderate** ■ Rural receivers.	**High** ■ 5 turbines are within the high visibility threshold of 3.85 km and 12 up to 5.8 km covering a 120-degree field of view. ■ Moderate to high amount of intervening vegetation.	**Moderate**
VP12 2860 Anabranch Mail Road Landowner associated with Project (R21-22) 1.594 km west	**Moderate** ■ Rural receivers.	**Low** ■ 3 turbines are within the high visibility threshold of 3.85 km and 12 turbines visible within 5.8 km covering a 120-degree field of view. ■ Moderate to high amount of intervening vegetation surrounding receivers.	**Low**
VP13 Anabranch Hall – Anabranch Mail Road 4.21 km west	**Moderate** ■ Community hall	**Low** ■ 3 turbines visible within 5.8 km covering a 120-degree field of view. ■ Moderate to high amount of intervening vegetation and low earth bund.	**Low**
VP14 Silver City Highway roadside rest area 10.6 km west	**Low** ■ Road rest area	**Negligible** ■ Turbines are unlikely to be visible due to distance. ■ High amount of intervening vegetation surrounding viewpoint.	**Negligible**

6.1.2.3 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 receivers, 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 that majority of manufacturers treat the WTGs with nonreflective finishes to reduce the risk of this occurring.

6.1.3 Assessment approach

The assessment is limited to representative viewpoints from public locations. Consultation with residents to undertake further visual assessment from selected sensitive viewpoints on private property would determine the viewing conditions for further assessment of landscape character and visual impacts. It is recommended that consultation with potentially affected landowners be focused on private receivers R05, R06, R23, R31 and the Anabranch Community Hall, which are either within the visual magnitude threshold of 5.8 kilometres or have turbines from the proposed Project layout within three or more 60° sectors of their view.

Further ground-truthing of the visual conditions for private receivers within up to 8 kilometres from a turbine and which are not able to be closely accessed through adjacent public roads should be carried out.

As the project progresses further, additional community consultation would be undertaken. Additional viewpoints and areas of sensitivity may be identified for detailed assessment. Further assessment may be required for sensitive viewpoints and characteristics which have been or could be highlighted in community consultation sessions. Community engagement is still occurring including with the Barkandji Group. This consultation could identify further areas or views that are of cultural and local value, which would need to be assessed due to the potential visual impacts as a result of the Project.

There are potentially moderate visual impacts to three private receivers (R05, R06 and R23) and potential for low impact to one public viewpoint (Anabranch Community Hall), that are within the high visual magnitude threshold. Ratings that are moderate or higher trigger the requirement for further assessment.

The EIS would assess the potential for shadow flicker and would consider:

- Sensitive receiver locations
- An estimate of the annual hours of shadow flicker received at each receiver
- Any receivers where there is potential for the shadow flicker duration to exceed the limits specified in the relevant guidelines
- The specific WTGs contributing to the shadow flicker for each receiver
- The likely reduction in shadow flicker duration due to WTG orientation and cloud cover
- Generating maps of theoretical and predicted actual shadow flicker duration
- The potential sources of conservatism in the assessment.

Mitigation of potential visual impacts will be considered as the Project design progresses.

6.2 Biodiversity

A Preliminary Biodiversity Assessment report has been prepared for the Project (EnviroKey, 2024), which has been included in Appendix D. The objectives of the report are to identify the potential biodiversity values of the Project area, assess the likelihood of threatened and migratory biota occurring within the Project area and provide recommendations for further assessment to inform a future EIS.

6.2.1 Existing environment

6.2.1.1 Native vegetation

Native vegetation cover within the Project area was evaluated using the NSW State Vegetation Type Mapping (SVTM) (DPHI, 2024). A total of 34 Plant Community Types (PCTs) were identified within the Project area. Further interrogation of the SVTM revealed 19 PCTs were mapped within the proposed works footprint (the area within the Project area proposed to be impacted by construction works).

SVTM indicates that 98.26% of the works footprint is within PCT areas, with non-native vegetation or highly disturbed/cleared land accounting for the remaining 1.74% (26.76ha). PCT 154 (Pearl Bluebush low open shrubland) is mapped as the most prominent PCT, occupying 70.41% of the works footprint.

PCTs mapped through SVTM within the Project area are outlined in Figure 6-4.

6.2.1.2 Habitat connectivity

The existence of native vegetation across the Project area and in the wider locality means that the Project area is likely to form part of a landscape scale habitat connectivity corridor. Potential habitat corridors are not confined to the Project area, however, with the presence of the Great Darling Anabranch, Darling River and Murray River in the wider locality likely to form more important landscape scale habitat corridors.

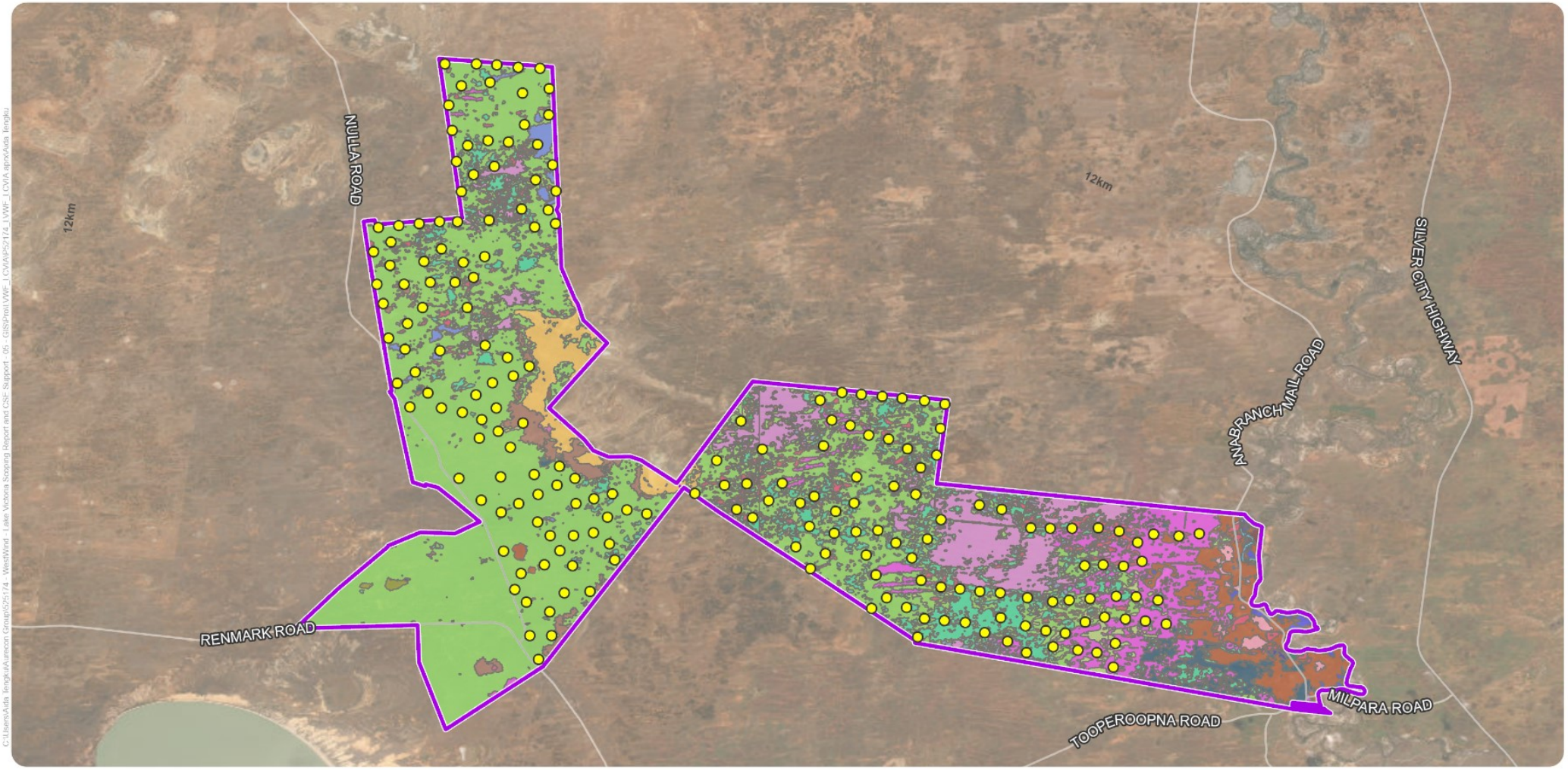
6.2.1.3 Aquatic habitat and groundwater dependent ecosystems (GDEs)

Key Fish Habitat has been identified within the Great Darling Anabranch and Lake Victoria. Some farm dams are present across the Project area given the long term agricultural activities that have occurred, however these are unlikely to be considered important aquatic habitat.

A search of the Atlas of Groundwater Dependent Ecosystems revealed that:

- The Project area has a low potential for terrestrial GDEs
- The Great Darling Anabranch (aquatic GDE) traverses a small proportion of the Project area near the eastern boundary.

The potential occurrence of and impacts to GDEs should be considered further as part of the EIS.



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:275,000

0 4 8 km

Projection: GCS GDA 1994

Figure 6-4: Vegetation - Plant Community Types

6.2.1.4 Threatened ecological communities

Threatened Ecological Communities (TECs) were identified using the Protected Matters Search Tool (PMST) (EPBC Act), NSW SVTM, and previous field surveys conducted by ENSPEC (2023).

Two TECs were identified within the Project area by ENSPEC (2023), as outlined in Table 6-4.

Table 6-4 Threatened ecological communities within the Project area identified by previous field surveys

TEC name	Listing status		SAII[1]
	BC Act	EPBC Act	
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	EEC[2]	-	No
Mallee Bird Community of the Murray Darling Depression Bioregion	-	E[3]	No

Table notes:

1 Serious and irreversible impact (SAII) species
2 Endangered ecological community
3 Endangered

A further three TECs were identified as having some likelihood of occurrence within the Project area based on the SVTM and the NSW BioNet Vegetation Information System. These are outlined in Table 6-5.

Table 6-5 TECs identified as having some likelihood of occurrence within the Project area

TEC name	Listing status		SAII
	BC Act	EPBC Act	
Acacia loderi shrublands	EEC	-	No
Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions	EEC	-	No
Buloke Woodlands of the Riverina and Murray Darling Depression Bioregion	EEC	E	Yes

6.2.1.5 Threatened and migratory species

A likelihood of occurrence analysis for threatened and migratory species revealed the presence of 76 threatened and migratory biota that are known to or predicted to occur within the Project area. The presence of the Great Darling Anabranch (directly east of the Project area) and nearby Lake Victoria to the west has the potential to increase the occurrence likelihood of threatened and migratory wetland birds.

During field surveys in May 2023, ENSPEC recorded four threatened biota, as outlined in Table 6-6.

Table 6-6 Threatened biota recorded during field surveys

Common name	Scientific name	Listing status		SAII
		BC Act	EPBC Act	
Pink Cockatoo	*Lophochroa leadbeateri leadbeateri*	V	E	No
Southern Whiteface	*Aphelocephala leucopsis*	V	V	No
White-fronted Chat	*Epthianura albifrons*	V	-	No
A spear-grass	*Austrostipa nullanulla*	E	-	Yes

Table 6-7 identifies the remaining species that have the potential to occur within the Project area, pending detailed biodiversity surveys.

Table 6-7 Species assessed as having the potential to occur within the Project area

Common name	Scientific name	Listing status		SAII
		BC Act	EPBC Act	
Avifauna				
Australian Bustard	*Ardeotis australis*	E		No
Australian Prantincole	*Stiltia Isabella*		M	No
Barking Owl	*Ninox connivens*	V		No
Black Falcon	*Falco subniger*	V		No
Black-breasted Buzzard	*Hamirostra melanosternon*	V		No
Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis gularis*	V		No
Black-eared Miner	*Manorina melanotis*	CE	E	Yes
Blue-winged Parrot	*Neophema chrysostoma*	V	V, M	No
Bush-stone Curlew	*Burhinus grallarius*	E		No
Caspian Tern	*Hydroprogne caspia*		M	No
Chestnut Quail-thrush	*Cinclosoma castanotum*	V		No
Curlew Sandpiper	*Calidris ferruginea*	E	CE, M	Yes
Dusky Woodswallow	*Artamus cyanopterus*	V		No
Fork-tailed Swift	*Apus pacificus*		M	No
Freckled Duck	*Stictonetta naevosa*	V		No
Gilbert's Whistler	*Pachycephala inornata*	V		No
Grey Falcon	*Falco hypoleucos*	V	V	No
Gull-billed Tern	*Gelochelidon nilotica*		M	No
Hooded Robin (south-eastern form)	*Melanodryas cucullata cucullata*	E	E	No
Little Eagle	*Hieraaetus morphnoides*	V		No
Malleefowl	*Leipoa ocellata*	E	V	No
Painted Honeyeater	*Grantiella picta*		M	No
Pied Stilt	*Himantopus leucocephalus*		M	No
Plains-wanderer	*Pedionomus torquatus*	E	CE	Yes
Purple-crowned Lorikeet	*Glossopsitta porphyrocephal*	V		No
Purple-gaped Honeyeater	*Lichenostomus cratitus*	V		No
Rainbow Bee-eater	*Merops ornatus*		M	No
Red-lored Whistler	*Pachycephala rufogularis*	CE	V	Yes
Red-necked Avocet	*Recurvirostra novaehollandiae*		M	No
Red-necked Stint	*Calidris ruficollis*		M	No
Redthroat	*Pyrrholaemus brunneus*	V		No
Regent Parrot (eastern subspecies)	*Polytelis anthopeplus monarchoides*	E	V	No
Scarlet-chested Parrot	*Neophema splendida*	V		No
Shy Heathwren	*Hylacola cautus*	V		No
Southern Scrub-robin	*Drymodes brunneopygia*	V		No
Spotted Harrier	*Circus assimilis*	V		No

Common name	Scientific name	Listing status		SAII
		BC Act	EPBC Act	
Square-tailed Kite	*Lophoictinia isura*	V		No
Varied Sittella	*Daphoenositta chrysoptera*	V		No
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	V	M	No
White-throated Needletail	*Hirundapus caudacutus*	V	M	No
Amphibians				
Southern Bell Frog	*Litoria raniformis*	E	V	No
Reptiles				
Jewelled Gecko	*Strophurus elderi*	V		No
Mallee Slender Blue-tongue Lizard	*Cyclodomorphus melanops elongates*	E		No
Mallee Worm-lizard	*Aprasia inaurita*	E		No
Marble-faced Delma	*Delma australis*	E		No
Ringed Brown Snake	*Pseudonaja modesta*	E		No
Western Blue-tongued Lizard	*Tiliqua occipitalis*	V		No
Yellow-tailed Plain Slider	*Lerista xanthura*	V		No
Mammals				
Bolam's Mouse	*Pseudomys bolami*	E		No
Sandy Inland Mouse	*Pseudomys hermannsburgensis*	V		No
Southern Ningaui	*Ningaui yvonneae*	V		No
Stripe-faced Dunnart	*Sminthopsis macroura*	V		No
Western Pygmy Possum	*Cercartetus concinnus*	E		No
Corben’s Long-eared Bat	*Nyctophilus corbeni*	V	V	No
Inland Forest Bat	*Vespadelus baverstocki*	V		No
Little Pied Bat	*Chalinolobus picatus*	V		No
Yellow-bellied Sheathtail-bat	*Saccolaimus flaviventris*	V		No
Flora				
Bitter Quandong	*Santalum murrayanum*	E	E	No
Bladder Senna	*Swainsona colutoides*	E		No
Bluebush Daisy	*Cratystylis conocephala*	E		No
Button Immortelle	*Leptorhynchos waitzia*	E		Yes
Desert Hopbush	*Dodonaea stenozyga*		CE	Yes
Fleshy Minuria	*Kippistia suaedifolia*	E		Yes
Harrow Wattle	*Acacia acanthoclada*	E		No
Menindee Nightshade	*Solanum karsense*	V	V	No
Winged Pepper-cress	*Lepidium monoplocoides*	E	E	No

6.2.1.6 Preliminary identification of candidate species

Further to the analysis of threatened and migratory biota, the NSW Biodiversity Assessment Method (BAM) provides species credit species (candidate species) that require special consideration within a Biodiversity Development Assessment Report (BDAR). A reviepw of the BAM-C reveals a number of preliminary candidate species of potential relevance to the Project area. These are outlined in Table 6-8 and Table 6-9.

While Nulla Nulla Grass is the only serious and irreversible impact (SAII) species confirmed present in field surveys to date (refer to Table 6-6), further field surveys are required to confirm presence or absence of the other SAII identified in Table 6-8 and Table 6-9. Species listed as a SAII species would require additional assessment within an EIS if they are confirmed or assumed present within the Project area.

Table 6-8 Preliminary flora species credit species and field survey timing

Common name	Scientific name	Listing status		SAII	Field survey timing
		BC Act	EPBC Act		
Harrow Wattle	*Acacia acanthoclada*	E	-	No	Aug-Nov
Purple-wood Wattle	*Acacia carnerorum*	V	V	Yes	All months
-	*Atriplex infrequens*	V	V	No	Nov-Feb
-	*Austrostipa metatoris*	V	V	No	Oct-Nov
Nulla Grass	*Austrostipa nullanulla*	E	-	Yes	Sep-Feb
Mossgiel Daisy	*Brachyscome papillosa*	V	V	No	Sep-Nov
A burr-daisy	*Calotis moorei*	E	E	Yes	Sep-Nov
Bluebush Daisy	*Cratystylis conocephala*	E	-	No	All months
Desert Hopbush	*Dodonaea stenozyga*	CE	-	Yes	All months
Fleshy Minuria	*Kippistia suaedifolia*	E	-	Yes	All months
Pink Velvet Bush	*Lasiopetalum behrii*	CE	-	No	All months
Button Immortelle	*Leporhynchos waitza*	E	-	Yes	Sep-Nov
Thyme Rice Flower	*Pimelea serpyllifolia*	E	-	Yes	Sep-Dec
Greenhood Orchid	*Pterostylis cobarensis*	V	-	No	Oct
Bitter Quandong	*Santalum murrayanum*	E	-	No	All months
Bladder Senna	*Swainsona colutoides*	E	-	No	All months
Yellow Swainson-pea	*Swainsona pyrophila*	V	-	No	Sep-Nov
Silky Swainson-pea	*Swainsona sericea*	V	-	No	Sep-Nov

Table 6-9 Preliminary fauna species credit species and field survey timing

Common name	Scientific name	Listing status		SAII	Survey timing
		BC Act	EPBC Act		
Striated Grasswren	*Amytornis striatus*	CE	-	No	All months
Australian Bustard	*Ardeotis australis*	E	-	No	All months
Bush Stone-curlew	*Burhinus grallarius*	E	-	No	All months
White-bellied Sea-eagle	*Haliaeetus leucogaster*	V	-	No	Sep-Nov
Black-breasted Buzzard	*Hamirostra melanosternum*	V	-	No	Sep-Nov
Little Eagle	*Hieraaetus morphnoides*	V	-	No	Aug-Oct
Southern Hairy-nosed Wombat	*Lasiorhinus latiforns*	E	-	No	All months
Pink Cockatoo	*Lophochroa leadbeateri*	V	-	No	Sep-Dec

Common name	Scientific name	Listing status		SAII	Survey timing
		BC Act	EPBC Act		
Square-tailed Kite	*Lophoictinia isura*	V	-	No	Sep-Jan
Crowned Gecko	*Lucasium stenodactylum*	V	-	No	Oct-Mar
Black-eared Miner	*Manorina melanotis*	CE	E	Yes	Aug-Jan
Painted Burrowing Frog	*Neobatrachus pictus*	E	-	No	Spring-summer after rain
Red-lored Whistler	*Pachycephala rufogularis*	CE	V	Yes	All months
Regent Parrot	*Polytelis anthopeplus*	E	V	No	Aug-Nov
Desert Mouse	*Pseudomys desertor*	CE	-	Yes	Mar-Jun, Aug-Dec

6.2.1.7 Matters of National Environmental Significance

While threatened and migratory species with the potential to occur within the Project area are outlined above, other Matters of National Environmental Significance (MNES) listed under the EPBC Act within the Project area would include Wetlands of International Importance (Ramsar Wetlands). Ramsar Wetlands within proximity of the Project area are outlined in Table 6-10.

Table 6-10 Ramsar Wetlands within proximity of the Project area

Ramsar site name	Proximity of Project area
Banrock Station wetland complex	40 – 50 km upstream from Ramsar site
Riverland	Within Ramsar site (Renmark to NSW border)
The Coorong, and the lakes Alexandrina and Albert wetland	150 – 200 km upstream from Ramsar site

6.2.2 Potential impacts

6.2.2.1 Construction

The Project would result in the removal or disturbance of up to 1511.33 hectares of native vegetation, based on SVTM mapping and the current works footprint. Detailed biodiversity surveys would be required to determine the existence and extent of associated TECs as well as bird and bat communities within the Project area.

Table 6-11 outlines the potential land clearing impacts of the Project.

Table 6-11 Potential native vegetation impacts

Vegetation type	Area (ha)	TEC
PCT 15 – Black Box open woodland wetland	2.82	-
PCT 23 – Yarran tall open shrubland	1.25	BC Act
PCT 28 – White Cypress Pine open woodland	111.01	BC Act
PCT 58 – Black Oak – Western Rosewood open woodland	173.99	BC Act, but unlikely based on PCT 58 in the locality. Further assessment required
PCT 64 – Samphire – Water Weed – Sea-Heath shrubland saline wetland	6.9	-
PCT 139 – Prickly Wattle tall open shrubland	84.63	BC Act, but unlikely based on PCT 139 in the locality. Further assessment required
PCT 143 – Narrow-leaved Hopbush – Scrub Turpentine – Senna shrubland	17.81	BC Act, but unlikely based on PCT 143 in the locality. Further assessment required

Vegetation type	Area (ha)	TEC
PCT 150 – Bottlewasher – Copperburr grassland	1.02	-
PCT 153 – Black Bluebush low open shrubland	4.71	BC Act, but unlikely based on PCT 153 in the locality. Further assessment required
PCT 154 – Pearl Bluebush low open shrubland	1083.5	BC Act, but unlikely based on PCT 154 in the locality. Further assessment required
PCT 157 – Bladder Saltbush shrubland	17.13	-
PCT 158 – Old Man Saltbush – mixed chenopod shrubland	0.26	BC Act. Further assessment required
PCT 170 – Chenopod sandplain mallee woodland/shrubland	1.51	BC Act & EPBC Act, Further assessment required
PCT 171 – Spinifex linear dune mallee	4.33	EPBC Act (Mallee Bird Community)
PCT 191 – Snap and Rattle Mallee – Moonah open mallee shrubland	0.23	BC Act & EPBC Act, Further assessment required
PCT 215 – Woollybutt Grass open grassland	0.1	-
PCT 221 – Black Oak – Pearl Bluebush open woodland	0.06	-
PCT 236 – Derived Giant Redburr low shrubland	0.06	-
PCT 253 – Gypseous shrubland	0.01	-
Sub-total	**1511.33**	
Non-native Vegetation/Highly Disturbed/Cleared Land	26.76	-
Total	**1538.09**	

Other potential impacts to biodiversity include the following:

- Removal or disturbance of breeding habitat
- Degradation of habitat as a result of erosion or changed hydrology
- Spreading or attracting weeds, pests and diseased species
- Barriers between populations with low dispersal ability.

Detailed biodiversity surveys would be required to quantify the existence of threatened species and species habitat across the assessment area as determined by the BAM.

6.2.2.2 Operation

The main potential impacts to biodiversity from the operation of the Project relate to bird and bat strike. Bird and bat strike involves either direct collision with WTG blades or barotrauma (rapid changes in air pressure associated with the movement of blades). The Project area contains potential habitat for several bird and microbat species that may be susceptible to collision or barotrauma impacts. Species deemed to be susceptible include those more likely to fly within or near the rotor sweep area height, such as raptors, migratory birds and larger waterbirds. Less is known about the flight patterns of microbats and thus all species should be considered at risk as a precautionary measure.

6.2.3 Assessment approach

The SEARs for the Project are likely to require a BDAR to be prepared in accordance with the BAM. The BDAR must:

- Demonstrate how impacts have been avoided, mitigated and offset as a last resort
- Consider SAII entities and how they could be impacted by the Project
- Consider prescribed impacts, which are impacts that cannot be quantified through the BAM-C. Of relevance to this Project is “Wind Farm Collision Impacts”.

In the absence of the SEARs, the BDAR would likely need to meet the Stage 1 and Stage 2 requirements of the BAM which include, but are not limited to, the following:

- Threatened species and TEC impact assessment including:
  - Biodiversity Values Mapping
  - Seasonal flora and fauna surveys for candidate species (once identified by the BDAR)
  - Targeted surveys for threatened species that have the potential to be impacted by the Project
  - Bird and bat collision risk assessment including water birds given that the Project area is between the Great Darling Anabranch and Lake Victoria
  - Recommendations for avoiding, limiting and mitigating impacts to threatened species and TECs
  - Biodiversity offset credit calculations to determine the credit obligations of the Project.
- Considerations for serious and irreversible impacts of the Project on biodiversity including but not limited to:
  - Long term impacts from blade strike or barotrauma
  - Loss of small population due to localised impacts
  - Loss of important breeding habitat.

The BAM would need to be implemented and the BDAR prepared by an accredited assessor. It is expected that credit obligations will be generated from the above outputs, which can be met through several avenues such as contributing to the Biodiversity Conservation Fund (BCF), the establishment of a stewardship site or acquiring credits from the Biodiversity Credit Market. A combination of the above could also be implemented. Further analysis of biodiversity values within the Project area is required to determine outcomes for credit and offset obligations.

In addition, due to the potential presence of threatened and migratory species within the Project area (as identified in Section 6.2.1), an EPBC referral is being developed for the Project. This would be informed by a Significant Impact Assessment to determine the likely impacts to MNES.

6.3 Noise and vibration

A Preliminary Noise and Vibration Assessment has been prepared for the Project (SLR, 2024), which has been included in Appendix E. The assessment has been developed in accordance with *Wind Energy: Noise Assessment Bulletin* (DPE, 2016b) for State significant wind energy development.

Noise modelling of the initial WTG layout was completed using SoundPLAN V8.2 software.

6.3.1 Existing environment

The assessment locations for noise and vibration impacts include all receivers located within around 12 kilometres of a proposed WTG. Nine associated receivers and 25 non-associated receivers were assessed as part of the noise and vibration assessment.

The Project area is bounded by Nulla Road to the west. Elevation across the Project area ranges between around 30 metres to 70 metres above sea level. The surrounding region is primarily used for agricultural (grazing) purposes, with nearby areas comprised of intact and degraded native vegetation.

Wentworth has a semi-arid climate with hot summers and mild winters. It has a mean annual rainfall of around 285 millimetres and prevailing winds are southwesterlies. All receivers surrounding the Project area are anticipated to have an ambient background noise environment that is determined by predominantly natural sources which are largely wind influenced.

6.3.2 Potential impacts

6.3.2.1 Construction

Potential noise and vibration impacts during construction would be associated with construction work such as:

- Clearing and grubbing
- Earthworks and excavation
- Rock hammering and crushing
- Concrete batching
- Hauling material
- Transporting equipment
- Parts assembly
- Concrete formwork and associated activities
- Building of permanent structures
- Maintenance and refuelling.

Noise would be generated by mobile plant such as excavators, bulldozers, mobile cranes, and the movement of heavy vehicles. It is expected that the following typical equipment would be used:

- Site mobilisation – road loaders, graders, backhoes, trucks, small crane and generators
- Access tracks and hardstands – road loaders, bulldozers, excavators, graders, scrapers, rollers, articulated dump trucks, belly dumper trucks, rock crushing plant, semi-trailers, tractors, water carts and hydroseed trucks
- Wind turbines – excavators, rock breaker, concrete trucks, flat-bed trucks, vacuum trucks, large crawler/all-terrain heavy lift cranes, small/medium crawler cranes, generators, telehandlers, elevated work platforms
- Electrical reticulation works – trenchers, backhoes, excavators, graders, tractors, cable laying machines, and small terrain cranes
- Concrete batching plants – concrete mixing plant, batching equipment, conveyors, stackers, storage bins, silos
- Site services – option for vans or buses to transport staff around site and water delivery and effluent removal trucks
- Transmission line and towers – earthmoving equipment, elevated work platforms, concrete trucks, borers, cranes and other heavy machinery.

Due to the distance of non-associated sensitive receivers, noise and vibration impacts during the construction phase are anticipated to be minimal. Given R05 is located 1,559 metres from the nearest turbine (WTG072), it is possible that this receiver would experience adverse construction noise impacts, however these would only be during construction works near WTG072.

6.3.2.2 Operation

The *Wind Energy Noise Assessment Bulletin* (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 receivers (whichever is greater). For associated receivers, where a noise agreement is in place, the Noise Bulletin enables the baseline criteria to be higher (45 dB(A)).

The preliminary noise assessment has assumed a sound power level of 109 dB(A). The overall level represents the total maximum noise emission. The assumed WTG sound power level is considered typical of noise emissions from comparable multi-megawatt WTG models.

Noise modelling of the initial WTG layout was completed using SoundPLAN V8.2 software implementing algorithms from ISO9613-2:1996 Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation (ISO9613). The ISO9613 method is for downwind noise propagation, and as such the prediction model assumes downwind noise propagation from all sources to all receivers. This propagation assumption is conservative.

The predicted 'worst-case' LAeq noise level indicates that the wind farm is predicted to be below the minimum criteria at all identified receivers, aside from R05. Predicted WTG noise levels at R05 have been modelled as 37 dBA, which falls above the baseline noise criterion, meaning noise at this receiver is not compliant under the current WTG layout. This outcome is based on the implementation of 8 MW WTGs with no mitigation applied.

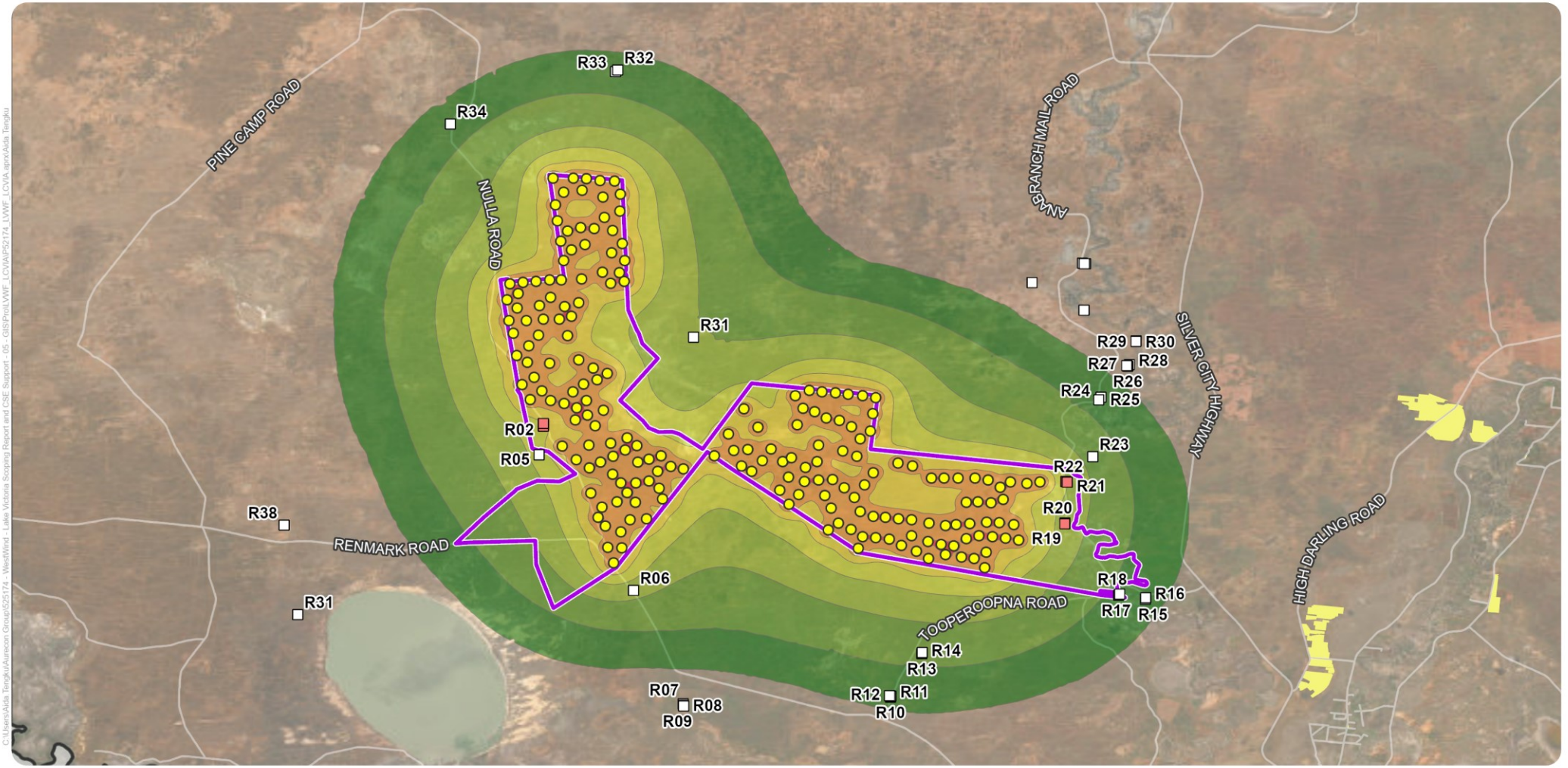
Operational noise contours for the Project are included in Figure 6-5.

6.3.3 Assessment approach

A detailed noise and vibration impact assessment would be prepared as part of the EIS in accordance with the *Wind Energy: Noise Assessment Bulletin* (DPE, 2016b), *NSW EPA Noise Policy for Industry* (NPfI) (EPA, 2017), *Draft Construction Noise Guideline* (EPA, 2020) and *Assessment Vibration: A technical Guideline* (DECC, 2006). The NVIA will include:

- Baseline noise monitoring at nearby receivers to quantify the existing ambient noise environment. Background noise levels would be statistically regressed with wind speed. Background noise levels would then be used to determine the relevant noise criteria for each location across the full operating wind speed range.
- Refinement of noise model input assumptions (e.g. WTG model specification and WTG sound power levels)
- Refinement and consolidation of the WTG layout
- Consideration of noise reduction / optimised operational modes of WTGs, if required.

Where predicted exceedances are identified, they would be resolved through potential design refinement and mitigation and management measures, as identified during the preparation of the EIS. This would include the predicted exceedance at R05 (to the west of the Project area).



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:425,000

0 5 11 km

Projection: GCS GDA 1994

Figure 6-5: Operational noise contours

6.4 Socio-economic

A Preliminary Social Impact Assessment (PSIA) has been prepared to identify the Project's social locality, provide initial evaluation of social impacts and contribute to potential Project refinement (Aurecon, 2024c). This is the first phase of the social impact assessment process and involves scoping and initial assessment of the social environment and impacts of the Project area in accordance with the SIA Guideline (DPE, 2023b). The PSIA is provided in Appendix F.

6.4.1 Existing environment

6.4.1.1 Social baseline

The social baseline for the Project has been established based on ABS 2021 Census data. Table 6-12 outlines data for the Project area and surrounds to establish this social baseline.

Table 6-12 Social baseline for the Project based on ABS 2021 Census data

Location	State	2021 ABS Census data reference	Description
Wentworth LGA	NSW	LGA18200	Wentworth Shire LGA covers an area of 2,626,926 hectares and has a population of approximately 8,000 people. The southern boundary (along the Murray River) has the greatest population density in the townships of Wentworth, Dareton, Buronga and Gol Gol. Wentworth is situated 1,075 kilometres from Sydney, 585 kilometres from Melbourne and 420 kilometres from Adelaide and is located within New South Wales, on the border of Victoria. Mildura, situated on the Victorian side of the Murray River, is the nearest regional city.
Pomona	NSW	SAL13252	Pomona is a small suburb of around 160 people. The area has established water infrastructure being an irrigation district due to its close proximity to the Darling River.
Wentworth	NSW	UCL115156	Wentworth is a historic town on the junction of the Murray and Darling Rivers, approximately 27 kilometres from Mildura. It is the popular access point for visitors wanting to explore Lake Mungo and Mungo National Park.
Dareton	NSW	UCL122048	Dareton is a town in New South Wales, Australia. The town is located 20 kilometres from Mildura and 11 kilometres from Wentworth. Dareton had its genesis in 1922 with the recommendation to establish irrigation in the area and is now at the centre of the Coomealla Irrigation Area.
Merbein	VIC	UCL215054	Merbein is a town on the Victoria-NSW border, approximately 10 kilometres from Mildura, on the banks of the Murray River. Merbein is at the heart of the irrigation district.
Mildura - Buronga (Mildura Part)	VIC	UCL212003	Mildura is a major regional city within the Mildura LGA. It is the cultural and economic centre of a region known as 'Sunraysia'. It is also a popular riverside resort town. Mildura Airport, situated southwest of the city, is the busiest regional airport in Victoria.
Renmark	SA	UCL415037	Renmark is a town on the Murray River in the east of South Australia. It is located 258 kilometres north east of Adelaide and 139 kilometres west of Mildura.

6.4.1.2 Social locality

The project is located near the borders of NSW, Victoria (VIC) and South Australia (SA) within the southern portion of Wentworth LGA in NSW. The area surrounding the Project area consists of 15 suburbs, which have been determined to constitute the Project's social locality. These suburbs include:

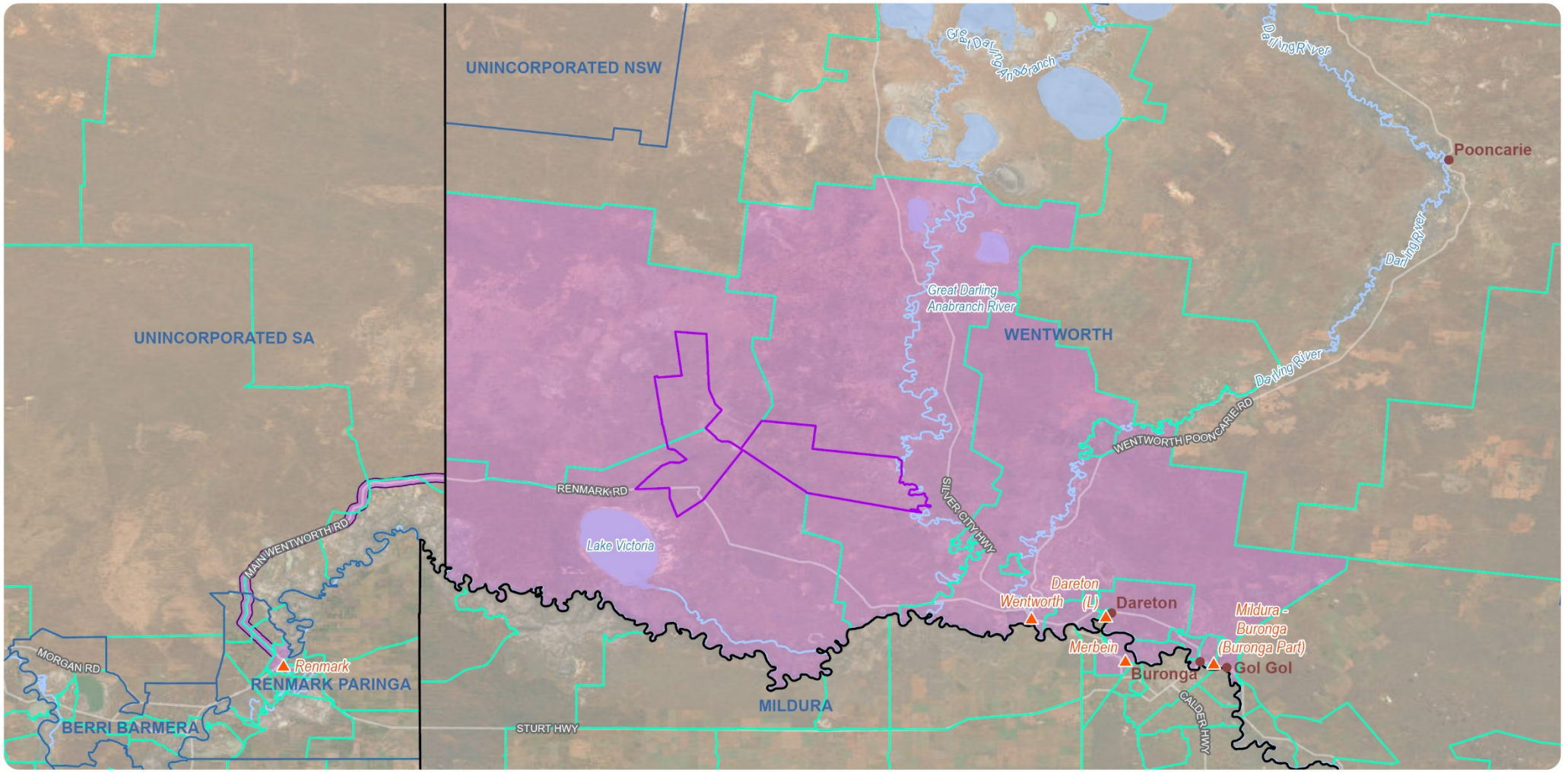
- Anabranch South (NSW)
- Boeill Creek (NSW)

- Buronga (NSW)
- Coomealla (NSW)
- Curlwaa (NSW)
- Dareton (NSW)
- Ellerslie (NSW)
- Gol Gol (NSW)
- Mourquong (NSW)
- Pine Camp (NSW)
- Pomona (NSW)
- Rufus (NSW)
- Wentworth (NSW)
- Merbein (VIC)
- Renmark (SA).

Key communities near the Project include Mildura in Victoria, accessible via the Silver City Highway, and Renmark in South Australia, accessible via Wentworth-Renmark Road and Renmark Road. In addition, towns along the Murray River, including Wentworth, Dareton and Buronga (in NSW) and Merbein (in Victoria) are also identified as key communities as they are likely to provide goods and services to support the Project's construction phase due to their access to the Project area via State and regional roads.

The social locality may extend beyond these areas as the Project planning progresses to include places of residence of the future construction and operational workforce and where materials may be sourced for the Project. The social locality will be further refined as required during the EIS assessment phase.

The social locality is shown in Figure 6-6.



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:1,000,000
0 15 30 km

Projection: GCS GDA 1994

Figure 6-6: Project social locality

6.4.1.3 Land use context

The Project area is located on land primarily used for agricultural purposes. The land has been modified over time through agricultural practices, including livestock grazing and some cropping. Patches of wooded vegetation are scattered across the Project area, while early desktop investigations of the area indicate potential constraints for development due to the presence of native vegetation.

The Project area includes nine associated receivers and seven non-associated receivers are located within five kilometres of the Project area. The closest town to the Project area is Pomona, which includes a local public school and community hall. The nearest shops and sources of accommodation are located in Wentworth.

6.4.1.4 Demographic overview

An overview of the demographics of the Project's social locality is presented in Table 6-13.

Table 6-13 Demographics of the Project's social locality

Topic	Insights into demographics
Population size	Mildura - Buronga features the largest nearby population with 35,652 residents, followed by Renmark (4,703 residents). This suggests that these locations may be prominent UCLs servicing an increase in workers and supply to the Lake Victoria site.
Older and ageing population	Wentworth has both the highest median age at 56, and the highest percentage of residents over 65 years old (36%). This indicates an older population compared to the region, who may be particularly concerned with health and wellbeing impacts of nearby major projects. In contrast, Mildura - Buronga has the lowest median age at 39, suggesting a younger demographic on par with the state of Victoria (38) and NSW (39).
Aboriginal and Torres Strait Islander population	Dareton has the highest proportion of Aboriginal and Torres Strait Islander population at 27%. Dareton's high Aboriginal or Torres Strait Islander population coupled with its proximity to the Namatjira Aboriginal Settlement indicates the need for strong consideration of Indigenous perspectives and interests in making planning decisions that affect the area.
Overseas born population	Renmark and Mildura - Buronga have the highest percentage of overseas born residents at 18% and 17% respectively, reflecting a diverse population. The top languages other than English spoken in both UCLs include Mandarin, Punjabi, Vietnamese and Italian. Renmark also has a significant Greek population, and Mildura - Buronga has a significant Turkish population.
Long-term health conditions	Wentworth and Merbein have the highest percentage of people with long-term health conditions at 41% and 40% respectively. However, it is noted that all locations within the Project's social locality have a higher incidence of long-term health conditions compared to both the state of Victoria and NSW (both 27%). Consequently, there may be a prevalence of sensitivity to any external factors that are perceived to cause or contribute to negative health and wellbeing impacts. The most common long-term health conditions in the Project's social locality include arthritis, asthma, mental health condition, diabetes, and heart disease, which are the same as for the country (Australia).
Employment	The most common industries of employment in the Project's social locality include agriculture, forestry and fishing, health care and social assistance, education and training, retail trade, public administration and safety, and construction. Dareton has the highest unemployment rate at 14%. Dareton has historically been noted as one of the most disadvantaged Aboriginal communities in NSW which may contribute the high unemployment rate. The Aboriginal community was removed from their country in Dareton by the State government and then returned to live in makeshift accommodation around Dareton in the 1950s and 60s. The majority of residents travel to work by car, either as driver or passenger – ranging from 65.8% in Wentworth to 79.6% in Merbein.
Median weekly household income	Dareton and Wentworth have the lowest median weekly household income, at $823 and $898 respectively. This is in stark contrast to the Wentworth LGA in which the two towns are situated, where the median weekly household income is $1,392. This suggests that Dareton and Wentworth are more economically disadvantaged compared to the broader region.

6.4.1.5 Economic overview

Of the 7,453 residents in the Wentworth LGA, the labour force accounts for 55.2 per cent. There are 142 unemployed workers. The most common occupations are managers (20.7 per cent), professionals (13.9 per cent), technicians and trade workers (13.5 per cent), and labourers (13.3 per cent). The top industries of employment are specialised sheep farming (3.3 per cent), primary education (3 per cent), and hospitals (except psychiatric hospitals) (2.9 per cent).

6.4.1.6 Social infrastructure overview

Most of the social infrastructure near to the Project area is in the Mildura township. Education institutions in Mildura include four public primary schools, two public secondary schools, one Catholic primary school, one Catholic secondary school, and two private denominational primary and secondary schools. There is also a La Trobe University campus and TAFE college. There are also schools in Dareton, Wentworth, Pomona, Buronga and Gol Gol.

The Mildura township is also well serviced by health facilities. There are at least seven medical centres and two community health centres in town. There are also medical centres in Buronga, Merbein, Wentworth and Renmark. Dareton has specialised health services for mental health and drug and alcohol use. Major public and private hospitals (Mildura Base Public Hospital and Mildura Health Private Hospital) are located in the Mildura township. There are fire and police stations in Mildura, Buronga, Merbein, Wentworth, Dareton and Renmark.

Recreational facilities in the Project's social locality and nearby key communities include Mildura Sporting Precinct, Mildura Old Aerodrome Sporting Complex, Mildura Waves Aquatic and Leisure Centre, Mildura Swimming Club, South Mildura Football Club and Wentworth Sporting Complex Golf Club. There are also a range of community facilities including public swimming pools, community centres, childcare centres and aged care across Mildura, Merbein, Wentworth and Renmark.

6.4.2 Potential impacts

6.4.2.1 Construction

Potential positive construction impacts of the Project would include:

- Improved livelihoods of local business owners due to increased economic activity from the temporary increase in population
- Improved livelihoods for workers due to increased job opportunities and training, including for vulnerable groups
- Community wellbeing benefits associated with benefit sharing initiatives and local employment, procurement and training opportunities.

Potential negative construction impacts of the Project would include:

- Potential increases in stress and anxiety in the community regarding the scale of development and change, including added pressure to access community services (including social infrastructure, medical facilities and accommodation) due to the temporary increase in population. It should be noted that, should the proposed worker accommodation facility be constructed following appropriate consultation, there would be minimal pressure on local accommodation and housing due to the Project.
- Impacted amenity and visual aesthetics due to construction activities and increased traffic.
- Increased public safety risks and potential increased travel times due to increased heavy vehicles on the local road network and changed road conditions. These impacts would largely be associated with the delivery of WTG components.
- Potential access disruptions for associated and nearby non-associated receivers due to the delivery of equipment by heavy vehicles.

- Increased perceived damage to Aboriginal cultural heritage items due to the Project (refer to Section 6.7.2 for the anticipated Aboriginal heritage impacts of the Project).
- Potential impacts to the existing community dynamics and social networks due to an influx of workers, which has the potential to affect community perceptions about what this may mean for the long-term composition and cohesiveness of the community.
- Perceived reduction in local biodiversity values, threatened species, native flora and hollow-bearing trees due to construction activities (refer to Section 6.2.2 for the anticipated biodiversity impacts of the Project).
- Perceived impacts and concerns about changes to rural amenity due to new infrastructure development impacting people's sense of place.

6.4.2.2 Operation

Potential positive operational impacts of the Project would include:

- Funding provided by the Project for programs designed to give directly to local communities surrounding the Project area. The detail of these programs will be developed in consultation with the local community.
- Improved sustainability and enhanced resilience due to community investment initiatives as part of the Project. The Project would expand the growing renewables industry in the social locality and would contribute to the emissions reductions required to support those being affected by climate change, including in Far West NSW.
- Improved intergenerational equity due to wind farms being used as an alternate energy source resulting in community cohesion and positive changes to the way the community functions due to increased job opportunities and renewable energy solutions.
- A potential positive shift towards and more sustainable and resilient community which may change the way the community interacts.
- Improved community wellbeing associated with local employment, procurement and training opportunities. Job creation and increased opportunities for vulnerable groups can have a positive impact on community wellbeing and cohesion.

Potential negative operational impacts of the Project would include:

- Negative perceptions regarding Project opportunities and increased risk of distributive inequity perceptions. Differing perceptions on renewable energy and Project benefits, added to the population changes due to the construction workforce influx, can create distributive inequity perceptions where stakeholders believe that landholders who host turbines are compensated while neighbouring landholders must experience the Project impacts with no compensation provided.
- Impacted visual aesthetics due to wind turbines as part of landscape and reduced local amenity with changes in how people experience their surroundings (refer to Section 6.1.2 for the anticipated visual impacts of the Project).
- Perceived negative impacts to local biodiversity values, threatened species, native flora and hollow-bearing trees due to the operation of WTGs (refer to Section 6.2.2 for the anticipated biodiversity impacts of the Project).
- Increased potential of and perceived impacts to telecommunications, navigation and radar services due to operation of wind turbines.
- Concerns about a reduction in availability of land for agricultural purposes due to changes in land use, as well as increased fear of property devaluation due to the presence of the Project.
- Increased potential of and perceived impacts on health and wellbeing, including electromagnetic interference (EMI), shadow flicker, blade throw and noise due to operation of wind turbines.
- Potential impacts on social licence due to community engagement activities being perceived as tokenistic by community members.

6.4.3 Assessment approach

A detailed assessment of social impacts would be required as part of the EIS and must be informed by stakeholder consultation. As part of the EIS, future stages of the socio-economic impact assessment for this Project would include a detailed prediction and assessment of positive and negative impacts. Informed by stakeholder consultation, a detailed social impact assessment would identify relevant strategies to mitigate the Project's negative impacts and opportunities to enhance its positive impacts. Further stakeholder engagement and technical and environmental studies would provide evidence to inform the detailed assessment of the Project's positive and negative impacts.

Opportunities and issues for further assessment include:

- Proactively addressing the potential for negative community perceptions, including as a result of the influx of transient workforces within the region
- Identifying benefit sharing initiatives or potential neighbour programs (including financial compensation) within the community
- Providing opportunities to improve social outcomes, including through the engagement of local Aboriginal representatives to incorporate their views on the Project design, delivery and potential local community benefits
- Informing the design of a local employment and procurement plan.

6.5 Traffic and transport

6.5.1 Existing environment

The Project would involve access via Nulla Road, which runs through the south-western extent of the Project area and connects to Renmark Road. Nulla Road is a two-way unsealed road that connects Renmark Road to Pine Camp Road and runs for around 50 kilometres. Alternative access points such as Anabranch Mail Road and Tooperoopna Road may be required if they meet necessary requirements (e.g. load limits). Anabranch Mail Road runs along the eastern boundary of the Project area and connects to the access track in the north-eastern extent of the Project area near R21 and R22. Tooperoopna Road is a two-way unsealed road that runs to the south of the Project area. Existing access tracks would be used within the Project area.

6.5.2 Potential impacts

6.5.2.1 Construction

The transportation of WTG turbines would impact the road network from port to the Project area given the size of the turbines (up to 100 metres long). Oversize over mass (OSOM) vehicles would be required for the transportation of the turbines, meaning the road network between the nominated port and the Project area would need to be able to cater for vehicles of this size. The WTG components may be transported to the Project area via ports located in Adelaide or Melbourne. Figure 3-3 shows the possible access routes to the Project area. The Project is also exploring alternative transport routes that originate at Whyalla port and Portland port. A traffic and transport impact assessment would be carried out during the preparation of the EIS. This would need to consider the transport route for the turbines, including swept path analysis to determine if existing roads would be sufficient or if upgrades would need to be made.

Due to the size of turbines (around 100 metres long), upgrades to public roads would likely be required for their transportation to the Project area. As is outlined in Section 6.5.1, access to the Project area would be via Nulla Road, and possibly via Anabranch Mail Road and Tooperoopna Road. Existing access tracks would be used within the Project area. Widening of access tracks would be required during the construction phase, however this would result in negligible traffic impacts.

The transportation of WTG components would result in a temporary increase in the number of heavy vehicles on Nulla Road, and possibly Anabranch Mail Road and Tooperoopna Road. Heavy vehicles coming from Melbourne or Adelaide would need to access these roads via the Wentworth town centre, meaning minor delays for vehicles using main and local roads would be experienced.

During the construction of the WTGs, BESS and associated Project infrastructure, it is anticipated that there would be a minor increase in the number of heavy and light vehicles accessing the Project area, which would be associated with the delivery of equipment and workers accessing the site. Depending on the outcomes of consultation, workers would potentially be provided with an accommodation facility within the Project area (refer to Figure 3-2), meaning light vehicle movements for construction workers entering and leaving the Project area would be minimal.

6.5.2.2 Operation

Thirty-five site-based workers are anticipated to be required during the Project's operation, which would result in a minor increase in vehicles utilising Nulla Road, and possibly Anabranch Mail Road and Tooperoopna Road throughout operation. Given the size of the Project area, this number of workers is not anticipated to result in traffic delays or congestion on roads surrounding the Project. Additionally, light vehicles used by operational workers are not anticipated to materially increase traffic in nearby townships such as Pomona and Wentworth.

6.5.3 Assessment approach

A traffic and transport assessment would be required during the EIS. Impacts from the Project would be assessed by analysing traffic on the existing road and freight network and considering road safety. Construction and operational impacts would be assessed by reviewing expected construction activities and generated traffic volumes, haulage routes and distribution of construction traffic, and the impact of activities on road network performance, road access and safety, and public and active transport.

The existing road network would be characterised, including the existing road capacity, daily and peak traffic volumes and the proportion of light and heavy vehicles. A study to assess the suitability of potential routes for transportation of heavy and/or oversized equipment, largely relating to the transportation of WTG components from port to the Project area, and the need for road upgrades, following swept path analysis, would also be carried out.

6.6 Historic heritage

6.6.1 Existing environment

Non-Indigenous land use of the area around Lake Victoria was dominated by primarily cattle and then sheep grazing after European settlement in the mid-1800s. The development of numerous irrigation schemes and a water storage facility in the early 1900s led to the rise of large-scale agriculture in the area, with crops such as rice, wheat and fruits dominating. The irrigation schemes have caused biodiversity issues for the area, with the installation of regulators resulting in the over-utilisation of the waters of the Murray-Darling basin for crops such as rice and cotton, increased soil salinity, and the erosion of Lake Victoria's native vegetation.

A desktop search of relevant historic heritage registers was undertaken on 15 April 2024. The search was conducted using a five-kilometre buffer around the Project area. The following historic heritage registers were searched:

- World Heritage List
- State Heritage Register (SHR)
- National Heritage List
- Commonwealth Heritage List
- Register of the National Estate

- National Trust Register
- Wentworth Local Environmental Plan 2011 (Wentworth LEP).

A search of the relevant registers indicated that there is one locally heritage listed site within the Project area (Nulla Nulla Homestead, Wentworth LEP #I82). The area around the homestead became the centre of activity near Lake Victoria in the early 1920s as the need to use river transport reduced. Nulla Nulla Homestead is listed as a rare elevated homestead representative of management changes in the pastoral industry in the twentieth century. It is noted as having historical and aesthetic significance and as having rarity within the Wentworth LGA.

The register searches also indicated that there are two locally heritage listed item located just outside the Project area (Nulla Woolshed (Wentworth LEP #I82), located around two kilometres west of the Project area, and Anabranch Hall (Wentworth LEP #I1), located around three kilometres north of the Project area). There are no State, national or world heritage listed sites within the Project area.

6.6.2 Potential impacts

6.6.2.1 Construction

It is anticipated that the Project would avoid physical impacts to Nulla Nulla Homestead. As such, the construction phase is not anticipated to impact any known historic heritage sites. Construction of the Project would involve soil disturbance for the establishment of Project infrastructure. During soil disturbing works, should any unexpected heritage finds be uncovered, an unexpected finds procedure would be followed to minimise historic heritage impacts. Unrecorded heritage sites are anticipated to largely be associated with the historic land use practices in the Project area, including livestock grazing. This is likely to include historic fencing and infrastructure associated with livestock grazing and other agricultural activities.

6.6.2.2 Operation

There may be visual impacts to Nulla Nulla Homestead as a result of the operation of the Project due to the homestead being located on a rise. Visual impacts to Nulla Nulla Homestead have been considered as part of the analysis of VP5 (refer to Section 6.1.2), where moderate visual impacts are anticipated as a result of the Project. However, given views from Nulla Nulla Homestead are not noted in its heritage listing, the moderate visual impacts to the view from Nulla Nulla Homestead are not anticipated to impact its heritage significance. Outside of Nulla Nulla Homestead, the operation of the Project would not result in historic heritage impacts. Ongoing access to the Project area and the WTGs would be via the existing access tracks, which would not impact any areas of known historic heritage or archaeological potential.

6.6.3 Assessment approach

It is recommended that a Statement of Heritage Impact (SOHI) is prepared for the Project given a locally listed heritage item is located within the Project area. The SOHI would allow for an assessment of the visual impacts of the Project to Nulla Nulla Homestead and would allow for an assessment of the significance of this item and its setting which have not been assessed previously. The SOHI would also assess historic archaeological potential that may be impacted, noting that there are outbuildings and ruins associated with Nulla Nulla Homestead.

6.7 Aboriginal heritage

6.7.1 Existing environment

The Project area is located on Barkandji Country. The Barkandji Traditional Owners #8 (Part A; NCD2005/001) and Barkandji Traditional Owners #8 (Part B; WCD2017/001) native title determinations are the determination areas for the Barkandji peoples. The Barkandji people primarily occupy the far west NSW centres of Wilcannia, Broken Hill, and Mildura (in Victoria).

The Project area is located within the Murray Darling Depression bioregion, a shallow crustal depression that inland seas have moved back and forth over the last 50-60 million years. Sandy surface sediments have been worked into dune systems or sandplains like those that exist across the majority of the Project area. The Darling and Murray Rivers, as well as their tributaries, have cut through the sands and created numerous overflow lakes, such as the basins of the Willandra Lakes region 150 kilometres east-northeast of the Project area and Lake Victoria just 5 kilometres southwest of the Project area.

Tar-Ru (Lake Victoria) is a freshwater lake and highly significant Aboriginal site. Aside from localised drainage, the Murray River would naturally feed the lake, via the Frenchman's Creek Inlet, and drain via the Rufus River outlet channel, until weirs and locks were constructed upriver beginning in 1917. Tar-Ru was an invaluable resource for Aboriginal people travelling through or staying in the area, especially when the flooding of the lake was more predictable before water flow regulation. Based on colonial records, in 1842 there were an estimated 600 Aboriginal people living around the lake. The extensive occupation of the Tar-Ru area is evidenced by archaeological material such as shell middens, artefacts, hearths, and earth mounds, especially on the southeast side. Notably, Tar-Ru holds an untold number of ancestral Barkindji-Maraura burials. Burial remains were rediscovered in 1994, after the water level was lowered during maintenance. Years of artificially high water levels and cattle grazing had eroded the shoreline and exposed these burials. According to the Government of New South Wales, there are an estimated three or four thousand individual graves within the lake system (2023).

A search of the Aboriginal Heritage Information Management System (AHIMS) carried out on 4 April 2024 identified 82 Aboriginal heritage places within the Project area. As a result of these findings, areas of high, moderate and low risk within the Project area have been determined based on areas of higher and lower density of Aboriginal heritage sites. These zones of risk are outlined in Figure 6-7.

Areas defined as being of high risk were determined on the basis of the known heritage signature of the area (prior identification of heritage sites), and proximity to key water sources, flood ways, and dune systems associated with Tar-Ru. These higher risk areas also accounted for the increased potential for burials to be encountered because of the ground surface characteristics. Moderate risk areas were defined based on their proximity to high risk areas, as well as the potential for these areas to represent transient spaces where past people moved between key landscape features. Additionally, these moderate risk areas include flood ways associated with water systems, where objects may have collected following heavy inundation events. Areas defined as low risk were delineated on the basis that they are situated further away from key landscape features such as waterways and dune systems, and are less likely to host substantive heritage values as a result.

Aboriginal heritage sites mapped on AHIMS are largely concentrated in the southwestern portion of the Project area and eastern portion near the Great Darling Anabranch, both of which are mapped as high risk in Figure 6-7. Outside of AHIMS results, no other places of Aboriginal cultural heritage are currently known to exist within the Project area. However, it should be noted that Aboriginal heritage sites may exist within the Project area that are not identified by AHIMS.

The Project EnergyConnect (NSW – Western Section) EIS (Transgrid, 2020) outlines the large number of unrecorded Aboriginal heritage sites found through field survey in addition to those identified by AHIMS. It was identified that the most common Aboriginal site type present in the area was open artefact scatters, largely associated with hunting and the manufacture of stone tools. Given Project EnergyConnect runs through the Project area, it is anticipated that the high number of Aboriginal heritage sites identified as part of field surveys for that development may also be applicable to this Project. Further investigation and consultation would be required through future design development to understand the nature of any additional sites within the Project area.

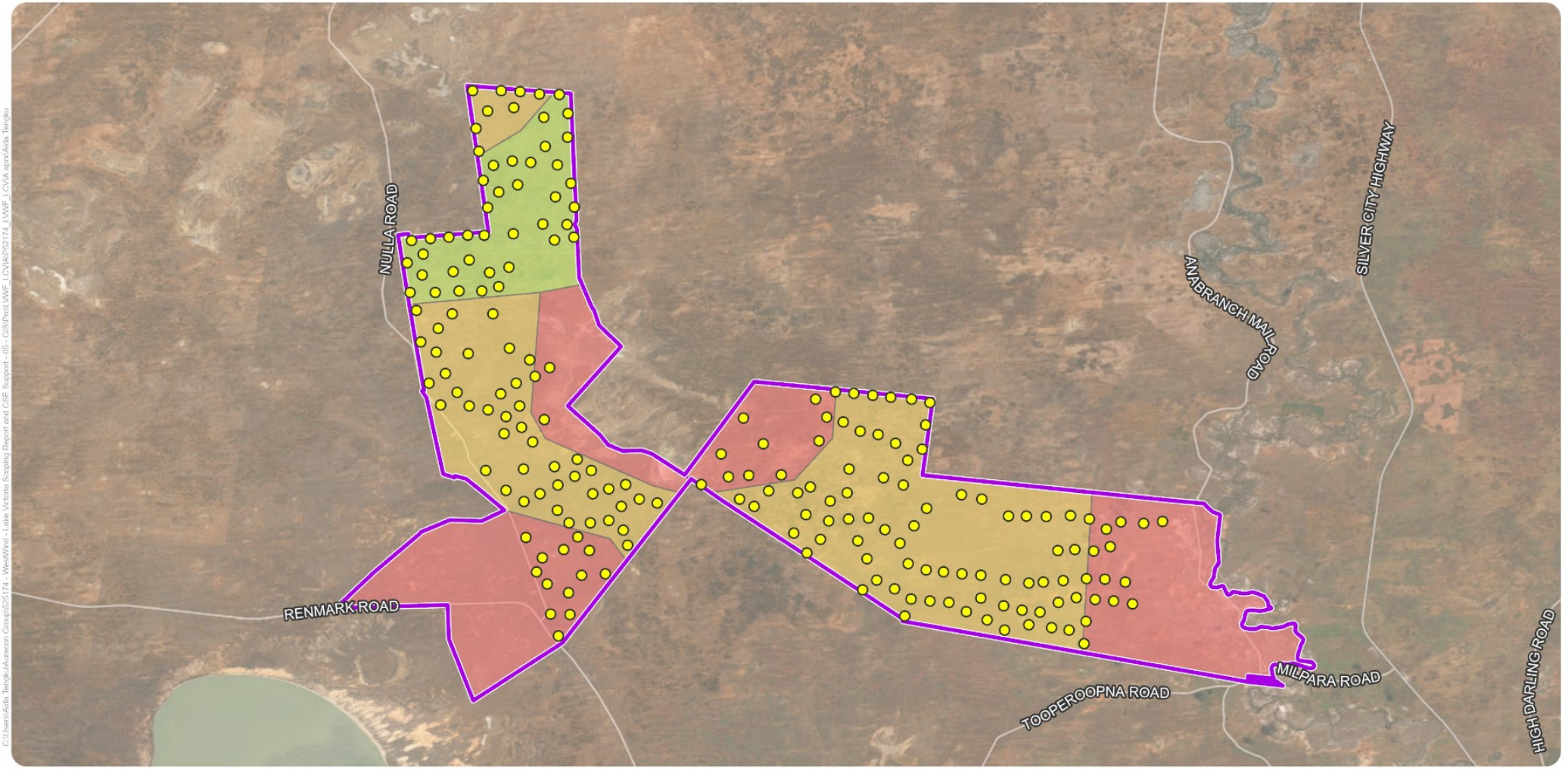


Figure 6-7: Zones of risk for Aboriginal heritage

6.7.2 Potential impacts

6.7.2.1 Construction

The construction of the Project would involve soil disturbance for the establishment of Project infrastructure, as well as temporary construction infrastructure. Given the size of the Project area and the relatively concentrated locations of Aboriginal heritage sites, the Project is considered to pose a low risk to Aboriginal heritage. Further investigation would be required during the EIS stage to determine if any areas of cultural heritage or archaeological significance are present within the Project area. Additionally, design development may be required to relocate WTGs or other Project infrastructure should they intersect with areas of Aboriginal heritage areas in the current layout.

6.7.2.2 Operation

Operation of the Project would not have any impacts to Aboriginal cultural heritage. Operational activities would involve traversing the Project area on already disturbed access tracks, meaning minimal soil disturbance or impacts to the landscape would occur.

6.7.3 Assessment approach

Consultation should continue to be carried out with the Barkandji Native Title Group Aboriginal Corporation, as well as with other Aboriginal stakeholders such as the Dareton LALC. An on-Country visit would also be carried out with traditional owners to map heritage values and sites within the Project area and to better understand the local cultural landscape.

Detailed recommendations should be developed through the preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR) in consultation with representatives from Registered Aboriginal Parties (RAPs) and the Local Aboriginal Land Council (LALC) in accordance with the *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010a), the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011) and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010b). This would allow for more than just visible physical attributes of the Project area to be assessed.

6.8 Soils and contamination

6.8.1 Existing environment

The Project area is currently used for farming (mostly sheep grazing) and the landscape is dry with scattered vegetation. Additionally, the Project area intersects with the Great Darling Anabranch at its eastern boundary and also features wetlands and swamps throughout.

A review of the geology and soils mapping for the region indicates that the Project is located within the South Olary Plain subregion of the Murray Darling Depression bioregion. The characteristics of this subregion are outlined in Table 6-14.

Table 6-14 Characteristics of the South Olary Plain subregion of the Murray Darling Depression bioregion

Feature	Description
Geology	Quaternary aeolian sands and lake sediments.
Landform	Dunefields, sandplains, dry lakes and groundwater basins.
Soils	Deep siliceous and calcareous red to yellow sands, sandy earths, brown texture contrast soils on dunes and sandplains. Saline, gypseous and calcareous clays on lake beds, mixed sands and pelleted clays in lunettes.

The Project area is mapped as having severe to extreme soil limitations. Land and soil capability is outlined in Figure 6-8.

A review of the NSW EPA contaminated land register (NSW EPA, 2024) revealed no contaminated sites within the Wentworth LGA, meaning no contaminated sites are located within or near the Project area.

Hazardous materials and potential contaminants within the Project would be associated with farming practices and equipment. These could include pesticides, oils, petroleum, lubricating oil and miscellaneous cleaning chemicals. These hazardous materials would largely be contained near existing dwellings or farm sheds which are scattered throughout the Project area. Further details on the storage and handling of hazardous materials are included in Section 6.11.1.

6.8.2 Potential impacts

6.8.2.1 Construction

Establishment of the WTGs would involve soil disturbance at the WTG locations outlined in Figure 3-2a-b. Given that these areas are considered to have severe to extreme soil limitations, it is anticipated that negligible impacts to soil health would result from the construction of WTGs, however further assessment would be required using the design of footings and hardstands at the base of each WTG at each location. Similar negligible impacts to soil health are anticipated for the establishment of BESS infrastructure and temporary construction areas. Erosion risk is mapped as being high around the south-western portion of the Project area nearer to Lake Victoria (eSPADE, 2024). Given very few WTGs are planned to be built in this area, and other portions of the Project area are mapped as having only slight or moderate erosion risk, erosion risk from the establishment of WTGs is anticipated to be minor. Further investigations would be required to confirm this.

Site rehabilitation would occur following the construction phase for areas used temporarily during construction, including construction compounds and laydown areas, concrete batching plants, and operation and maintenance facilities. Existing access tracks would be used during the construction phase. Widening of access tracks would be required during the construction phase, which would require additional soil disturbance. Additionally, earthworks would be required during trenching works and the establishment of overhead powerlines.

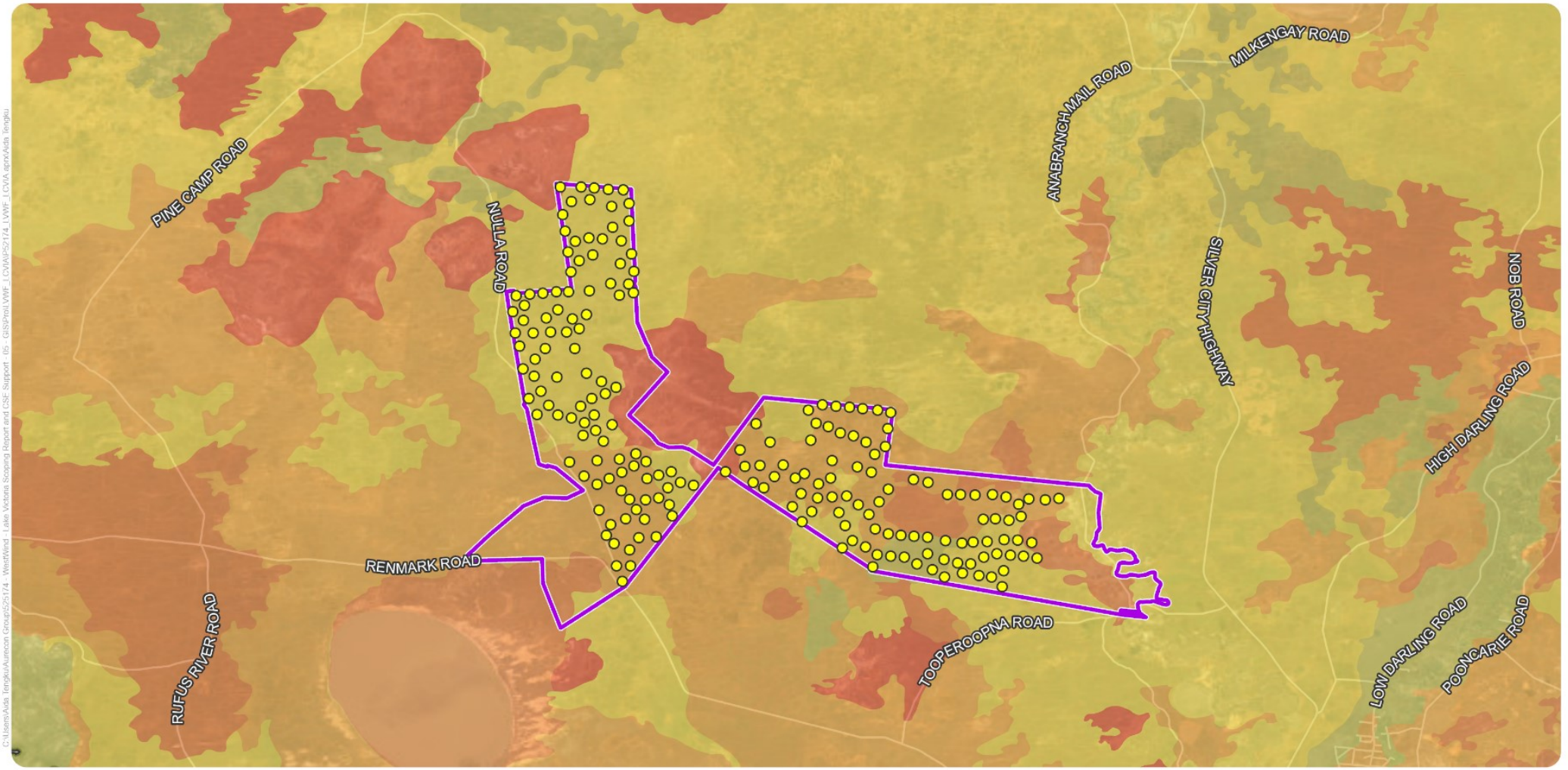
Contamination impacts during the construction of the Project would be limited to potential leaks of fuels and oils from construction vehicles and equipment. These impacts would be minor and could be avoided through the implementation of standard management measures.

6.8.2.2 Operation

Operation of the Project would involve minimal soil disturbance. Existing access tracks, which would have been widened during the construction phase, would continue to be used for workers accessing the WTG and BESS locations, meaning vehicles and equipment would only traverse already disturbed areas. Similar to the construction phase, contamination impacts would be limited to potential leaks of fuels and oils from vehicles and equipment, however these impacts would be minor and could be avoided through the implementation of standard management measures. It should also be noted that the Project area is relatively flat and dry with very few areas of standing water. As such, it is considered unlikely that overland flows would result in accidental spills reaching sensitive receiving environments.

6.8.3 Assessment approach

A detailed soils and contamination assessment would be required during the EIS stage. Subsurface geotechnical investigations would be required during the EIS stage to provide information for the design of footings and hardstands for the WTGs and for the construction of BESS infrastructure. A qualitative assessment of likely contamination impacts during the construction and operation of the Project is proposed during the EIS stage.



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:415,000
0 5 10 km

Projection: GCS GDA 1994

Figure 6-8: Land and soil capability

6.9 Water and hydrology

6.9.1 Existing environment

The Project area is located within the Murray-Darling Basin, with the Great Darling Anabranch running through the eastern extent of the Project area. The Darling River is located around 15 kilometres east of the eastern boundary of the Project area and the Murray River is located around 18 kilometres south of the south-western boundary of the Project area.

Lake Victoria is located around five kilometres south-west of the Project area. Lake Victoria is a naturally occurring shallow lake about 60 kilometres downstream of the Murray–Darling junction in south-western New South Wales. The lake forms an 'off-river' storage that assists in regulating flow and salinity in the Murray River Murray as it flows into South Australia (Murray-Darling Basin Authority, 2024). Mangroves are located on the north-eastern side of Lake Victoria between the lake and the Project area.

Wetlands are mapped along the eastern side of the Project area along the Great Darling Anabranch and within the western extent of the Project area (as well as in Lake Victoria). Key fish habitat is mapped along the Great Darling Anabranch and in Lake Victoria.

The Project area includes several farm dams that contain varying levels of water. There are seven registered groundwater bores located within the Project area based on a desktop review of the MinView Geological Survey of NSW (Department of Regional NSW, 2023). Two bores are located in the western extent of the Project area and five bores are located in the eastern extent (mainly near the Great Darling Anabranch).

The Project is not mapped as a flood planning area (as defined in the Flood risk management manual (DPE, 2023c)) under the Wentworth LEP.

6.9.2 Potential impacts

6.9.2.1 Construction

Water usage for the Project would be predominantly for civil foundations and concrete, potable construction worker consumption, compaction during earthworks and dust suppression. Water and hydrology impacts associated with the construction of the Project may include:

- Potential changes to surface water runoff associated with earthworks required for the construction of WTG foundations, the BESS facility and temporary construction infrastructure. There would be potential for altered runoff conditions through the obstruction of overland flows and through increased runoff potential due to vegetation removal and the establishment of hardstand areas
- Potential water quality impacts associated with accidental spills or leaks from construction vehicles and equipment or from stored construction and waste materials
- Minor impacts to local water supply through an influx of construction workers increasing the demand for water in the area, particularly during drought periods
- Impacts to the quantity and quality of groundwater.

As is noted in Section 6.8.2, the Project area is relatively flat and dry with very few areas of standing water. As such, it is considered unlikely that overland flows would result in accidental spills reaching sensitive receiving environments and therefore affecting water quality.

6.9.2.2 Operation

Water and hydrology impacts during operation would be limited to minor increases in surface water runoff due to increased overland obstructions and increased hardstand areas than in the existing scenario, as well as potential water quality impacts due to leaks or spills from the operation of equipment and vehicle use. There is the potential for impacts to local water supplies as a result of the operational workforce, however given the operational workforce is anticipated to be limited to 35 site-based workers and these workers would be spread across an area of 41,700 hectares, impacts on local water supply are anticipated to be negligible.

6.9.3 Assessment approach

A qualitative water and hydrology assessment would be prepared as part of the EIS. The water and hydrology assessment would investigate potential impacts to erosion and sediment, water availability, and potential pollution of watercourses during construction. A detailed Soil and Water Management Plan (SWMP) would also be proposed prior to the Project beginning construction.

The EIS would determine appropriate water-related mitigation and management measures to be implemented to ensure that all potential water and hydrology impacts are dealt with to address matters outlined within the SEARs.

6.10 Aviation risk

An aviation impact assessment has been carried out for the Project based on the current preliminary layout. The purpose of the aviation impact assessment is to prepare an assessment of the potential aviation impacts of the Project for consideration by Airservices Australia, the Civil Aviation Safety Authority and the Department of Defence.

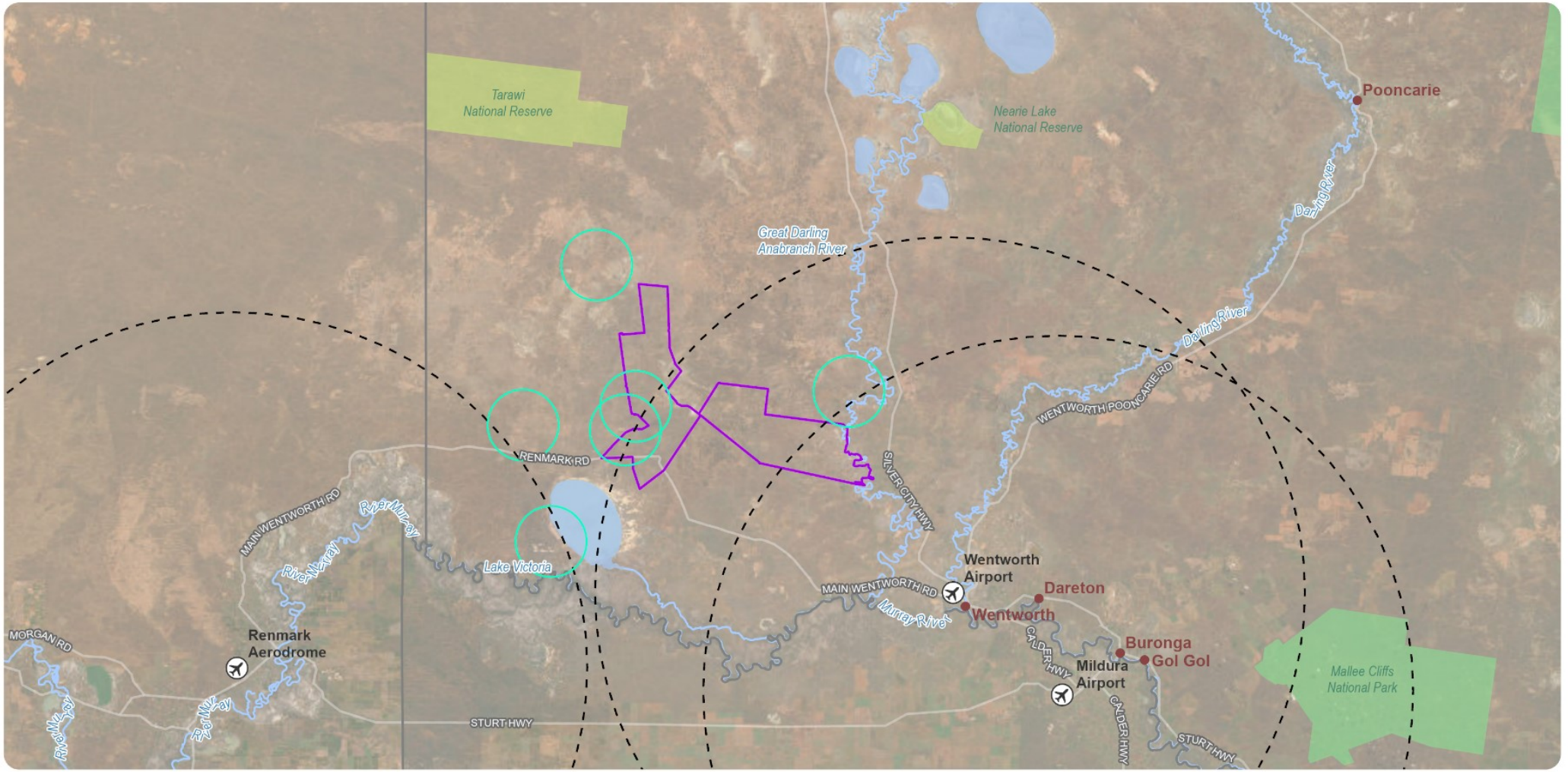
6.10.1 Existing environment

The International Civil Aviation Organisation and Civil Aviation Safety Authority (CASA) definition of an aerodrome is generic to all areas suitable for the arrival, departure, and surface movement of aircraft. There are two types of aerodromes: certified and non-certified.

Certified aerodromes are aerodromes that require certification under the Civil Aviation Safety Regulations 1998. Part 139 of the Civil Aviation Safety Regulations 1998 sets out requirements and standards for certified aerodromes, including standards for facilities, obstacle control, operational procedures and safety management. There are two certified aerodromes located within 30 nautical miles (55.6 kilometres) of the Project area, as shown in Figure 6-9:

- Wentworth Aerodrome – located approximately five kilometres from Wentworth on the Old Renmark Road and operated and maintained by Wentworth Shire Council. The airport operates 24 hours a day and is used by emergency services, including the police and flying doctor, as well as government and private aircraft. Based on the preliminary layout, the closest WTG to Wentworth Aerodrome is located approximately 28 kilometres north-west of the airport.
- Mildura Airport – located on the south-western side of Mildura, approximately eight kilometres from the central business district, and operated and maintained by Mildura Airport Pty Ltd. The airport provides regular passenger services to Melbourne, Sydney, Adelaide and Broken Hill and is also regional hub for general aviation activity including aviation businesses, pilot training and recreational flying. Based on the preliminary layout, the closest WTG to Mildura Airport is approximately 52 kilometres to the north-west of the airport.

A search of datasets maintained by Airservices Australia, OzRunways and NationalMap in November 2023 identified several non-certified aerodromes within or in close proximity to the Project area (ie three natuitcal miles (5.56 kilometres)), as shown in Figure 6-9. Non-certified aerodromes (or aircraft landing areas (ALAs)) are not regulated by CASA.



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:900,000

0 10 20 km

Projection: GDA 1994 MGA Zone 54

Figure 6-9: Certified and non-certified aerodromes

6.10.2 Potential impacts

Operation of the Project may result in aviation safety risks and affect the existing operation of Wentworth Aerodrome, Mildura Airport and the ALAs within or in close proximity to the Project area. Potential safety risks for Wentworth Aerodrome and Mildura Airport may be associated with intrusions into the airspace or potential effects on navigation instruments. In addition, WTGs may be considered potentially hazardous obstacles to nearby ALAs.

6.10.3 Assessment approach

An Aviation Impact Assessment would be carried out for EIS to assess potential impacts on aviation safety and the use of Wentworth Aerodrome, Mildura Airport and the ALAs within or in close proximity to the Project area. An assessment buffer of 30 nautical miles would be used, noting that this may be reduced based on the SEARs received for the Project. The Aviation Impact Assessment would include, but would not be limited to, consideration of:

- Potential impacts on:
  - aviation safety, including wake/turbulence issues
  - air traffic routes, height procedures, radar and communications systems and navigation aids
  - aerial emergency services and aerial agricultural operations
- Consultation with CASA, Airservices Australia, the Department of Defence, aerodrome operators, emergency services, and ALA owners.
- The need for mitigation strategies, such as obstacle lighting on WTGs in accordance with *AS ISO 31000:2018 Risk Management – Guidelines*, and notification and reporting requirements.

6.11 Hazards and safety

Desktop assessments of the relevant hazards and safety aspects of the Project's construction and operation have been carried out. This section details the potential impacts of the below potential hazards and safety risks:

- Hazardous materials and dangerous goods
- Electromagnetic fields (EMF)
- Telecommunications
- Blade throw
- Bushfire.

6.11.1 Hazardous materials and dangerous goods

Any dangerous goods associated with the Project would be stored and handled in accordance with the relevant Australian Standards and relevant legislation. Dangerous goods are anticipated to largely relate to fuels and lubricants. The risks associated with dangerous goods and materials would be appropriately mitigated and managed through the application of standard environmental controls and practices.

Fuels and lubricants associated with the operation of vehicles and equipment and the maintenance of WTGs and the BESS infrastructure would be stored appropriately and would not pose any additional risks.

6.11.2 Electromagnetic fields

EMF are present where electric current flows, including overhead and underground transmission lines, substations and electrical appliances. The Project would involve the generation of EMF during operation from the proposed transmission lines and substation. 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 would include an assessment of potential EMF and would consider potential health issues and risks associated with EMF produced during operation in accordance with the *International Commission on Non-iodising Radiation Protection (ICNIRP) Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields* (1998).

6.11.3 Telecommunications

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

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

6.11.4 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 would be addressed through refinements to the WTG design and layout. The EIS would include an assessment of the potential risk of blade throw associated with the proposed WTG layout.

The assessment would include:

- An assessment of the likelihood of blade throw occurring and a review of typical blade throw distances
- Calculation of the separation distance between WTGs, the BESS, nearby structures and property boundaries
- Consideration of mechanisms to reduce the likelihood of blade throw occurring.

6.11.5 Bushfire

Bushfire prone land mapping indicates that the Project area is located on bushfire prone land. The Project area is largely mapped as Vegetation Category 3, with areas of Vegetation Category 1 located along the Great Darling Anabranch and near wetlands within the Project area. As such, the Project area is considered to have medium bush fire risk vegetation with some areas of higher combustibility near waterways (NSW RFS, 2015).

A bushfire threat assessment would be carried out in accordance with the requirements of *Planning for Bushfire Protection 2019* (NSW RFS, 2019) as part of the EIS. The bushfire threat assessment would consider fire risk and would identify potential fire ignition sources. Consultation with the NSW RFS would be undertaken during the preparation of the EIS to inform the bushfire threat assessment.

6.12 Cumulative impacts

6.12.1 Existing environment

The *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2022d) guide the identification of relevant future projects and the assessment of potential cumulative impacts for SSD projects. As discussed in Section 2.2.4, the relevant future projects that could have cumulative impacts when considered with the Project include:

- Project EnergyConnect (NSW – Western Section)
- Copi Mineral Sands Project
- Mallee Wind Farm
- Euston Critical Minerals Project
- Euston Wind Farm.

6.12.2 Potential impacts

Relevant cumulative impact assessment matters for each relevant future project have been categorised in Table 6-15.

Table 6-15 Relevant future projects and cumulative considerations

Relevant future project	Approximate distance to the Project	Status	Potential overlap	Relevant cumulative impact assessment matter
Project EnergyConnect (NSW – Western Section)	Intersects Project area	▪ In construction ▪ Project commissioning from 2024	Unlikely consecutive construction programs[1]	▪ Landscape character and visual impacts ▪ Biodiversity ▪ Noise and vibration ▪ Historic heritage ▪ Aboriginal heritage ▪ Aviation risk ▪ Hazards and safety
Copi Mineral Sands Project	Immediately adjacent Project area	▪ EIS in preparation ▪ Proposed commencement of construction unknown ▪ Construction is anticipated to take 2.5 years ▪ Operational life is 20 years	Potential construction and operations overlap	▪ Landscape character and visual impacts ▪ Biodiversity ▪ Noise and vibration ▪ Socio-economic ▪ Traffic and transport ▪ Soils and contamination ▪ Water and hydrology ▪ Historic heritage ▪ Aboriginal heritage ▪ Hazards and safety
Mallee Wind Farm	53 km	▪ EIS in preparation ▪ Construction is expected to begin in 2025 and take 2.5-3 years ▪ Operational life is 30 years	▪ Potential construction overlap ▪ Likely operations overlap	▪ Socio-economic ▪ Traffic and transport

Relevant future project	Approximate distance to the Project	Status	Potential overlap	Relevant cumulative impact assessment matter
Euston Critical Minerals Project	58 km	■ EIS in preparation ■ Proposed commencement of construction unknown ■ Construction is anticipated to take 1.5 years ■ Operational life is 12 years	■ Potential construction and operations overlap	■ Socio-economic ■ Traffic and transport
Euston Wind Farm	97 km	■ EIS in preparation ■ Construction is expected to begin in 2025 and take 1.5-2 years ■ Operational life is 30-35 years	■ Potential construction overlap ■ Likely operations overlap	■ Socio-economic ■ Traffic and transport

Table note:

1: While consecutive construction programs are unlikely, given its location and scale, it is considered appropriate to include Project EnergyConnect (NSW – Western Section) as a relevant future project.

Given the location of Project EnergyConnect (NSW – Western Section) and Copi Mineral Sands Project, there is potential for several localised cumulative impacts with the Project. However, the implementation of avoidance and minimisation measures, along with any offset requirements and mitigation measures for residual impacts for the Project, along with similar provisions for Project EnergyConnect (NSW – Western Section) and Copi Mineral Sands Project, is considered likely to control the risk of potentially significant cumulative impacts in the locality.

The potential for cumulative impacts associated with the Project, the other wind farm projects, and the Euston Critical Minerals Project is expected to be limited to cumulative socio-economic and traffic and transport impacts at a regional scale. Cumulative socio-economic impacts from the Project, the other wind farm projects, and the Euston Critical Minerals Project could be associated with health and wellbeing impacts and accessibility-related issues. However, the Wentworth Shire LGA may also experience positive socio-economic impacts due to greater employment opportunities and regional development. Cumulative traffic and transport impacts would likely be limited to heavy vehicle movements associated with haulage and deliveries for the relevant future projects and the transportation of WTG components for the Project. As such, the cumulative traffic and transport impacts would be short in duration and limited to overlapping construction periods of the Project, the other wind farm projects, and the Euston Critical Minerals Project.

6.12.3 Assessment approach

A qualitative cumulative impact assessment would be required during the EIS stage. The assessment of cumulative impacts for the EIS would follow the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2022d). The assessment would also confirm the relevant future projects, including additional searches of the data sources listed in Section 2.2.4. Under the guidelines, the level of assessment for the relevant cumulative impact assessment matters identified in Table 6-15 includes:

- Landscape character and visual impacts
- Biodiversity
- Noise and vibration
- Socio-economic
- Traffic and transport
- Soils and contamination
- Water and hydrology
- Historic heritage
- Aboriginal heritage

- Aviation risk
- Hazards and safety.

6.13 Other matters

The EIS would also address other matters relating to:

- Land use and property – the Project area is zoned RU1 – Primary Production under the Wentworth LEP and is currently used for agricultural purposes by multiple landholders. The EIS would assess the potential interactions of the Project with other nearby land uses as well as with the current land use of the Project area. Other assessments carried out for the EIS, including impacts to visual amenity, noise, biodiversity and hazards, would inform the land use assessment.
- Waste – the EIS would assess the likely waste streams that would be generated by the construction, operation and decommissioning of the Project. This would include classifying and quantifying anticipated waste. Appropriate management measures for waste generated by the Project would also be determined, including the reuse, recycling and disposal of waste as appropriate and in line with the relevant guidelines.
- Air quality – the EIS would assess the potential air quality impacts resulting from the construction and operation of the Project. This would include the construction phase air quality controls in line with relevant guidelines.

These matters would be addressed in the EIS, however detailed assessments are not proposed. This is because impacts from these matters would be minimal and would be able to be minimised through the implementation of standard management practices and procedures.

6.14 Matters requiring no further assessment

Table 6-16 outlines the matters that are not considered to require any further assessment in the EIS based on the scoping phase assessment. Justification has been provided to detail why no further assessment is required.

Table 6-16 Matters requiring no further assessment in the EIS

Matter	Justification
Greenhouse gas	As the Project would generate renewable energy, the emissions resulting from the construction, operation or decommissioning would be offset by the reduction in energy generation emissions. GHG emissions would be addressed in the justification for the Project as part of the EIS.
Rail facilities	The Project does not propose to use 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 would not result in any impacts to coastal zones.
Dam safety	The Project would not affect a declared dam or a proposed declared dam as defined by the Dams Safety Regulation 2019.
Land movement	The Project is not anticipated to result in any land movement. The Project results in relatively minor excavation works only.

7 Conclusion

WestWind proposes to build the Lake Victoria Wind Farm, which would include the construction and operation of up to 203 WTGs spread over an area of 41,700 hectares about 24 kilometres northwest of Wentworth in south-western NSW. The Project is a renewable energy development with a generation capacity of 1.5 GW, enough to power 800,000 households across the NEM. The Project would also include the installation of BESS infrastructure within the Project area.

The Project is State Significant Development (SSD) as defined under the Planning Systems SEPP and would require development consent under Part 4 of the EP&A Act.

This scoping report provides a high-level overview of the Project and outlines the potential environmental impacts and proposed assessment approaches in support of an application for the SEARs for the Project. Once SEARs have been issued for the Project, WestWind would prepare an EIS in accordance with the SEARs and the requirements of the EP&A Act, the EP&A Regulation, the *State Significant Development Guidelines*, and taking into consideration stakeholder views following consultation. The EIS would be placed on public exhibition in accordance with Part 4, of the EP&A Act prior to being assessed and determined by DPHI.

8 References

Aurecon (2024a) Lake Victoria Wind Farm Community and Stakeholder Engagement Report.

Aurecon (2024b) Lake Victoria Wind Farm Preliminary Landscape Character and Visual Impact Assessment.

Aurecon (2024c) Lake Victoria Wind Farm Preliminary Social Impact Assessment.

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Office of Environment and Heritage (2011) Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW.

SLR (2024) Lake Victoria Wind Farm Preliminary Noise and Vibration Assessment.

Wentworth Shire Council (2020) Wentworth Shire Council Local Strategic Planning Statement: A Vision to 2040 and Beyond.

Wentworth Shire Council (2022) Wentworth Shire: Our Future in Focus (Community Strategic Plan 2022-2023).

Appendix A
Scoping summary table



Level of assessment	Assessment matter	Cumulative impact assessment	Scoping report reference	Engagement	Relevant government plans, policies, and guidelines	Key considerations
Detailed	Landscape character and visual impacts	Yes	Section 6.1	Targeted	■ *NSW Wind Energy Visual Assessment Bulletin, 2016* (VIA Bulletin) ■ *NSW Roads and Maritime Services Practice Note – Guideline for Landscape Character and Visual Impact Assessment EIA-N04*	The landscape character and visual impact assessment is to include: ■ Consultation with residents to undertake further visual assessment from selected sensitive viewpoints on private property ■ Consultation with potentially affected landowners, which should focus on receivers R05, R06, R23 and R31 as they are within the visual magnitude threshold or have turbines from the proposed Project layout within three or more 60° sectors of their view ■ Additional viewpoints and areas of sensitivity that are identified through design development and consultation, as required ■ Mitigation of potential visual impacts and ongoing WTG design and location development as needed.
Detailed	Biodiversity	Yes	Section 6.2	Targeted	■ *Biodiversity Conservation Act 2016* ■ *Environment Protection and Biodiversity Conservation Act 1999* ■ *Biodiversity Assessment Method* ■ *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities* (DEC, 2004) ■ *Surveying threatened plants and their habitats: NSW survey guide for the Biodiversity Assessment Method* (OEH, 2018) ■ *Koala Biodiversity Assessment Method Survey Guide* (DPE, 2022) ■ *NSW Survey Guide for Threatened Frogs: A guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method* (DPIE, 2020)	The biodiversity assessment is to include: ■ the preparation of a biodiversity development assessment report (BDAR) in accordance with the NSW Biodiversity Assessment Method ■ Bird and bat utilisation surveys across multiple seasons and the development of a Bird and Bat Management Plan ■ Demonstration of the extent to which impacts of the Project on biodiversity values have been avoided, minimised and offset to an acceptable level ■ Assessment of impacts to aquatic ecology within the Project area ■ Entry of the Project into the NSW biodiversity offset scheme.

Level of assessment	Assessment matter	Cumulative impact assessment	Scoping report reference	Engagement	Relevant government plans, policies, and guidelines	Key considerations
Detailed	Noise and vibration	No	Section 6.3	Targeted	■ *NSW Noise Policy for Industry* (NPfI) (EPA, 2017) ■ *NSW Interim Construction Noise Guideline* (ICNG) ■ *Protection of the Environment Operations Act 1997* ■ Protection of the Environment Operations (Noise Control) Regulation 2017 ■ *UK Institute of Acoustics – A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* ■ *Wind Energy: Noise Assessment Bulletin* (DPE, 2016a) ■ *Draft Construction Noise Guideline* (EPA, 2020) ■ *Assessment Vibration: A technical guideline* (DECC, 2006).	A noise and vibration assessment would be required to: ■ Establish relevant background noise levels ■ 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 ■ Identify any reasonable and feasible mitigation and management measures.
Detailed	Socio-economic impacts	Yes	Section 6.4	Targeted	■ *Social Impact Assessment Guideline* (DPE, 2023b)	The social impact assessment is to include: ■ Further assessment of potential property, land use, visual and traffic impacts ■ Further stakeholder engagement to provide evidence to inform the detailed assessment of the Project's positive and negative impacts ■ Identification of relevant strategies to mitigate the Project's negative impacts and opportunities to enhance its positive impacts.
Detailed	Traffic and transport	Yes	Section 6.5	N/A	■ *Roads Act 1993* ■ Road Rules 2014 ■ *NSW Heavy Vehicle Access Policy Framework 2018* ■ *Road Safety Action Plan 2026* ■ *Traffic Control at Work Sites – Technical Manual*	The traffic and transport assessment is to include: ■ Analysis of traffic on the existing road and freight network ■ Review of expected construction activities and generated traffic volumes, haulage routes and distribution of construction traffic, and the impact of activities on road network performance, road access and safety ■ A driven study to assess the suitability of potential haulage routes for transportation of heavy and/or oversized equipment and the need for any road upgrades.

Level of assessment	Assessment matter	Cumulative impact assessment	Scoping report reference	Engagement	Relevant government plans, policies, and guidelines	Key considerations
Detailed	Historic heritage	No	Section 6.6	N/A	▪ *Heritage Act 1977* ▪ State Heritage Register ▪ Wentworth Local Environmental Plan 2011	A Statement of Heritage Impact (SOHI) would be prepared for the Project. This is to include: ▪ A field survey to confirm the presence of any unrecorded heritage items ▪ Assessment of the impacts of the Project on: – Nulla Nulla Homestead, including visual impacts and an assessment of the significance of this item and its setting – unrecorded heritage items, if necessary ▪ Assessment of historic archaeological potential that may be impacted.
Detailed	Aboriginal heritage	No	Section 6.7	Targeted (representatives from Registered Aboriginal Parties and the Local Aboriginal Land Council)	▪ *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010) ▪ *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011) ▪ *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010)	An Aboriginal Cultural Heritage Assessment Report (ACHAR) would be developed for the Project. This would allow for more than just visible physical attributes of the Project to be assessed. An on-Country visit should also be carried out with traditional owners to map heritage values and sites within the Project area and to better understand the local cultural landscape.
Detailed	Soils and contamination	No	Section 6.8	N/A	▪ *Land and Soil Capability Scheme* (OEH, 2012) ▪ Soil and Land Survey Handbooks ▪ *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom, 2004) ▪ *Managing Urban Stormwater: Soils and Construction Volume 2* (DECC, 2008) ▪ Agricultural Land Use Mapping Resources in NSW (DPI, 2017)	The soils and contamination assessment is to include: ▪ Subsurface geotechnical investigations to provide information for the design of footings and hardstands for the WTGs and for the construction of BESS infrastructure ▪ A qualitative assessment of likely contamination impacts during the construction and operation of the Project.
Standard	Water and hydrology	No	Section 6.9	N/A	▪ *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018) ▪ *NSW Water and River Flow Objectives* ▪ *Managing Urban Stormwater: Soils and Construction Volume 2* (DECC, 2008) ▪ *NSW State Groundwater Dependent Ecosystem Policy* (DLWC, 2002)	The water and hydrology assessment would investigate the potential impacts related to erosion and sediment, water availability, and potential pollution on watercourses during construction. A detailed Soil and Water Management Plan (SWMP) would also be proposed prior to the Project beginning construction.

Level of assessment	Assessment matter	Cumulative impact assessment	Scoping report reference	Engagement	Relevant government plans, policies, and guidelines	Key considerations
Detailed	Aviation risk	No	Section 6.10	Engagement with Mildura Airport	■ *National Airports – Safeguarding Framework – Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation* (Department of Infrastructure, Transport, Regional Development and Communications, 2019)	The Aviation Impact Assessment would include, but would not be limited to, consideration of: ■ Consultation with CASA, Airservices Australia, the Department of Defence, aerodrome operators, emergency services, and ALA owners ■ Potential impacts on: – aviation safety, including wake/turbulence issues – air traffic routes, height procedures, radar and communications systems and navigation aids – aerial emergency services and aerial agricultural operations ■ The need for mitigation strategies, such as obstacle lighting on WTGs in accordance with *AS ISO 31000:2018 Risk Management – Guidelines*, and notification and reporting requirements.
Detailed	Hazards and safety	No	Section 6.11	Targeted	<u>Hazardous materials and dangerous goods</u> ■ State Environmental Planning Policy No 33 – Hazardous and Offensive Development – 1992 EPI 129 ■ *Assessment Guideline: Multi-level Risk Assessment* (DPI, 2011) ■ *Hazardous Industry Planning Advisory Paper No 6: Hazard Analysis* (Department of Planning, 2011) <u>EMF</u> ■ National Health and Medical Research Council advice <u>Telecommunications</u> ■ *Wind Energy Guideline* (DPIE, 2016) <u>Blade throw</u> ■ Applicable international standards for design of wind turbine components <u>Bushfire</u> ■ *Planning for Bushfire Protection* (NSW RFS, 2019)	Detailed assessment would be prepared for the following hazards potentially evident during the construction and operation of the Project: ■ EMF ■ Telecommunications ■ Blade throw ■ Bushfire. A qualitative assessment of hazardous materials and dangerous goods used during construction and operation would be carried out.

Level of assessment	Assessment matter	Cumulative impact assessment	Scoping report reference	Engagement	Relevant government plans, policies, and guidelines	Key considerations
Detailed	Cumulative impacts	N/A	Section 6.12	General	▪ *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2022d)	Under the guidelines, the level of assessment for the relevant cumulative impact assessment matters includes: ▪ Landscape character and visual impacts ▪ Biodiversity ▪ Noise and vibration ▪ Socio-economic ▪ Traffic and transport ▪ Soils and contamination ▪ Water and hydrology ▪ Historic heritage ▪ Aboriginal heritage ▪ Aviation risk ▪ Hazards and safety. The level of assessment for each matter would be aligned to the level of detail for the main assessment for that matter. It would be detailed to the extent possible.

Appendix B
Community and Stakeholder Engagement Report



Lake Victoria Wind Farm

Community and Stakeholder Engagement Report

Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Unit Trust (WestWind)

Reference: P525174

Revision: B

29 April 2024



aurecon

Bringing ideas to life

Executive summary

We acknowledge Aboriginal elders past and present and all members of the Aboriginal community, the original custodians of the land on which this Project resides.

WestWind proposes to build the Lake Victoria Wind Farm, which would include the construction and operation of up to 203 wind turbine generators (WTGs) spread over an area of around 41,700 hectares about 24 kilometres northwest of Wentworth in south-western NSW (the Project). The Project would be located within the Wentworth Shire Local Government Area (LGA) and would be spread across three localities: Pine Camp, Rufus and Anabranch South.

The Project is a renewable energy development with a generation capacity of up to 1.5 gigawatts (GW), enough to power over 800,000 households across the national electricity market (NEM). The Project would also include the installation of one to four battery energy storage systems (BESS) within the Project Area. The Project is currently in the early stages of development, including stakeholder engagement and concept design.

The key components of the Project are as follows:

- Up to 203 (3 blade) WTGs (3 to 8 megawatt (MW) capacity each), with a maximum blade-tip height of 280 metres above ground level
- 3 to 6 permanent meteorological masts
- Four collector stations and one terminal station (co-located with collector station)
- 600MW battery energy storage system(s)
- Other operational infrastructure, including site offices, amenities, laydown areas and temporary site compounds.
- Temporary construction areas, including stockpile areas, temporary workers accommodation and batching plants.
- Approximately 416 kilometres of access tracks throughout the Project Area (minimum width of 5.5 metres on straight tracks, widened to seven metres on tracks with corners)
- Internal collector network (electrical connections between the proposed wind turbine generators and the substation).

The Project is anticipated to be operational by 2031 and would operate for around 25-40 years. Around 70 workers would be required for the operation and maintenance of the Project.

This Community and Stakeholder Engagement Report has been prepared to support the Scoping Report and for consideration in development of the SEARs. Once SEARs have been issued for the proposal, they will be addressed in an EIS that will be publicly exhibited. This EIS is required in accordance with Part 4, Division 4.7 of the EP&A Act and must comply with the requirements in Part 8, Division 5 of the EP&A Regulation 2021 and must have regard to the State Significant Development Guidelines. – *preparing a Scoping Report (Appendix A to the State Significant Development Guidelines)* (DPE 2022).

This Scoping Report provides a high-level overview of the proposal and outlines potential environmental impacts in support of an application for the SEARs for the proposal. Once prepared the EIS would be placed on public exhibition for at least 30 days in accordance with Division 5.1 of the EP&A Act.

Contents

1 Community and stakeholder engagement 1

1.1 Approach to engagement 1
1.2 Engagement carried out 1
1.2.1 Stakeholders 1
1.2.2 Engagement activities 7
1.3 Community views 11
1.3.1 Quantity of feedback gathered to date. 11
1.3.2 Nearby neighbours 12
1.3.3 Community sentiment 12
1.3.4 Wentworth Shire Council 13
1.3.5 Barkandji Native Title Group Aboriginal Corporation 13
1.3.6 Summary of emerging issues and social licence opportunities 13
1.4 Engagement to be carried out by WestWind 15
1.4.1 Approach 15
1.4.2 Engagement activities 15

2 Engagement materials 20

2.1 Media release 8 April 2024 20
2.2 New South Western Standard Bulletin Facebook Post – 17 March 2024 21
2.3 WestWind LinkedIn Post 8 April 2024 22
2.4 WestWind Facebook Post 27 March 2024 23
2.5 Sunraysia Daily – Monday 1 April 2024 24
2.6 Renew Economy - Thursday 4 April 2024 27
2.7 Renew Economy - Editorial, Facebook post Thursday 4 April 2024 29
2.8 Farm Online - Thursday 4 April 2024 30
2.9 Information session – Lake Victoria Flyer 31
2.10 Development timeline – Flyer 32
2.11 Lake Victoria Wind Farm Website Snapshot 33
2.12 About the Project Fact Sheet – March 2024 34
2.13 Community Benefits Fact Sheet – March 2024 35
2.14 Electro Magnetic Interface - March 2024 36
2.15 Get Involved Fact Sheet – March 2024 37
2.16 Landscaping Fact Sheet – March 2024 38
2.17 Windfarm Noises Fact Sheet – March 2024 39

Figures

Figure 1-1 Nearby dwellings to the Project
Figure 1-2 Overview of the project concerns raised during early community engagement activities

Tables

Table 1-1 Community and stakeholders with potential interest in the Project and the nature of engagement with them to date
Table 1-2 Dwelling located near the Project Area and their habitable status
Table 1-3 Communications tools used across the Project lifecycle phases.
Table 1-4 Engagement activities with landowners and neighbours within 10 kilometres of the Project Area
Table 1-5 Summary of the participant reach from early engagement activities.
Table 1-6 Summary of visual amenity value of local landscape captured during stakeholder interviews
Table 1-7 Engagement activities implemented for each project phase.

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1 Community and stakeholder engagement

1.1 Approach to engagement

WestWind has been engaging with key stakeholders about the Lake Victoria Wind Farm since February 2022 and with the community since March 2024, as part of its commitment to early, meaningful, respectful and effective engagement. WestWind is committed to this approach during the planning phase, and pending approval, during the construction, operation and decommissioning phases of the project.

WestWind's best practice approach is being planned and delivered in line with:

- *NSW Government 'Undertaking Engagement Guidelines for State Significant Projects* (DPE, 2022)
- *NSW Department of Planning, Industry and Environment Community Participation Plan* (DPE, 2019)
- *NSW Department of Planning, Industry and Environment Draft Energy Policy Framework* (DPE 2016)
- *State Significant Infrastructure Guidelines – Preparing a scoping report*' (DPIE, 2022)
- *Clean Energy Council Best Practice Charter for Renewable Energy Projects* (Clean Energy Council, 2021), which WestWind has committed to honour in its renewable energy projects and associated transmission infrastructure.
- *Clean Energy Council Community Engagement Guidelines for the Australian Wind Industry* (Clean Energy Council, 2018)
- International Association of Public Participation (IAP2) core values and public participation spectrum, as globally internationally recognised standards and tools.

The approach will be updated as required in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for the Project, and the draft *Wind Energy Guideline 2023* (DPE, 2023), pending its adoption.

1.2 Engagement carried out

1.2.1 Stakeholders

Groups and individuals with potential interest

Key groups and individuals who may have an interest in the Project have been identified through:

- Desktop research
- Stakeholder mapping of the local community
- Capturing those in geographical proximity to the proposed project
- Via the early engagement activities identified in Section 1.2.2.

Regulatory stakeholders have also been identified.

Some stakeholders have been engaged directly to date as part of the site selection, feasibility and early planning phases. Other stakeholders, particularly those locally based, have been engaged through broad engagement activities (such as media and social media coverage). Both direct and broad engagement activities are detailed in Section 1.2.2. Some additional stakeholders will be engaged during future phases of the project.

Community and regulatory stakeholders and the nature of engagement with them to date (direct or broad) are shown in Table 1-1. Direct and broad engagement are defined as follows:

- Direct - personal engagement between WestWind and a specific stakeholder or stakeholder group, such as a meeting, phone call or correspondence.
- Broad - engagement between WestWind and a large non-specific audience, such as editorial or advertising in the local newspaper or social media content.

Table 1-1 Community and stakeholders with potential interest in the Project and the nature of engagement with them to date

Stakeholder group	Stakeholder	Engagement to date
Nearby landowners	Landowners within 10 kilometres of the Project Area	Direct
Traditional owners	Registered Aboriginal Parties	Broad
	Barkandji Native Title PBC	Direct
Nearby residents	Residents of Wentworth Shire Local Government Area	Direct/broad
Nearby mining companies	Arumpo Bentonite Pty Ltd	Direct
	Millers Civil Contractors (VIC)	Direct
	Illuka Resources Limited (VIC)	Direct
Business	Clean Technology Partners	Direct
	Platinum Electricians	Broad
	SecureEnergy	Direct
	JamesPrint	Broad
	Mitch Oxley Plumbing	Broad
	Jason Moss Plumbing	Direct
Industry	Australian Energy Market Operator (AEMO)	Broad
	Australian Energy Market Commission (AEMC)	Broad
	Clean Energy Council	Direct
Agricultural organisations	NSW Farmers' Association – Wentworth Branch	Broad
	National Farmers' Federation	Broad
	Western Local Land Service	Broad
Tourism	Wentworth Visitor Centre (part of Wentworth Shire Council)	Direct
	Mildura Visitor Information and Booking Centre (part of Mildura Rural City Council)	Broad
Local government	Wentworth Shire Council	Direct
	Far West Joint Organisation (FNWJO) (comprises 4 shire councils of Balranald, Broken Hill, Central Darling and Wentworth)	Broad
Local government - Representatives	Wentworth Shire Council Mayor Daniel Linklater	Broad
	Wentworth Shire Council Deputy Mayor Clr Sue Nicholas	Broad
	Wentworth Shire Council Clr Tony Elstone	Broad
	Wentworth Shire Council Clr Steve Haywood	Broad
	Wentworth Shire Council Clr Jo Rodda	Broad
	Wentworth Shire Council Clr Brian Beaumont	Broad
	Wentworth Shire Council Clr Jane Mac Allister	Broad
	Wentworth Shire Council Clr Steve Cooper	Broad
	Wentworth Shire Council Clr Peter Crisp	Direct
	Wentworth Shire Council Clr Tony Chaplain	Broad
	Wentowrth Shire Council General Manager Ken Ross	Direct
State government	NSW Department of Planning and Environment	Direct
	NSW Environment Protection Authority (EPA)	Broad

Stakeholder group	Stakeholder	Engagement to date
	NSW Department of Industry	Broad
	Department of Regional NSW	Broad
	Crown Lands	Direct
	Transport for NSW	Broad
	Safe Work NSW	Broad
	NSW Independent Planning Commission	Broad
State government - Representatives	Member for Murray, Helen Dalton MP (IND)	Broad
	Minister for Climate Change, Minister for Energy, Minister for the Environment and Minister for Heritage, Penny Sharpe (ALP)	Broad
	Minister for Planning and Public Spaces, Paul Scully (ALP)	Broad
Commonwealth government	Department of Climate Change, Energy, the Environment and Water	Broad
	Clean Energy Regulator	Broad
	Australian Energy Regulator (AER)	Broad
Commonwealth government - Representatives	Member for Farrer, Hon Susan Ley MP (LP)	Broad
	Minister for Climate Change and Energy, Hon Chris Bowen MP, Member for McMahon (ALP)	*Future phases*
Utilities	TransGrid	Broad
	Essential Energy	Broad
	Telstra	Broad
	National Broadband Network (NBN)	Broad
	Water NSW	Broad
Emergency services	NSW Rural Fire Service - Far West	Broad
	Fire and Rescue NSW	Broad
	NSW Police	Broad
	NSW Ambulance	Broad
Sporting groups	Gol Gol Hawks Football and Netball Club	Direct
	Sporting groups	Broad
Community and interest groups	Buronga Gol Gol Lions Club	Direct
	Buronga Gol Gol Senior Citizens	Broad
	Coomealla-Dareton Community Action Team	Broad
	Coomealla Senior Citizens	Broad
	Country Womens Association	Broad
	Delta Scout Group	Broad
	Friends of PS Ruby	Broad
	Friends of Wentworth Library	Broad
	Hospital Auxiliaries of NSW - Wentworth Branch	Broad
	Lower Anabranch Sporting & Landcare Group	Direct
	Men in a Shed Inc.	Broad
	Neighbourhood Watch - Buronga	Broad
	Neighbourhood Watch - Dareton	Broad
	Neighbourhood Watch - Wentworth	Broad
	Pomona P & C Association	Broad
	Pooncarie & District Development Association	Broad
	Pooncarie Field Day Group Inc.	Broad
	Rotary Club of Wentworth	Broad
	State Emergency Services (SES)	Broad

Stakeholder group	Stakeholder	Engagement to date
	Wentworth Arts	Broad
	Wentworth Agricultural Show	Direct
	Wentworth District Community Medical Centre Inc.	Broad
	Wentworth & District RSL Sub Branch	Broad
	Wentworth Historical Society	Direct
	Wentworth Meals on Wheels	Broad
	Wentworth Senior Citizens	Broad
	Wentworth Show Society	Broad
Churches	St Francis Xavier Catholic Church	Broad
	St John's Anglican Church	Broad
	St Andrew's Uniting Church	Broad
Education	Buronga Public School	Broad
	Coomealla High School	Broad
	Dareton Public School	Broad
	Gol Gol Public School	Broad
	Palinyewah Public School	Broad
	Pomona Public School	Broad
	Pooncarie Public School	Broad
	TAFE Riverina Coomealla Campus	Broad
	Wentworth Public School	Broad
Early learning	Gyndarna Preschool	Broad
	Gol Gol Preschool	Broad
	Wentworth Preschool	Broad
Media	Sunraysia Daily Newspaper ■ Online https://www.sunraysiadaily.com.au/6263484/wind-farm-project-a-breeze	Direct
	Renew Energy ■ Online WestWind eyes new 1.5GW wind project in south-west NSW | RenewEconomy ■ Facebook https://www.facebook.com/reneweconomynews/posts/pfbid02xETw8d1D89wya5zD6sxj5kRcm2VmMhzTD5w2fgDv7WsLa53nviuVb9bsuxhapB7yl	Direct
	FarmOnline ■ Online https://www.farmonline.com.au/story/8577196/wind-farm-project-in-southern-nsw-has-footprint-of-416-square-km/	Direct
	ABC News	*Future phases*
	The Guardian Australia	*Future phases*
	The Australian	*Future phases*
	Australian Financial Review	*Future phases*

Nearby landowners

The Project expands across nine host lots including two landholders and four leaseholders. The Project boundary largely includes land used for grazing native vegetation, with some areas of grazing modified pastures and cropping. Surrounding land is characterized by native vegetation that is grazed for agriculture.

There are 27 dwellings located within 10 kilometres of the Project Area. Of these:

- There are nine associated receivers (R01, R02, R03, R04, R17, R19, R20, R21, R22). These are classed as 'associated' dwellings as per the Wind Energy Guideline definition, being *"owners and occupiers of land proposed to host wind turbines or related infrastructure, owners and occupiers of land required for access during construction and/or maintenance, or landowners who have reached a financial or in-kind agreement in relation to the proposal."*
- The remaining dwellings are 'non-associated properties', being *"landowners who have not reached a financial or in-kind agreement in relation to the proposal."*

Table 1-2 describes the properties impacted by the Project Area, dwelling types and whether dwellings are habitable.

Figure 1-1 describes the Project Area, location of the wind turbines and their vicinity to nearby properties.

Table 1-2 Dwelling located near the Project Area and their habitable status

Dwelling	Status
R01	Habitable dwelling in use
R02	Workers cottage
R03	Habitable dwelling in use
R04	Burnt down house (abandoned)
R17	Habitable dwelling in use
R18	Habitable dwelling in use
R19	Habitable dwelling in use
R20	Habitable dwelling in use
R21	Habitable dwelling in use
R22	Habitable dwelling in use
R13	Abandoned dwelling
R14	Abandoned dwelling
R32	Habitable dwelling in use
R33	Habitable dwelling in use
R34	Dwelling (under construction)
R31	Habitable dwelling not in use (absentee owners)
R26	Habitable dwelling in use
R27	Workers cottage
R28	Shed
R29	Habitable dwelling in use
R30	Habitable dwelling in use
R24	Habitable dwelling in use
R25	Habitable dwelling in use
R23	Habitable dwelling in use
R15	Habitable dwelling in use
R06	Habitable dwelling not in use
R16	Habitable dwelling in use

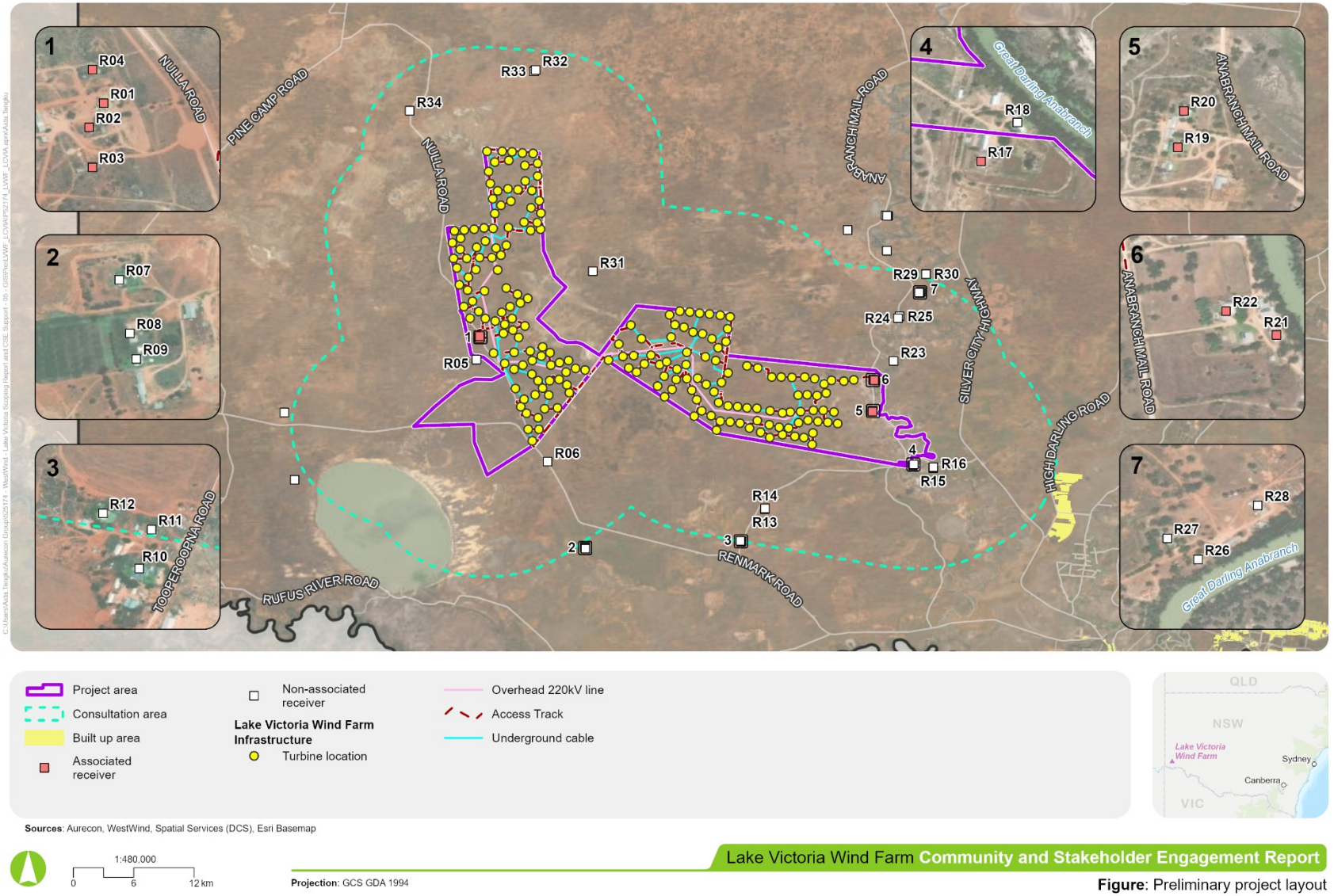


Figure 1-1 Nearby dwellings to the Project

1.2.2 Engagement activities

A range of engagement activities and tools have been implemented as part of early engagement to identify, inform and consult stakeholders and the community about the Project. These activities are also detailed in Table 1-3 to reflect the engagement requirements across the Project lifecycle.

Table 1-3 Communications tools used across the Project lifecycle phases.

Tool	Project lifecycle phase			
	Planning and approval	Construction	Commissioning and operation	Decommissioning
Desktop research To inform the engagement approach, and updates during implementation, an understanding of the locality and community will be established and maintained.	✓	✓	✓	✓
Stakeholder identification Key groups and individuals or may have an interest in or be affect by the Project will be identified.	✓	✓	✓	✓
One-on-one briefings with individuals or groups Personal meetings between the Project team and stakeholders to discuss aspects of the Project. This may involve preparing materials to share. The Project team needs to be well equipped to respond to possible questions, concerns or expectations.	✓	✓	✓	✓
Emails Correspondence, project introductions and updates to stakeholders. This will include local, state and federal agencies and representatives at appropriate milestones.	✓	✓	✓	✓
Letters Correspondence, project introductions and updates to stakeholders. This will include local, state and federal agencies and representatives at appropriate milestones.	✓	✓	✓	✓
Project website On the WestWind website, information about the Project, community benefits, feedback opportunities and enquiry channels.	✓	✓	✓	✓
Enquiry channels Dedicated email address and phone number and WestWind website contact form for enquiries, feedback and complaints.	✓	✓	✓	✓
Customer Relationship Management (CRM) database (Darzin) Enquiries, feedback and complaints will be recorded in Darzin and case managed.	✓	✓	✓	✓
Project subscriber list Stakeholders, community member and business contact details will be added to the CRM for use for email (Electronic Direct Mail) and mail updates about the Project.	✓	✓	✓	✓
Advertising in local media Public notices to raise awareness of the Project and engagement opportunities.	✓	✓	✓	✓
Advertising in social media Public notices to raise awareness of the Project and engagement opportunities.	✓	✓	✓	✓

Tool	Project lifecycle phase			
	Planning and approval	Construction	Commissioning and operation	Decommissioning
Community open days Events to share Project information, discuss matters of interest or concern, and gather feedback.	✓	✓	✓	✓
Information stands at community events Opportunities to engage with the community at popular local events and localities.	✓	✓	✓	✓
Newsletters Information shared with the community about the Project, including actions, opportunities to provide input and feedback, and any other updates of interest.	✓	✓	✓	✓
Community group engagement This includes sporting group sponsorships and engagement about the community benefits fund.	✓	✓	✓	✓
Media engagement Engagement with local, state, national and industry media as appropriate to Project milestones.	✓	✓	✓	✓
Register of stakeholders for employment and procurement opportunities Database to allow notification of opportunities to support local participation and benefits sharing.	✓	✓	✓	✓
Site visits Hosted, targeted events to show stakeholders the Project site and its everyday operations.	✓	✓	✓	✓
Community workshops For discussion to gather suggestions and feedback, and explore options on elements of the Project, such as the community benefit fund.	✓	✓	✓	✓
Community reference group Formal group of community representatives who discuss community concerns. This group is not a decision-making body, though can act as a bridge between communities and developers.		✓	✓	✓
Complaints management mechanism A formal process to channel and resolve legitimate issues, concerns or problems that an individual or group has. The aim is to provide an alternative to legal procedures through collaboration between parties to resolve issues in a more efficient and collaborative way that builds community ownership of solutions. For further guidance, refer to the Clean Energy Council Community Engagement Guidelines for the Australian Wind Industry.		✓	✓	✓

Engagement with nearby landowners

WestWind Energy employees have engaged with all landowners within 10 kilometres of the Project Area. This consultation radius was chosen to capture direct consultation with all neighbours who may be visually impacted by the project.

The aim of the engagement was to understand neighbour sentiment towards the Project and address any potential concerns. Through these interactions, including face to face meetings, WestWind provided an overview of the Project and invited questions and comments. This covered:

- Proposed Project Area, preliminary turbine layouts, access routes and potential location of ancillary infrastructure
- Noise and visual impacts
- Proposed siting and alternatives
- Community benefit opportunities
- Conversations and interviews with landowners, stakeholders and community members to understand potential issues.

Early engagement with impacted neighbours was completed from 18 to 23 March 2024. Activities included door knocking, two community Open Days and meetings with the Barkandji Traditional Owner Group and Wentworth Shire Council.

WestWind were able to make direct contact (in person conversation) with all Project neighbours (within 10 kilometres of the project boundary). Section 1.3.2 provides an overview of the main themes, issues and opportunities collected during early engagement.

Engagement activities for nearby landowners are presented in Table 1-4.

Table 1-4 Engagement activities with landowners and neighbours within 10 kilometres of the Project Area

Landowners within Project Area	Engagement activities
R21, R22	In-person meetings on site; follow-up phone calls and emails.
R19, R20	In-person meetings on site; follow-up phone calls and emails.
R01, R02, R03, R04	In-person meetings on site; follow-up phone calls and emails.
R17, R18	In-person meetings on site; follow-up phone calls and emails.
Neighbour within 10 kilometres of the Project Area	**Engagement activities**
R05	In-person meetings on site.
R06	Anabranch Hall Community Open Day, follow up phone call and email
R13, R14	Wentworth Community Open Day, follow up phone call and email
R32, R33	Phone call and email
R34	Anabranch Hall Community Open Day, follow up phone call and email
R31	Phone call and mailed project documents to postal address
R26, R27, R28	Anabranch Hall Community Open Day, follow up phone call and email
R24, R25	In-person meetings on site; follow-up phone calls and emails.
R23	In-person meetings on site; follow-up phone calls and emails.
R15, R16	In-person meetings on site; follow-up phone calls and emails.

Lower Anabranch Sporting and Landcare Group

WestWind consulted with members of the Lower Anabranch Sporting and Landcare Group during the Project Open Days. The Lower Anabranch Sporting and Landcare Group hold a social event ‘Picnic Day’ that up to 200 local community members attend. On 12 April 2024, WestWind became a sponsor for this event.

Wentworth Show

WestWind consulted with members of the Wentworth Show during community consultation events and identified that this annual event was a significant community event for the region. WestWind has become a Diamond Sponsor for this event.

Wentworth Shire Council meeting

On 19 March 2024, WestWind met with Wentworth Shire Council to discuss the project, including approval pathways and early site investigations. There were 6 participants:

- Wentworth Shire Council: Managing Director, Director of Finance and Policy, Director of Roads and Engineering and Planning Lead.
- WestWind: Project Developer and Land Tenure Specialist.

Barkandji Native Title Group Aboriginal Corporation RNTBC meeting

On 22 March 2024, WestWind hosted a meeting with Barkandji Traditional Owners, to provide an overview of the project and discuss any initial concerns.

- Barkandji Native Title Group Aboriginal Corporation RNTBC: Chief Executive Officer (CEO).
- WestWind: Two Project Developers.

Promotion of the Lake Victoria Wind Farm Open Day

- **New South Western Standard Bulletin Facebook**: 17 March 2024, Lake Victoria Wind farm Open Day, Page has 488 followers.
- **WestWind Facebook Post**: 27 March 2024 (post event). Page has 751 followers.
- **WestWind Linked in Post:** 8 April 2024 (post event) Page has 4724 followers.
- **Facebook**: Lake Victoria Wind Farm Open Day, 17 March. Page has 488 followers.

Promotional materials are provided in Sections 2.1 to 2.17.

Lake Victoria Wind Farm Open Days

Open Days provide an opportunity for WestWind Energy to introduce the project and provide general information about Lake Victoria Wind Farm. The Project team shared information relating to community benefit schemes and how they are developed, inviting all community members to be involved in the process.

Project information sheets and maps were shared, and community members are encouraged to attend and participate via social media posts and local media advertising. Community members are invited to provide feedback regarding the existing visual amenity of the region and any concerns they may have about the project.

Community Open Day 22 March 2024

WestWind hosted an Open Day at the Anabranch Hall, staffed by four WestWind team members and attended by approximately 25 community members and stakeholders. The aim was to share project information, discuss matters of interest or concern, and gather feedback. Site maps were displayed, and fact sheets were shared covering; project benefits, project timeline, how to get involved, impacts related to noise and electromagnetic interference.



Community Open Day 23 March 2024

WestWind hosted an Open Day at the Wentworth Memorial Room Tourist Information Centre, staffed by three WestWind team members and attended by approximately 35 community members and stakeholders. The aim was to share project information, discuss matters of interest or concern, and gather feedback. Site maps were displayed, and fact sheets were shared covering project benefits, timeline, how to get involved, noise and electromagnetic interference.

WestWind website dedicated project page and enquiry channels

The WestWind website since 8 March 2024 has featured information about the project, community benefits and a dedicated email address and phone number for enquiries. It promoted the Lake Victoria community sessions in the lead up to the open day and community events.

PROJECT WEBSITE: Lake Victoria Wind farm - WestWind Energy (w-wind.com.au)

NSW Department of Planning and Environment engagement and meeting

WestWind held a meeting with the Department about the Project on 18 April 2024 to introduce the Project, the project team and discuss the planning process.

1.3 Community views

1.3.1 Quantity of feedback gathered to date.

Engagement activities in the local area have been effectively promoted through local channels, resulting in a campaign total reach 15,813 people. This reach emphasises the successful promotion of the project within the community. Table 1-5 provides a summary of the participant reach from the early engagement activities conducted.

Table 1-5 Summary of the participant reach from early engagement activities.

Community open day attendance 60	Electronic direct emails 53	Facebook and NSW Standard Bulletin advertising 15, 573
Barkandji PBC meeting 1	Meetings with Stakeholders 57	Door knocking and letterbox drop 15
Landowner phone calls 18	Open Day Interviews 36	

Engagement activities in the local area have been well promoted through local channels. All landowners have been contacted and have provided initial visual amenity and project feedback. The Open Days garnered positive feedback from the local community, offering initial project insights and opportunities for in-depth feedback through stakeholder interviews.

1.3.2 Nearby neighbours

Early engagement with landowners within a 10-kilometre radius of a proposed wind farm has indicated that most landowners were supportive or neutral towards the Project:

- There was genuine interest in the Project, including its location, design and delivery timeline.
- There was support for new local industry and interest in local employment and procurement opportunities.
- There was interest in the possibility of hosting turbines on privately owned land as a potential new revenue stream, indicating a potential avenue for future collaboration.

At the time of this report, contact with two nearby neighbours has yet to be made despite a few attempts. WestWind will continue to reach out to these neighbours.

1.3.3 Community sentiment

Feedback from the broader public engagement was sought during the Community Open Days held at Lake Victoria Open Day at Anabranch Hall and the Wentworth Memorial Room Tourist Information Centre on the 22 March and 23 March respectively.

Several concerns were voiced by local residents, primarily revolved around traffic management during construction, the potential for disruptions to agricultural activities, and damage to property gates. These concerns may stem from other energy infrastructure projects in the immediate area, suggesting a historical influence on current sentiment.

Sixteen community members provided feedback relating to visual amenity. Twelve residents do not make mention of any key viewpoints in the locality (beyond their own properties) that were important to them or the broader community. Ten residents identified key landscape features valued by the broader community. A summary of community sentiment is provided in Table 1-6.

Table 1-6 Summary of visual amenity value of local landscape captured during stakeholder interviews

Location	Scenic quality
Anabranch River	Medium to High
Anabranch Hall	Medium to High
Lake Victoria	High
Bushland (Flood plain, woodlands and salt bush)	High
Murray and Darling River	High
Unnamed Bluff	Medium

One participant articulated a profound distrust in governmental entities and renewable energy developments. They raised apprehensions regarding safety concerns associated with the proposed wind turbines, particularly focusing on the potential hazard of blades detaching from the turbines.

The concerns raised across the early engagement can be categorised into six key themes:

- **Property access and infrastructure damage:** Some landowners expressed concern that potential workers may not follow designated access tracks, work activities will degrade road conditions, damage gates, fences, as well as concerns about increased biosecurity risk.
- **Traffic management:** There were mentions of increased traffic and its impact on roads, as well as disruptions to moving stock and agricultural activities.
- **Operational risks:** Concerns were expressed relating to noise from turbines, potential interference with future cropping activities, disruption to lambing and livestock.

- **Visual impacts:** Some landowners expressed concerns relating to visual impacts from turbines on local landscapes.
- **Community consultation and trust:** Some landowners expressed feedback relating to promises not being fulfilled, consultation fatigue, impacts post project decommissioning, and a lack of trust in both the project developers and government institutions.
- **Safety and Governance:** Concerns were raised about safety, both in terms of potential accidents due to turbine failure and broader worries about governance, oversight, and public safety.

Overall, these themes represent multifaceted concerns spanning environmental, social, economic, and governance aspects of the project, highlighting the need for comprehensive risk management, transparent communication, and meaningful community engagement throughout the project lifecycle.

WestWind will continue conversations with landowners to address the matters raised during initial engagement. Further options including engagement initiatives will be explored to find solutions that best align with the community's needs as the Project advances.

Community engagement on these matters and others will continue as the Project continues to be developed.

1.3.4 Wentworth Shire Council

Overall, the Wentworth Shire Council Executive Team expressed support for the project, laying a foundation for collaborative advancement.

The following points were raised for consideration:

- The importance of tangible community benefits and minimal impact on public infrastructure, particularly roads. They proposed the involvement of the WestWind in various community events, such as the Wentworth Races and Junction Rally event, highlighting the potential for positive community engagement.
- Council also recognised Secure Energy's contribution to Wentworth's financial well-being, reflecting a positive precedent for the project's potential impact.

WestWind will continue to consult with Wentworth Shire Council as the Project continues to develop.

1.3.5 Barkandji Native Title Group Aboriginal Corporation

WestWind conducted an open introductory meeting with the Barkandji Native Title Group Aboriginal Corporation CEO, to introduce personnel, provide an overview of the Project, address any concerns, and explore opportunities for involvement.

The Barkandji CEO maintained a neutral stance towards the Project, and did not raise any significant concerns, noting Barkandji's engagement in various major infrastructure projects.

The following points were raised for consideration:

- The importance of Barkandji involvement during both the assessment and construction phases to manage cultural heritage features, citing similar practices on other projects and the availability of a ranger team for the task.
- Utilising the Barkandji ranger team for pest animal and weed control during the construction and operational phases.
- Establishing future meetings and site visits to discuss opportunities as the project progresses.

1.3.6 Summary of emerging issues and social licence opportunities

Emerging trends identified during early engagement highlight the specific concerns regarding property damage and the disruption of agricultural activities, which could lead to a loss of productivity and income for local farmers. Traffic management during construction is also a key concern with increased traffic volumes potentially disrupting local roads and posing safety risks for residents.

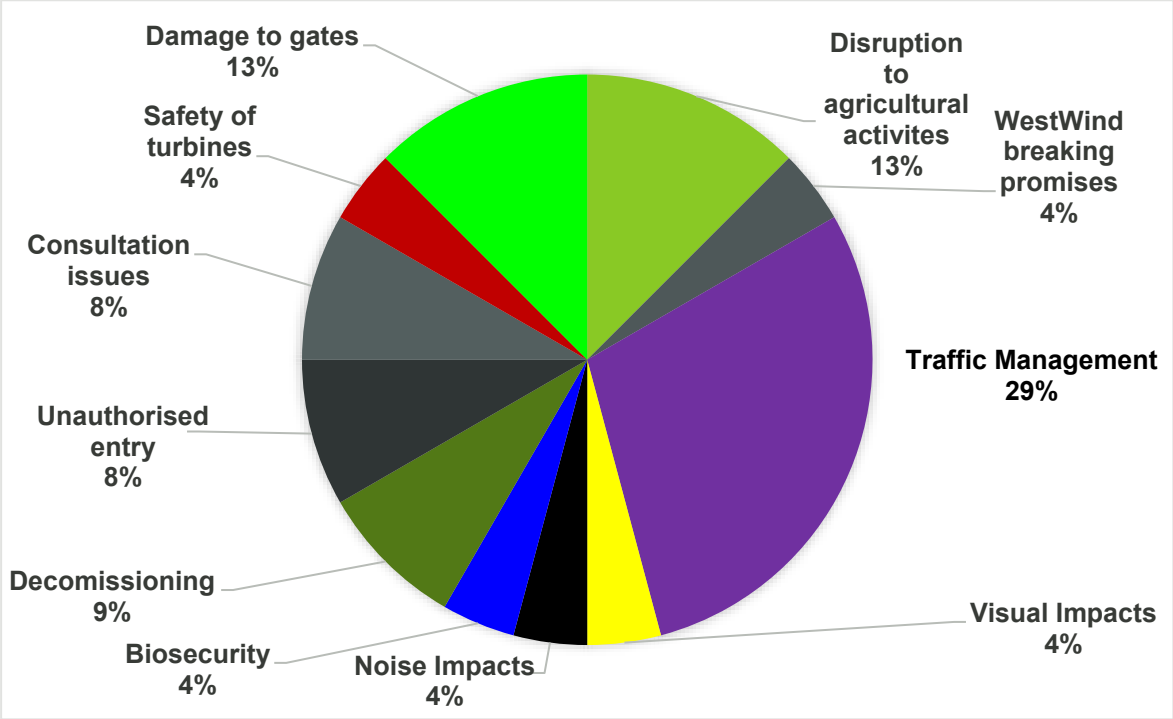


Figure 1-2 Overview of the project concerns raised during early community engagement activities

Property access and infrastructure damage concerns (property damage, unauthorised entry, disruption to agricultural activities, and lack of consultation) constitute to 50% of the total project concerns identified during early engagement.

WestWind is keen to contribute to the social and economic development of the surrounding areas through job creation, infrastructure improvements, and community investment and deliver long-term benefits to both the project stakeholders and the communities they serve. During initial engagement WestWind sought community feedback to inform potential opportunities to provide broad community benefits. Four main community investment themes emerged, namely:

- **Infrastructure improvement:** Community members suggested improvements to council roads, telecommunications reception, and laying bitumen along Anabranch Mail Road to support the project and improve community connectivity.
- **Environmental conservation and biodiversity:** There is potential engagement with Project Landholders and Neighbours to implement a community landscaping program.
- **Communication and transparency:** Community members requested consistent communication, regular updates on project progression, and documentation of changes reflecting the community's desire for transparency and ongoing project updates. Suggestions were made to request renewable developers to discuss and plan future community consultation engagement to reduce engagement fatigue and project confusion.
- **Sustainability and long-term benefits:** The importance of sustainable development was emphasised to maximize the long-term positive impacts on the community long after decommissioning.

WestWind will continue to engage with local authorities and impacted landowners ahead of the EIS submission to develop tailored mitigation strategies, that ensure swift resolution of property-related concerns. This proactive approach will facilitate the identification of specific challenges and the implementation of effective solutions.

1.4 Engagement to be carried out by WestWind.

1.4.1 Approach

Community engagement in line with the current approach will continue during preparation of the environmental impact statement. The approach may be refined as the Project progresses if needed, for example in response to community feedback, identification of new issues or changes to the Project design.

Stakeholders and the community as identified in Section 1.2.1 will be engaged in this next phase, with more of these stakeholders to be directly engaged as increased detail about the project becomes available. Where additional stakeholders and community groups are identified either through engagement with identified stakeholders, or where stakeholders self-identify to express an interest, they will also be engaged.

The approach will include:

- Addressing community views and requests for further information that have been shared to date with WestWind.
- Reporting back to the community on issues raised and how the project team has responded, including management and mitigation measures that can be implemented, and what has or hasn't changed in response to this feedback and why.
- Providing updates at planning milestones, including sharing the detailed assessment of project impacts.

The effectiveness of engagement activities will be monitored, reviewed, and adapted over time to encourage community participation in the project. Effectiveness will be assessed by the accessibility of engagement activities to broad audiences, the number of participants in engagement activities (and whether these include targeted stakeholders), and the depth of understanding that the project team obtains from community and stakeholder input.

A community and stakeholder engagement outcomes report will inform the environmental impact statement. This will include a summary of all engagement activities undertaken in this next phase of the planning process, the feedback provided by the community and stakeholders, and explain how the project considered and responded to the feedback.

1.4.2 Engagement activities

A range of engagement activities will be implemented to continue to inform and consult stakeholders and the community about the Project across it's project phases. Table 1-7 describes the engagement activities and their indicative timing to support each stage of the project life cycle.

Table 1-7 Engagement activities implemented for each project phase.

Activity	Indicative timing
Planning and approvals – Scoping report and environmental impact statement	**2024**
Direct engagement with local landowners.	March to April 2024
Engagement with Barkandji Native Title Group Aboriginal Corporation RNTBC.	22 March 2024
Engagement with registered Aboriginal Parties and Local Land Council	Progressing
Wentworth Shire Council ongoing meetings.	19 March 2024 *
Correspondence to local, state and federal agencies and representatives to introduce the Project and Project team and offer a briefing.	Progressing
WestWind website dedicated project page and enquiry channels kept up to date.	8 March 2024
Consultation on matters requiring further assessment in the environmental impact statement: ■ Community and stakeholder engagement on landscape and visual impact assessments, and biodiversity and cultural heritage. ■ Key state and commonwealth agencies on biodiversity, visual amenity, noise and vibration.	 22 and 23 March 2024 Progressing

Activity	Indicative timing
Establish database of stakeholder contacts/emails and categorise by group to allow for future targeted communication: ■ Nearby landowners ■ Local councillors ■ State representative ■ Federal representative ■ Sporting groups ■ Community and interest groups ■ Education ■ Early learning ■ Churches	March 2024
Establish register of stakeholders interested in local employment and procurement opportunities	Progressing
Notify community and stakeholders when the environmental impact statement is on public exhibition, noting feedback can be provided directly to the Department and that the Project team remains available to answer any enquiries: ■ Update WestWind project webpage. ■ New South Western Standard Bulletin. ■ Information stand at community event or locality Email newsletter to registered stakeholders.	Progressing
Planning and approvals – Following approval	**2025**
Notify community and stakeholders of the Project's approval; call for community members to join Community Reference Group: ■ Update WestWind project webpage. ■ New South Western Standard Bulletin ■ Email newsletter to registered stakeholders.	
Establish Community Reference Group and hold first meeting to discuss community interests, construction planning and community benefit fund.	
Email stakeholders registered for local employment and procurement opportunities, individually or as a group as appropriate.	
Construction	
Establish complaints management mechanism.	
Notify community and stakeholders at construction milestones and to give advance notice of impacts, and notify of complaints management mechanism: ■ Update WestWind project webpage. ■ The New South Western Standard Bulletin ■ Email newsletter to registered stakeholders.	
Notify council, tourism bodies and business association of opportunities related to incoming workers (such as accommodation, food and beverage, and tourism).	
Community Reference Group meetings.	
Community open days and/or information stands at community events/localities.	
Email stakeholders registered for local employment and procurement opportunities, individually or as a group as appropriate.	
Direct engagement (emails/phone calls) to community and interest groups about community benefit fund.	
Attend community group meetings as appropriate.	
Site tours for schools, community members and other parties as appropriate to build community relationships.	
Offer site tour to The New South Western Standard Bulletin at appropriate milestone, linking story to community benefit fund.	

Activity	Indicative timing
Explore potential media opportunities: ■ Profile local workers and skills development. ■ Local employment and procurement opportunities. ■ Sustainability features of materials (including Australian manufacturing content), transport and construction methodology. ■ Community Reference Group members and community benefit fund. ■ Community partnerships.	
Consider innovative ideas (see Section 10) for implementation.	
Commissioning and operations	
Notify community and stakeholders at commissioning milestone to create sense of local ownership and buy-in: ■ Update WestWind project webpage. ■ New South Western Standard Bulletin ■ Email newsletter to registered stakeholders.	
Community Reference Group meetings.	
Community open days and/or information stands at community events/localities.	
Direct engagement (emails/phone calls) to community and interest groups about community benefit fund.	
Attend community group meetings as appropriate.	
Site tours for schools, community members and other parties as appropriate to build community relationships.	
Offer site tour to New South Western Standard Bulletin.at appropriate milestone, linking story to community benefit fund.	
Explore potential media opportunities: ■ Profile local workers and skills development. ■ Community benefit fund. ■ Community partnerships.	
Consider innovative ideas (see Section 10) for implementation.	
Decommissioning	
Notify community and stakeholders at construction milestones and to give advance notice of impacts: ■ Update WestWind project webpage. ■ New South Western Standard Bulletin. ■ Email newsletter to registered stakeholders.	
Notify council, tourism bodies and business association of opportunities related to incoming workers (such as accommodation, food and beverage, and tourism).	
Community Reference Group meetings.	
Email stakeholders registered for local employment and procurement opportunities, individually or as a group as appropriate.	
Explore potential media opportunities: ■ Profile local workers and skills development. ■ Impact of community benefit fund. ■ Turbine recycling and sustainability contribution of Project. ■ Site rehabilitation and legacy.	

Table note:

* Council meeting dates will be ongoing and noted with subsequent engagement updates/reports

Direct engagement with nearby landowners

Regular and as-needed engagement will enable conversations about planning and design to be progressed, including in relation to impacts and mitigation measures.

Registered Aboriginal Parties and Wentworth Local Aboriginal Land Council engagement

WestWind is committed to engaging with the Aboriginal stakeholders and will pursue contact and engagement during preparation of the environmental impact statement. At the time of writing this Scoping Report, WestWind commenced initial engagement with the Barkandji Native Title Group Aboriginal Corporation RNTBC. WestWind will continue to consult with relevant Aboriginal parties as part of the environmental impact statement stage.

Engagement activities will also inform development of an Aboriginal Cultural Heritage Assessment Report (ACHAR) section of the environmental impact statement.

Wentworth Shire Council ongoing meetings

This will provide a forum for matters such as planning and design, technical considerations, construction and traffic management, and accommodation options for local workers.

Correspondence to local, state and federal agencies and representatives

WestWind will write to local, state and federal agencies and representatives (as identified in Table 1-1) to introduce the project, the project team, offer a briefing and invite enquiries.

WestWind website dedicated project page and enquiry channels

The WestWind website will be kept up to date with the latest project information, community benefits, a dedicated email address and phone number for enquiries, and a link to the NSW Government's Major Projects website to provide details of the planning process and supporting documents.

Consultation on matters requiring further assessment in the environmental impact statement

Community and stakeholder engagement will be undertaken to inform technical studies that will form part of the environmental impact statement. This will include landscape and visual impact assessments, and biodiversity and cultural heritage reports, and will involve site surveys and investigations.

Key state and commonwealth agencies will also be consulted during the preparation of the environmental impact statement. This will include consultation with the NSW Department of Planning and Environment and federal Department of Climate Change, Energy, the Environment and Water regarding key impacts relating to biodiversity, Aboriginal heritage, visual amenity, noise and vibration.

Encourage community feedback at planning milestones, including when the environmental impact statement is on public exhibition.

Community feedback will be encouraged through:

- The Sunraysia Daily, including advertising and engagement to seek editorial coverage.
- WestWind newsletters and media releases.
- Community surveys.

Further engagement activities

Other engagement activities will be explored as the proposal progresses, including in response to any feedback about how the community would like to be engaged. Activities would aim to share project information, discuss matters of interest or concern, and gather feedback. They could include:

- Further open days
- WestWind's involvement in various community events and organizations, such as the Wentworth Agricultural Show, Wentworth Historical Society, Wentworth Races Event, Wentworth Junction Rally Event
- Further project team representation the Lower Anabranch Sporting Club/Landcare Group

Register of stakeholders interested in local employment and procurement opportunities

A register of interested stakeholders will be maintained so that relevant opportunities can be notified in a timely manner to support local participation and benefits sharing in the project.

Community Reference Group

A Community Reference Group (CRG) will be established comprising volunteers who live around the project site. Nominations will be invited via local promotional activities, such as through The Sunraysia Daily and social media. The role of the CRG will be to oversee the community benefit fund, enhance communication between WestWind and the community, improve WestWind’s understanding of community issues, encourage community partnerships, and ensure the local community benefits from the project. All funding programs will be developed in close consultation with the local community.

Community benefit fund

Pending approval, once the project is operational, a community fund will be established to share the financial benefits of the project. Each year, the project will pay $2,500 per constructed turbine into the community benefit fund, which will be for community-based initiatives, projects and events that benefit local communities around the wind farm. The fund will target a range of community needs including health and social welfare, safety, environment, education and youth, sport and recreation, culture, arts and economic development. It will provide ongoing opportunities to WestWind to engage with the local community.

2 Engagement materials

2.1 Media release 8 April 2024

WestWind ENERGY

Lake Victoria WIND FARM

MEDIA RELEASE

8 April 2024

Lake Victoria Wind Farm announced

WestWind Energy, a leading renewable energy company, is delighted to announce the proposed development of a wind farm in Wentworth Shire, NSW. The Lake Victoria Wind Farm will feature up to 210 cutting-edge wind turbines, set to power around 800,000 homes.

Lake Victoria Wind Farm will play a pivotal role in addressing the urgent need to reduce carbon emissions and combat climate change. By harnessing the power of wind, this renewable energy facility is projected to save a staggering 3.3 million tonnes of carbon dioxide annually.

Project developer, WestWind Energy, is dedicated to engaging and collaborating with the local community throughout the development process.

WestWind Energy will be hosting two open days to begin discussions with the community. These will take place on Friday 22 March at Anabranch Hall and Saturday 23 March at the Wentworth Visitor Information Centre in the Memorial Room. Both sessions will run from 8.30am to 12.30pm.

"We're excited to be developing this project in NSW in the Wentworth Shire. We see great potential to create a significant renewable energy project here," said Marla Brauer, Chief Development Officer at WestWind.

"We invite local community members to join us at our Open Days to meet the WestWind team and learn more about the wind farm project, its environmental benefits and the positive impacts for the local community."

When the project is operational, WestWind Energy will establish a community benefit fund with an annual contribution of $2,000 per constructed turbine. The fund will be allocated in consultation with local community members to ensure the financial benefits from the project are shared locally.

Based on community input, the fund will target local needs including health and social welfare, safety, environment, education and youth, sport and recreation, culture, arts, and economic development.

For more information about the project and to stay updated on its progress, please visit WestWind Energy's website at www.w-wind.com.au or contact info@lakevictoriawindfarm.com.au

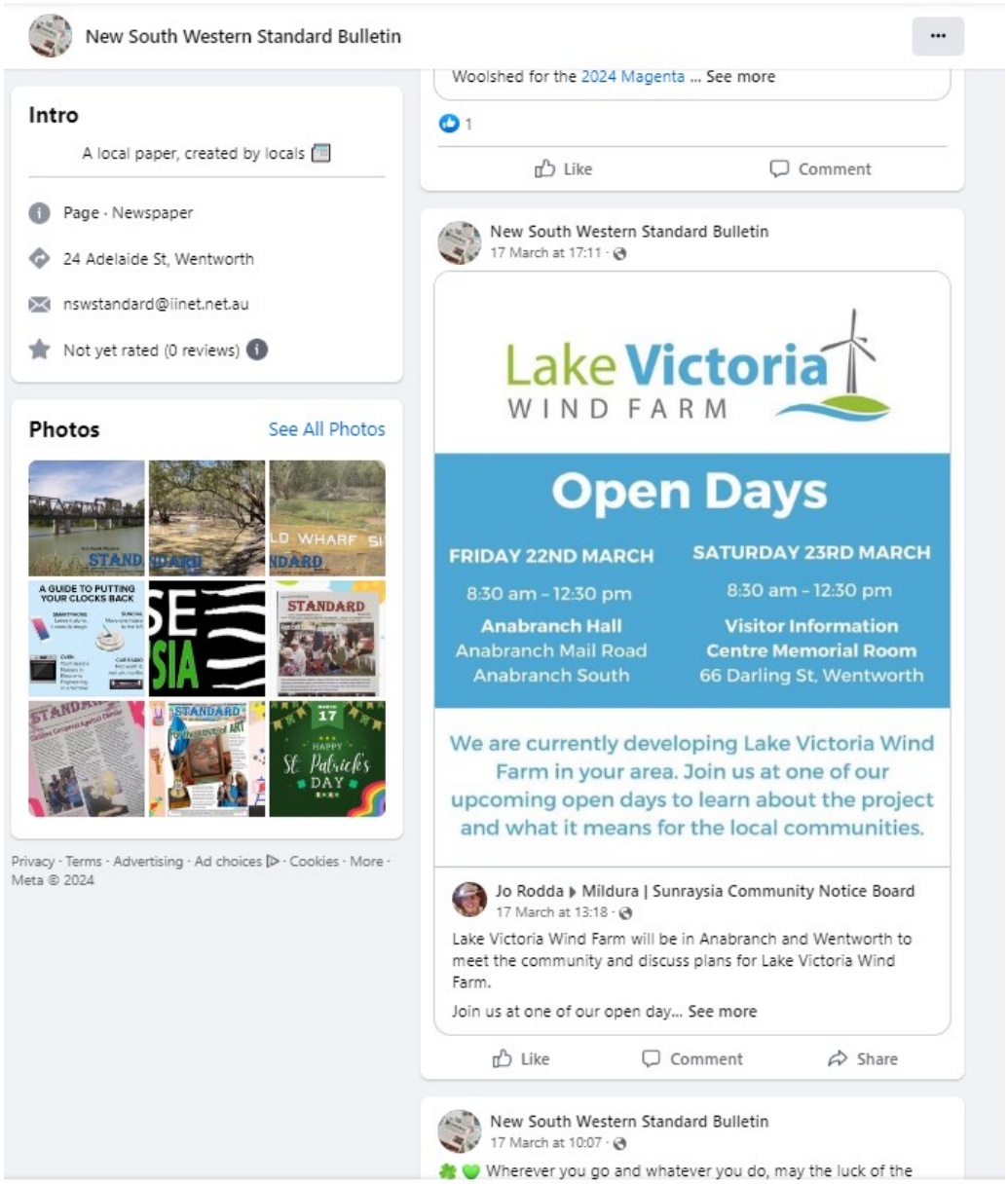
About WestWind Energy

Located in Gisborne, Victoria, WestWind Energy is recognised as one of Australia's leading wind energy developers. With more than 2,000 megawatts of projects in operation or under construction, we are the largest wind farm developer by approved megawatts in Victoria. We also have a pipeline of projects totalling a further 9,000 megawatts in various stages of development across Australia.

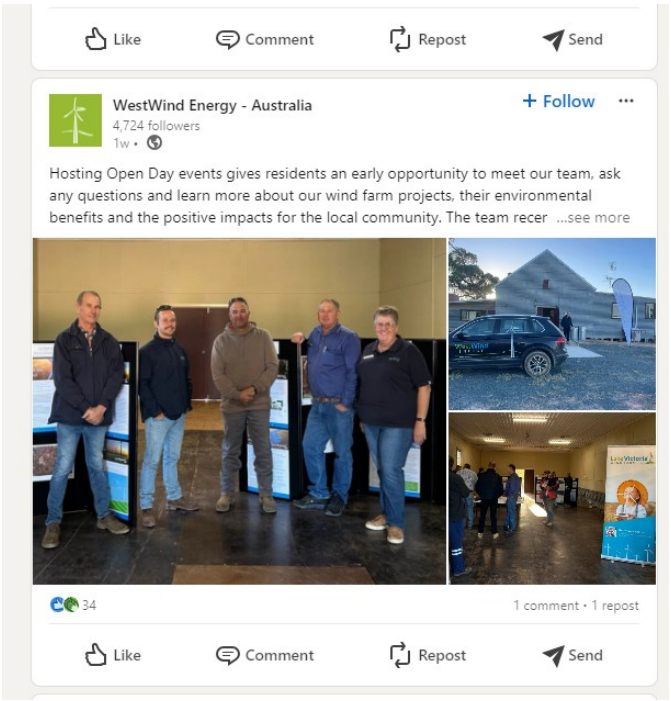
WestWind Energy is committed to being a driver of change towards a sustainable energy future for our planet. We will do this through the development of cost-effective renewable energy generation and storage solutions, refined through technical excellence, commitment to communities, and cohesive company values.

Media contact: Nicole Cooper – 0402 706 775 – nicolec@w-wind.com.au

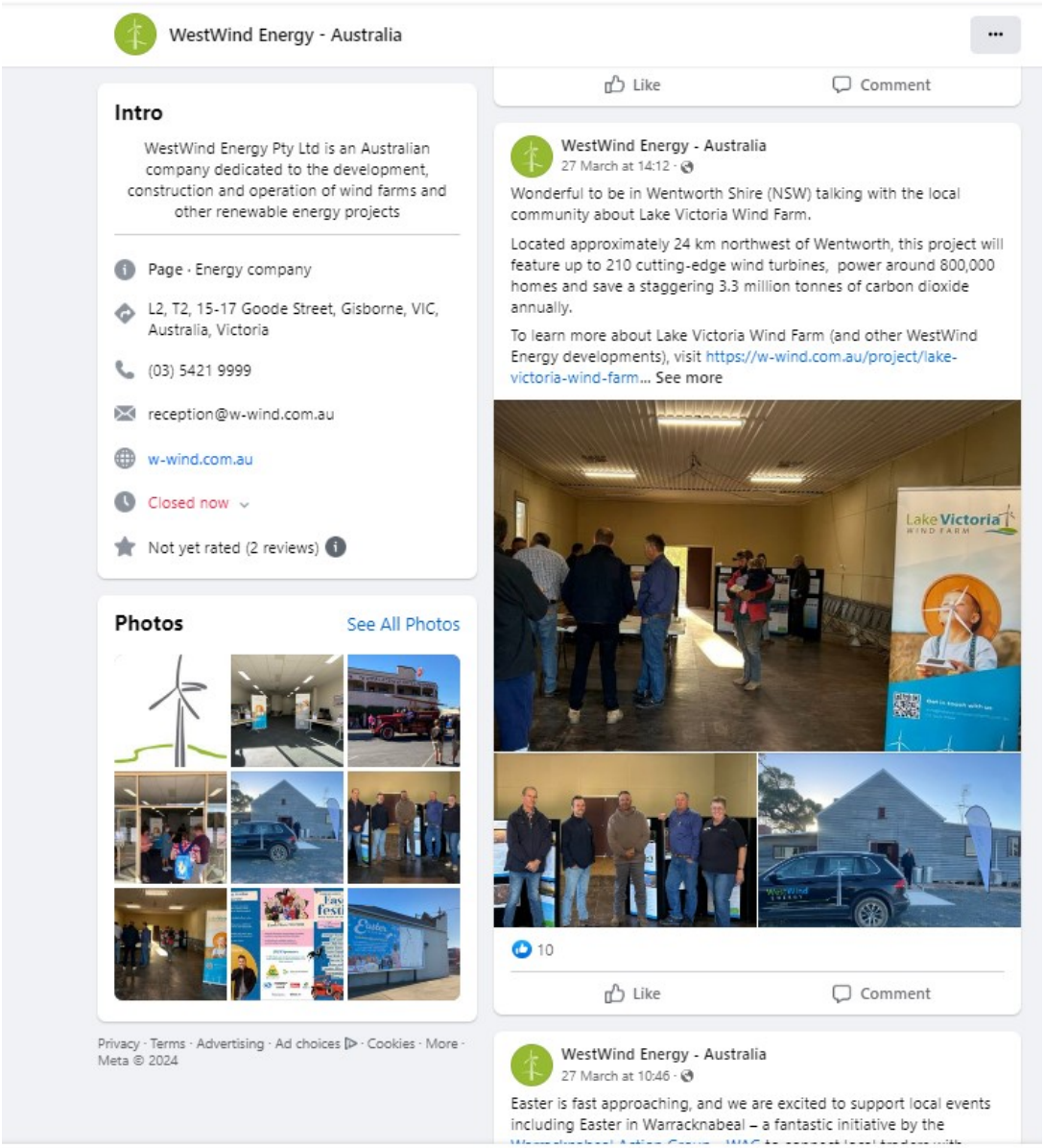
2.2 New South Western Standard Bulletin Facebook Post – 17 March 2024



2.3 WestWind LinkedIn Post 8 April 2024



2.4 WestWind Facebook Post 27 March 2024



2.5 Sunraysia Daily – Monday 1 April 2024

SunraysiaDaily
Tuesday, April 2, 2024

SUNRAYSIA DAILY

Wind farm project 'a breeze'

ALLAN MURPHY | APR 01 2024

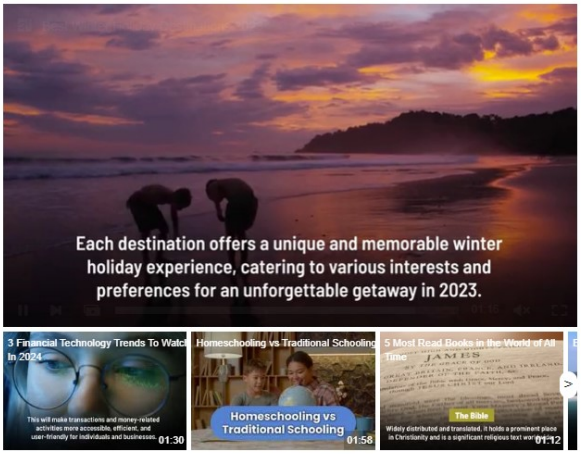


Plans for a wind farm north west of Wentworth are in the pipeline.

PROPONENTS of a 416-square kilometre wind farm north west of Wentworth say they are encouraged by community feedback on the project.

The "Lake Victoria Wind Farm", located 24 kilometres from the Wentworth township in NSW, would include up to 210 wind turbines with a maximum tip height of 280 metres. They would produce enough energy to power 800,000 homes annually.

Set on agricultural, grazing and cropping land, proponents WestWind Energy said construction of the wind farm could begin as early as 2028 "pending planning approvals".



WestWind Energy project developer Sebastian Madden said the response from most of the 60 people who attended two information sessions held in March at Wentworth and Anabranch South was either "neutral or positive" which was "encouraging".

He said the farm would invest a minimum $2000 per constructed wind turbine per year into a community benefit fund so the local community could share the financial benefits of the project.

"As with all major infrastructure projects there were some concerns raised from a handful of individuals about the impacts of the construction phase," Mr Madden said.

"Overall, attendees saw the positives of the project such as local employment opportunities and the community benefits scheme," he said.

"The fund will be allocated in consultation with local community members to ensure the financial benefits from the project are shared with those most impacted by the project.

"Dependent on community feedback, the fund will likely target local needs including health and social welfare, safety, environment, education and youth, sport and recreation, culture, arts, and economic development."

Mr Madden said the wind farm could be operational by 2031 "if all things go according to plan".

"The Lake Victoria Wind Farm is in early stages with various approvals required before construction can commence," he said.

"We will continue talking with the community as we work through this early stage of development.

"Community feedback is vital to achieve the best outcomes for the project, and there will many opportunities throughout the development to become involved in the project.

"Planning is a long and iterative process to work through, but no showstoppers have been identified at this stage."

Mr Madden said six parcels of land had been identified as potential host landholders for the project that was projected to save 3.3 million tonnes of carbon dioxide annually.

He said the impacts of wind turbines, which can cause interference to satellite, radio and television services, could be greatly reduced with careful planning and modern materials.

The company said that while wind turbines create a range of sounds, technical improvements had greatly reduces the amount of noise produced. It was committed to understanding and sharing what the community could expect.

2.6 Renew Economy - Thursday 4 April 2024

Menu | Search

Monday, April 8, 2024

RENEW ECONOMY

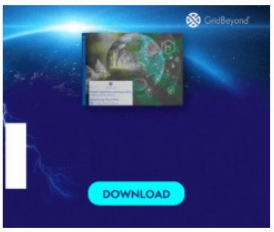
CLEAN ENERGY NEWS AND ANALYSIS

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Westwind eyes new 1.5GW wind project in south-west NSW





ZX Lidars
Find out more



Rachel Williamson Apr 4, 2024 9

RENEWABLES WIND

Westwind Energy has unveiled more details of its giant 1.5 gigawatt (GW) Lake Victoria wind project in south west NSW, although it is unlikely to be operational before the end of the decade.

The developer has kicked off community consultation for the wind farm in late March, which will host around 200 turbines which currently have planning permission for a total tip height of 280 metres.

Most of the views the developer has fielded so far are neutral or positive, swayed by the potential jobs on offer, albeit with some concerns about the impact of the construction phase of the wind farm, a spokesperson for the company told *RenewEconomy*.

The company is also promising a community benefits scheme into which it will pay $2,000 per constructed turbine annually, to support local needs such as health and social welfare, the environment, education and youth, or sport and recreation.

The developer says those turbines will be "cutting edge" but, given the length of time it takes for planning and approvals to happen in NSW, the company says it won't be able to decide on a model this year.

Westwind is not shy about picking the biggest or most advanced tech: at its Golden Plains wind farm, it began installing Vestas V162 6.2MW turbines in February, which is the first of its type to be installed in Victoria.

The spokesperson says the NSW project could see construction begin between 2028 – 2029, if all goes well with the planning approvals, leading to that 2031 launch date.

The Lake Victoria project will cover 416 square kilometres of agricultural farmland north of Wentworth, just across the state line from Mildura in Westwind's usual stomping ground of Victoria.

It's a region so used to renewable energy projects it's been pejoratively dubbed the "rhombus of regret", as the cluster of wind and solar farms struggled for access to congested local transmission lines.



However, the construction of the new Project EnergyConnect, linking NSW and South Australia,. and a spur line to Red Cliffs in northern Victoria should provide significantly more capacity, although there are a number of huge solar and wind projects competing for space on the grid, including in new renewable energy zones.

Leases with the landowner NSW Western Region Crownlands are still being finalised, and Lake Victoria wind farm will be lodging its environmental referrals to kick off the planning approvals process in the coming weeks.

"We're excited to be developing this project in NSW in the Wentworth Shire. We see great potential to create a significant renewable energy project here," says Westwind chief development officer Marla Brauer.

2.7 Renew Economy - Editorial, Facebook post Thursday 4 April 2024

RenewEconomy
4 d ·

Another giant wind project is emerging in south-west NSW, covering more than 400 sq kilometres near the route of the new link with South Australia..



RENEWECONOMY.COM.AU

Westwind eyes new 1.5GW wind project in south-west NSW

Another giant wind project is emerging in south-west NSW, covering more than 400 sq kilome...

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Don Dunick

Keep killing our Native Birds plus polluting the world with Toxic Blades and repair them continously a Load of Garbage

6

3 d

View all 13 replies

2.8 Farm Online - Thursday 4 April 2024

Wind farm in southern NSW will cover 416 square km of farm land



By Chris McLennan
Updated April 4 2024 - 2:01pm, first published 1:00pm

farmbuy.com



Another big wind farm is on the drawing board, this project near Wentworth in southern NSW will cover 416 square kilometres of farm land. Picture: WestWind Energy.

ADVERTISEMENT



Updated April 4 2024 - 2:01pm, first published 1:00pm

Another big wind farm is on the drawing board, this project near Wentworth in southern NSW will cover 416 square kilometres of farm land. Picture: WestWind Energy.
More details have been released on a big wind farm development to cover 416 square kilometres of farm land north of Wentworth in NSW.

The Lake Victoria Wind Farm is a proposed by WestWind Energy which is in the early stages of building the wind farm to host 210 turbines, each with a peak "tip" height of 280 metres.

The project would be located 24km northwest of Wentworth, which is across the Murray River and about 30km downstream of Mildura.

Wentworth was once considered to host Australia's Commonwealth government, but lost to Canberra, and is today best known for the junction of the Murray and Darling rivers.

The size of the proposed turbines has caused discussion.

The nation's biggest wind farm - the giant Golden Plains wind farm is already under construction in Victoria with 215 turbines across 167 square kilometres of mostly farm land between Geelong and Ballarat.

TagEnergy has already begun construction on the first stage of Golden Plains with 122 turbines.

The first turbines have been erected there measuring 149 metres tall with 79-metre-long blades.

WestWind Energy is building Golden Plains - West, as part of the total $3 billion project. The expected tip height of those turbines is up to 230 metres. Near Wentworth, the Lake Victoria project will be located on 41,600 hectares of grazing and cropping land. Installed capacity of around 1.5 GW able to provide power for about 800,000 average homes annually.

2.9 Information session – Lake Victoria Flyer



2.10 Development timeline – Flyer

Lake Victoria WIND FARM

Indicative Timeline & Project Facts

March 2024



Site Selection | Project Feasibility | Environment & Planning Approval | Detail Design & Securing Finance | Construction & Commissioning | Operation & Decommissioning

Wind Turbines
200-210

Location
Wentworth Shire (NW of Wentworth)

Total Tip Height
Up to 280 m

Site Area
Approx. 41,600 ha

Wind Turbine Rotor
Up to 200 m diameter

Wind Farm Infrastructure
4-5% of site area

Community Benefit Schemes
At least $2,000 per turbine invested into local community benefit schemes

Indicative Construction Time
2-4 years

Homes Powered
> 800,000 homes

Installed Capacity
Approx. 1.5 GW

Shire Rates
Approx. $1.8 million per annum

Energy Production
up to 5,200 GWh annually

Landscaping Program
Eligible residents at dwellings with a view of wind turbines may be invited to participate in a potential landscaping program to reduce visual impact

Greenhouse Gas Savings
> 3.3 million tonnes of carbon dioxide annually

Lake Victoria Wind Farm
Address: L2, T2, 15-17 Goode Street, Gisborne, VIC 3437
Email: info@lakevictoriawindfarm.com.au

Phone: (03) 5421 9999
Website: w-wind.com.au

Facebook: @WestWindEnergy
X (Twitter): @WestWindAus

2.11 Lake Victoria Wind Farm Website Snapshot

WestWind ENERGY

About Us | Our Projects | Hosting Turbines | Information | Community | Investors | Employment | Contact

LAKE VICTORIA WIND FARM



Project Summary

LOCATION:	Wentworth Shire, NSW
TURBINES:	200-210
TOTAL TIP HEIGHT:	Up to 280 m
WIND TURBINE ROTOR	Up to 200 m diameter
INSTALLED CAPACITY:	Approx. 1.5 GW
ENERGY PRODUCTION:	Approx. 5,200 GWh annually
HOMES POWERED:	Approx. > 800,000 homes
GREEN HOUSE SAVINGS:	> 3.3 million tonnes of carbon dioxide annually
SITE AREA:	41,600 ha
STATUS:	Early Stages of Development

About the Project

The Lake Victoria Wind Farm is located on approximately 41,600 hectares of agricultural grazing and cropping land approximately 24 km northwest of Wentworth, NSW.

The development will consist of up to 200-210 turbines with an installed capacity of approximately 1.5 GW.

This will provide power for around 800,000 average homes annually and reduce yearly carbon dioxide emissions by more than 3.3 million tonnes.

Community Benefits

Once the wind farm is operational, a community fund will be established to share the financial benefits of the project.

A Community Benefit Scheme (CBS) could be developed in consultation with the local community. WestWind Energy has committed to put a minimum of $2,000 per constructed turbine into a CBS annually.

Host Landholder Benefits

The wind farm will provide an annual income for all host landholders. This economic boost to farmers enables them to secure supplementary income annually, for decades, through lease arrangements with the wind farm.

This income provides a stable addition to farming income and helps to counteract swings of commodity prices. This sustains the farming practice and diversifies farming revenue for years to come.

The roads constructed for turbine access give landholders all weather access across their property which improves stock management practices and bushfire access.



Neighbour Benefits Program

Neighbour Benefits Sharing Programs provide an annual financial incentive for close neighbours of the wind farm so they can share in the economic benefits of the project across its operational lifecycle.

Annual payments commence when major construction works are underway on the wind energy facility. Payments will continue through the life of the project until the wind turbines are decommissioned, typically in the 25-35 year range.

The Program will be offered to neighbouring properties located within a consultation determined distance of proposed wind turbine locations with the level of payment calculated on proximity to the nearest constructed turbine.

If you would like to contact WestWind in relation to this project, please contact us at info@lakevictoriawindfarm.com.au or (03) 5421 9999.

2.12 About the Project Fact Sheet – March 2024



The Lake Victoria Wind Farm is a proposed wind farm development northwest of Wentworth. It is an important clean energy initiative for New South Wales.

CONTRIBUTING TO A GREENER NEW SOUTH WALES

With an installed capacity of 1.5MW, the Lake Victoria Wind Farm's proposed 200-210 wind turbine project would be capable of producing more than 5,200GWh of green energy each year. This would provide enough electricity to power more than 800,000 homes – equivalent to approximately 20 percent of the homes in New South Wales. Annually the wind farm would prevent more than 3.3 million tonnes of carbon dioxide being emitted to the atmosphere.

SUPPORTING LOCAL FARMERS

The economic boost to farmers hosting wind farm infrastructure provides them with additional annual income from the project lasting for decades. This provides regular income to those farms, helping to counteract swings in commodity prices and better drought proof operations. As a result, the added income can sustain local farming and provide greater financial protection for years to come.

BENEFITING THE COMMUNITY

A minimum of $2,000 per constructed wind turbine per year will be allocated to the local community to share the financial benefits of the project. Community benefit schemes such as community grants, scholarships, investment opportunities and financial incentives will be developed in consultation with the community to ensure local values and views are properly considered.

PROJECT FACTS AND FIGURES

Location	Wentworth Shire, northwest of Wentworth
Turbines	200-210
Site Area	Approx. 41,600 ha
Infrastructure Footprint	4-5% of site area
Total Tip Height	Up to 280 m
Wind Turbine Rotor	Up to 200 m diameter
Installed Capacity	Approx. 1.5 GW
Energy Production	up to 5,200 GWh annually
Homes Powered	> 800,000 homes
Greenhouse Savings	> 3.3 million tonnes of carbon dioxide annually
Construction Time	2-4 years

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2.13 Community Benefits Fact Sheet – March 2024



Lake Victoria Wind Farm will invest a minimum of $2,000 per constructed wind turbine per year into Community Benefit Schemes so the local community shares the financial benefits of the project. Community Benefit Schemes will be developed in close consultation with the community to make sure local values and views inform the schemes. Below are examples of community benefits from other projects.

SCHOLARSHIPS

A scholarship fund would provide financial support for a range of educational opportunities for local and regional students across primary, secondary, and tertiary education.

COMMUNITY BENEFIT FUND

A fund that would support a range of community-based initiatives, projects and events that benefit locals and provide positive and lasting contributions to regional communities within and around the Lake Victoria Wind Farm.

COMMUNITY REFERENCE GROUP

A Community Reference Group enhances communication with the community, improves our understanding of community issues, encourages community partnerships, and ensures that the local community benefits from the Lake Victoria Wind Farm.

COMMUNITY INVESTMENT PROGRAM

A Community Investment Program would allow community members to invest financially in the Lake Victoria Wind Farm for an annual return on investment.

FINANCIAL INCENTIVE PROGRAM FOR NEIGHBOURS

All neighbours that own a property within 1-2km of a constructed wind turbine receive an annual financial incentive for the life of the operating wind farm.

ELECTRICITY OFFSET SCHEME

An electricity offset scheme would share the benefits of the project across a larger section of the community, while reducing the local community's carbon footprint. The scheme would offset electricity costs for dwellings located near the wind farm.

LANDSCAPING PROGRAM

Residents at dwellings with a view of wind turbines will be invited to participate in a landscaping program to help reduce any visual impact of the turbines.

The project team value all feedback regarding our community schemes. Contact us on the details below and get involved.

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(03) 5421 9999 info@lakevictoriawindfarm.com.au

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@westwindenergy @WestWindAus

2.14 Electro Magnetic Interface - March 2024



Wind turbines can cause interference to satellite, radio and television services, but impacts are greatly reduced with careful planning and modern materials.

WHAT IS ELECTROMAGNETIC INTERFERENCE?

Electromagnetic interference (EMI) is any type of interference that can potentially disrupt, reduce, or interfere with the effective performance of an electronic device. Modern society is dependent on the use of devices that use electromagnetic energy such as power, communication and computer networks.

During the generation, transmission and use of electromagnetic energy, devices generate disturbance that can interfere with normal operation.

HOW CAN WIND TURBINES CONTRIBUTE TO INTERFERENCE?

Wind turbines can potentially cause EMI in telecommunications, navigation, and radar services. The degree and nature of the interference will depend on:

- the location of the wind turbine between the receiver and transmitter
- characteristics of the rotor blades
- characteristics of the receiver
- signal frequency
- the radio wave propagation in the local atmosphere

HOW SIGNIFICANT IS ELECTRO MAGNETIC INTERFERENCE FROM WIND TURBINES?

Interference can be produced by three elements of a wind turbine: the tower, blades, and the generator.

The tower and blades may obstruct, reflect or refract electromagnetic waves. However, modern blades are typically made of synthetic materials which have minimal impact on the transmission of electromagnetic radiation – greatly reducing any potential interference to satellite services, radio, and television reception.

The generator is not usually a concern for EMI because interference can be eliminated with proper insulation and regular maintenance.

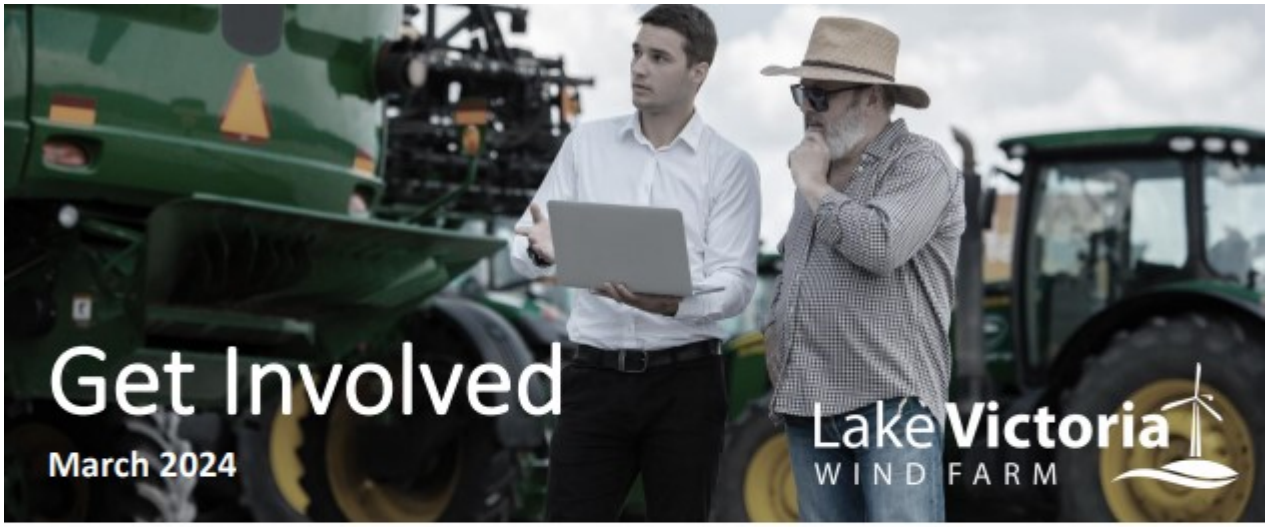
HOW IS ELECTROMAGNETIC INTERFERENCE MANAGED?

Appropriate design and location selection can prevent significant interference problems before they arise. Issues may arise during operation but they are typically minimal and can usually be addressed.

A Signal Strength Survey will be completed by independent specialists to help inform the planning and detailed design of the Lake Victoria Wind Farm. The results of this will be submitted as part of the Environmental and Planning Approvals process. Any community complaints related to television or radio reception impacts within 5km of the Lake Victoria Wind Farm will be investigated.

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2.15 Get Involved Fact Sheet – March 2024



Community participation is vital for any major infrastructure development to be successful. Lake Victoria Wind Farm encourages local community members to get involved.

SUBSCRIBE TO PROJECT UPDATES

Regular project updates will be issued to subscribers to provide information on the progress of the development on the Lake Victoria Wind Farm.

Updates can be provided by both email and post. Contact the Project Team on (03) 5421 9999 or info@lakevictoriawindfarm.com.au to subscribe.

WHEN CAN I GET INVOLVED?

The Project Team are keen to engage with the local community about the project and welcome your input at any time.

Team members have undertaken a door-knocking exercise in the district to say hello and provide information. We will also hold information sessions at key points during the project's development to provide important updates.

Contact the Project Team on (03) 5421 9999 or info@lakevictoriawindfarm.com.au to schedule a meeting, share your thoughts, or express your interest in being involved.

COMMUNITY REFERENCE GROUP

A Community Reference Group brings together a range of community members as an advisory body to make sure the community benefits from the Lake Victoria Wind Farm.

The Community Reference Group would:

- enhance communication between the project and the local community
- capture community feedback and share project information
- foster positive relationships and encourage community partnerships
- provide an open forum for discussion, questions, or concerns
- provide recommendations on the allocation of the community benefit fund

COMMUNITY TESTIMONIALS



"The community reference group has the ability to provide great benefits to the local community"
– Bryan, Leading Senior Constable, Rokewood Police



"Being involved with the Project means I am able to give back to and help direct the future of our town"
– Halleshia, Golden Plains Rural Women's Network

WE WOULD LOVE TO SPEAK WITH YOU ABOUT THE LAKE VICTORIA WIND FARM!
Please contact us on the below details.

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(03) 5421 9999 info@lakevictoriawindfarm.com.au

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2.16 Landscaping Fact Sheet – March 2024



Eligible residents at dwellings with a view of wind turbines may be invited to participate in a potential landscaping program to reduce the visual impact of the turbines.

HOW WOULD IT WORK?

Residents would be provided with further detail closer to construction and can choose whether they opt into the program, via an expression of interest form. After expressions of interest are received, a landscape and visual assessment will be undertaken at each property, to determine eligibility as well as appropriate measures.

WestWind Energy utilise state-of-the-art augmented reality technology to help demonstrate the visual impacts from any vantage point. Please contact us if you would like a demonstration.

WHAT DOES THE LANDSCAPE AND VISUAL ASSESSMENT RESULT IN?

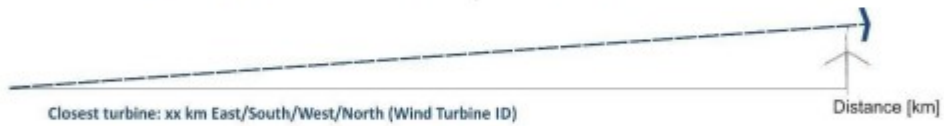
A suitably qualified landscape and visual consultant will visit the site to take photographs and prepare a draft plan.

The plan typically shows:

- the proximity and direction of views from the dwelling to the wind turbine/s
- existing landscape and visual features (e.g. trees, sheds, and other structures)
- visible turbines which are closest to the dwelling, along with approximate distances

This plan will be discussed with the residents, along with appropriate landscape species. A typical plan will demonstrate both the extent and height of proposed screening, as illustrated below.







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2.17 Windfarm Noises Fact Sheet – March 2024



Wind turbines create a range of sounds. While technical improvements have greatly reduced the amount of noise produced, we are committed to understanding and sharing with you what to expect.

HOW DO TURBINES CREATE NOISE?

Wind turbines create noise when the blades move through the air. Their internal moving parts can also make noise. The level of noise from a wind turbine generally depends on the model of the turbine as well as other factors including your distance from the turbine and local topography. Topography means the natural and artificial physical features of an area.

Weather conditions can also affect wind turbine noise. Wind turbines generally produce more sound when wind speeds are higher. At the same time, higher wind speeds can also make the sounds from the surrounding environment louder which can help mask wind turbine noise.

Over time, technical improvements have greatly reduced the amount of noise created by wind turbines.

REQUIREMENTS TO MANAGE NOISE

New South Wales has some of the strictest guidelines in the world when it comes to noise associated with wind turbines. The guidelines specify limits in accordance with South Australian document Wind farms – environmental noise guidelines (2009).

To manage impacts from noise, New South Wales planning laws set out where wind energy facilities and turbines can be located. We are also required to design wind energy facilities so they meet strict noise standards. Once in operation, we are also able to change wind turbine operating modes to help manage situational noise emissions.

NOISE MONITORING

We will engage noise specialists (acousticians) to conduct background noise monitoring at a number of locations around the Lake Victoria Wind Farm site. The noise monitoring equipment typically consists of a noise monitor and battery within a weatherproof case. At select locations, a local wind speed and rain logger will also be installed. A microphone pole approximately 1.2-1.5m high will be attached to the side of the case. The monitoring is conducted outdoors and preferably within 20m of the property.

The acousticians will also conduct predictions of noise from the final wind farm layout and turbine selection to ensure compliance with specified noise limits. The accuracy of these predictions will be checked through noise monitoring once the wind farm is operating.

During the background noise data collection, noise limits are established based on a minimum base limit (typically 35 dB) or 5 dB above the background noise level - whichever is greater.

The monitoring provides a noise baseline of the existing environment. When the wind farm is operational, this noise baseline can be compared with operation noise at Lake Victoria Wind Farm.

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The image on the next page shows the noise you can expect to hear from a wind turbine compared to other everyday noises.

HOW LOUD IS A WIND TURBINE?



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Appendix C

Preliminary Landscape Character and Visual Impact Assessment



Lake Victoria Wind Farm

Preliminary Landscape and Visual Impact Assessment

Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Unit Trust (WestWind)

Reference: P525174

Revision: D

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Executive Summary

We acknowledge Aboriginal elders past and present and all members of the Aboriginal community, the original custodians of the land on which this Project resides.

Aurecon Australasia Pty Ltd (Aurecon) has been engaged by Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Trust (WestWind) to assist with the environmental and planning approvals for the Lake Victoria Wind Farm (the Project). The Preliminary Landscape and Visual Impact Assessment (PLCVIA) informs the '*State significant development guidelines – preparing a scoping report'*, on the visual and broader landscape impacts of the proposed wind energy project.

Project overview

The Project is located on NSW Western Crown Land and a freehold parcel that is primarily used for livestock grazing and some cropping, located approximately 24 kilometres northwest of Wentworth. The Project area is wholly located within the Wentworth Shire Local Government Area (LGA) and covers around 41,700 hectares with up to 203 turbines and associated ancillary infrastructure.

The landscape and visual baseline

This PLCVIA responds to requirements set out in the 'Wind Energy Visual Impact Assessment Bulletin' (NSW Department of Planning and Environment, 2016; VIA Bulletin), to assess the preliminary landscape and visual impacts of the Project.

The theoretical visibility of the turbines extends up to 32,080 metres, but this preliminary assessment focuses on areas that are likely to experience significant impacts based on turbine height and the landscape's characteristics. The PLCVIA Study Area is contained within a 12,000 metre buffer area measured from the Project turbines, to assess views that may be most affected. Dwellings and viewpoints within visual magnitude threshold (ranges of 3,850 metres and 5,800 metres, refer to Section 3.2) from the turbines have been identified, and four public viewpoints located outside the Study Area have also been considered.

Relevant planning policies and legislation applicable to the Wentworth Shire LGA have been reviewed to understand landscape and visual significance within the Study Area. The following landscape features, public viewpoints and cultural heritage places are considered

- Lake Victoria: an important Aboriginal cultural landscape of aesthetic and social value, and a landmark feature.
- Nulla Nulla Station: local heritage buildings demonstrating early settlement farming.
- Moorna Station Woolshed: local heritage demonstrating early settlement farming.
- Anabranch Hall: local heritage building significant to early settlement community.

Preliminary landscape character assessment findings

The baseline assessment identified a total of four distinct LCTs (Landscape Character Types) within the Study Area. These were identified based on the consideration attributes including land use and landscape features and were determined to have low to no impact, as detailed in Table 1.

Table 1 Summary of preliminary impacts to landscape character

LCT	Discussion	Potential Landscape Impact
LCT 1: Plain and Dune woodlands and shrublands	The Project infrastructure in this LCT will have a minor evident change in landscape characteristics in close range. However, the extent of this change is considered minor in relation to the extent and use of this LCT. The scale and form of the Project infrastructure is a contrast to the existing character.	**Low**

LCT	Discussion	Potential Landscape Impact
LCT 2: Floodplains and Riverine Forests	The Project impacts are indirect, without modification to this LCT.	**No impact**
LCT 3: Plains and floodplain pasture	The Project infrastructure in this LCT will have a minimal compositional contrast to the existing modified and seasonally changing landscape characteristics in close range. The extent of this change is considered minor in relation to the extent and use of this LCT.	**Very Low**
LCT 4: Lakelands conservation	The Project impacts are indirect, without modification to this LCT.	**No impact**

Preliminary visual assessment findings

The limited variation in the type of visual receptors who experience views (predominantly rural residents and workers due to their familiarity with their surroundings and the frequency with which they experience views), means that the major defining factor in the level of visual impact expected from individual representative viewpoints is the proximity of the viewpoint to the turbines. Refer to Section 6.2 Visual Impacts for analysis and results.

The potential visual impacts of turbines on sensitive receivers have been assessed through the following VIA Bulletin tools:

- Visual magnitude
- Multiple wind turbines
- Cumulative impacts
- Viewpoint assessment

Visual magnitude findings

The visual magnitude threshold is calculated based on the height of the turbines at 280 metres, providing an early indication of where placement of turbines will require further assessment and justification, and where consultation with potentially affected landowners needs to be focused.

Based on 280 metre high turbines, the high visual magnitude threshold distances along with the non-associated sensitive receivers and public view points within them are considered as follows:

- Visual influence zone 1 (within 3,850 metres of a turbine): three (3) non-associated private receivers (R05, R06 and R23)
  - Potential for high visual magnitude with low degree of intervening screening vegetation from dwellings.
- Visual influence zone 2 (within 3,850 to 5,800 metres of a turbine): One (1) public viewpoint at Anabranch Hall (assessed in VP13).
  - Potential low visual magnitude due to a moderate to high degree of intervening screening vegetation.

Multiple wind turbine findings

Turbines visible within 8,000 metres of a private dwelling, that span more than three (3) 60° sectors, have the potential for cumulative impacts of multiple turbines and are to be considered as part of the EIA.

There are two non-associated dwellings likely to experience views of turbines within 8,000 metres, which span three or more 60° sectors of the horizontal field of view (FOV), exceeding the VIA Bulletin – multiple wind turbine threshold.

- R05: 180°
- R31: 240°.

Preliminary cumulative impact findings

Identification of other existing or approved wind farms, additionally large infrastructure projects within 8,000 metres of the Project, to provide guidance to proponents, the community and the consent authority on how the proponent should consider visual assessment and performance of the projects.

Potential cumulative impacts from approved wind farms include:

- Mallee and Euston, located 61 and 99 kilometres east of the Project (respectively).
  - No cumulative impacts, due to the distance of the Project from any built or approved wind farms

Potential cumulative impacts from other existing or approved infrastructure projects include:

- Project Energy Connect
  - Very low level of localised cumulative impacts along Renmark Road and Anabranch Mail Road west and northeast of the Project (respectively), due to the introduction electrical infrastructure.
- Copi Mineral sand mine (located to the north boundary of the Project)
  - Residential receivers R31 and R34 are within 8,000 metres of both Projects and are likely to have cumulative impacts, however, the dwellings are associated with the proposed sand mine. As a result, they are exempt from cumulative assessment.

Viewpoint assessment findings

There were 10 public viewpoints identified within the Study Area, and four (4) further afield, representative of private receivers and sensitive viewpoints including rural dwellings, public roads, scenic lookouts or elements of community interest. Representative viewpoints were selected in and around the Project area at different distances and viewing angles, to get a preliminary understanding of impacts of the current layout.

The greatest levels of impact are expected from viewpoints within 5,800 metres from turbines, meaning that the turbines are clearly noticeable within the views and, in occupying a large proportion of the view, form a considerable change in visual character when compared to the existing conditions.

Potential impacts to viewpoints have been considered including likely intervening vegetation, as identified through desktop analysis, though it is acknowledged that the amount of intervening vegetation from the individual dwellings cannot be certain without a site visit. The preliminary visual impacts are summarised in Table 2.

Table 2 Summary of preliminary visual impacts

Viewpoint no. and location from closest turbine	Description	Potential visual impacts
VP1 Wentworth Airport, Renmark Road 29,000 m southeast	■ Turbines will be indistinguishable in background views across a narrow FOV.	Negligible
VP2 Fort Courage Caravan Park, 1703 Old Renmark Road 17,800 m south	■ Project is in opposite direction of key view towards river, however, is potentially visible in the background, at the periphery of the site.	Very low
VP3 Lake Victoria lookout 18,900 m southwest	■ Turbines are at a distance that will be barely visible and cover a narrow horizontal and vertical FOV. ■ The viewpoint is of moderate sensitivity with open views across lake.	Low
VP4 Renmark Road west 17,600 m west	■ Turbines to the background view in a narrow FOV will be of low prominence. ■ Intervening vegetation surrounding dwelling, with some potential views to the background.	Low

Viewpoint no. and location from closest turbine	Description	Potential visual impacts
VP5 Nulla Nulla Station Landowner associated with Project (R01-04) 1,763 m west	▪ Turbines are within the visual threshold with turbines prominent in the foreground and covering 225° horizontal FOV. ▪ Open views with a low degree of intervening vegetation	Moderate
VP6 Huntingfield Station, Nulla Road (R34) 7,504 m northwest	▪ Turbines are likely to be visible in a narrow FOV, at a distance where they begin to recede into the background. ▪ Moderate amount of scattered intervening vegetation	Low
VP7 Renmark Road - central dwelling (R06) 2,391 m south	▪ Turbines are within the high visibility threshold, covering 60° FOV ▪ Open views with a low degree of intervening vegetation	Moderate
VP8 Renmark Road – central-south dwelling (R07-9) 11,293 m south	▪ Turbines are potentially visible in the background of the view, at diminishing visibility. ▪ Moderate amount of intervening vegetation surrounding dwellings	Low
VP9 Tooperoopna Road dwellings (R10-14) 6,974 m south	▪ Turbines are potentially visible in the far middleground ▪ Turbine blades noticeable between scattered vegetation.	Low
VP10 Tara Downs – Anabranch Mail Road Landowner associated with Project (R17-18) 7,393 m southwest	▪ Turbines are potentially noticeable in the far middle ground at a distance where elements start to diminish. ▪ Moderate amount of intervening vegetation.	Low
VP11 2551 Anabranch Mail Road Landowner associated with Project (R19-20) 3,084 m west	▪ Turbines are within the high visibility threshold covering 120° FOV ▪ Moderate to high amount of intervening vegetation	Moderate
VP12 2860 Anabranch Mail Road Landowner associated with Project (R21-22) 1,594 m west	▪ Turbines are within the high visibility threshold covering 120° FOV ▪ Moderate to high amount of intervening vegetation surrounding dwellings	Low
VP13 Anabranch Hall – Anabranch Mail Road 4,210 m west	▪ Turbines are within the high visibility threshold ▪ Low number of turbines visible within visibility threshold covering 60° FOV ▪ Moderate to high amount of intervening vegetation and low mound.	Low
VP14 Silver City Highway roadside rest area 10,600 m west	▪ Turbines are at distance of diminishing visibility ▪ High amount of intervening vegetation surrounding viewpoint.	Negligible

Recommendations for further investigation

Community engagement will continue during the EIS phase, including engagement with Barkandji PBC. This consultation could identify further areas or views that are of cultural and local value, which should be addressed regarding the potential visual impacts as a result of the Project.

There are three non-associated private receivers identified (R05, R06 and R23), within the visual magnitude threshold with potential moderate visual impacts. Additionally, R31 (non-associated) exceeds the multiple wind turbine assessment, having turbines within 8,000 metres potentially visible across 240° FOV. These landowners should be further consulted, with additional investigation of visual impacts assessed from viewpoints within their property during the EIS process. Mitigation of potential visual impacts should be considered, along with ongoing design and location of turbines.

Contents

1 Introduction 1

1.1 Project overview 1
1.2 Purpose 3
1.3 Assumptions and limitations 3

2 Project description 5

2.1 Location 5
2.2 Description of works 5
2.3 Project timing 6

3 Methodology 9

3.1 Approach to the assessment 9
3.1.1 PLCVIA guidelines 9
3.2 Identifying the Study Area 9
3.2.1 Visual magnitude thresholds 10
3.2.2 Identification of Zone of Theoretical Visibility 10
3.3 The assessment method 11
3.3.1 Baseline analysis 11
3.4 Impact assessment criteria 12
3.4.1 Landscape sensitivity 12
3.4.2 Visual sensitivity 13
3.4.3 Magnitude of change 14
3.5 Assigning a level of impact 15

4 Landscape context 16

4.1 Regional landscape context 16
4.1.1 Bioregion 16
4.1.2 Topography and soils 16
4.1.3 Hydrology 17
4.1.4 Vegetation 17
4.1.5 Zones and overlays 19
4.1.6 Landscape features and views 25
4.1.7 Cultural heritage 27
4.2 Community engagement 28
4.3 Key landscape features and public viewpoints 29

5 Baseline analysis 32

5.1 Landscape Character 32
5.1.1 LCT 1: Plain and Dune woodlands and shrublands 34
5.1.2 LCT 2: Floodplains and Riverine Forests 35
5.1.3 LCT 3: Plains and floodplain pastures 36
5.1.4 LCT 4: Lakeland conservation 37
5.2 Visual baseline 38
5.2.1 Visual catchment 38

6 Potential impacts 42

6.1 Potential Landscape Character impacts 42
6.2 Potential visual impacts 42
6.2.1 Visual magnitude 44

6.2.2 Multiple wind turbines 45
6.2.3 Cumulative visual impact analysis 46
6.3 Viewpoint assessment 49
6.3.1 Representative Viewpoint 1: Wentworth Airport 51
6.3.2 Representative Viewpoint 2: 1703 Old Renmark Road, Anabranch South 52
6.3.3 Representative Viewpoint 3: Lake Victoria lookout 53
6.3.4 Representative Viewpoint 4: Renmark Road (west) dwelling 54
6.3.5 Representative Viewpoint 5: Nulla Nulla Station 55
6.3.6 Representative Viewpoint 6: Nulla Road north 56
6.3.7 Representative Viewpoint 7: Renmark Road (central) dwelling 57
6.3.8 Representative Viewpoint 8: Renmark Road (central-south) dwelling 58
6.3.9 Representative Viewpoint 9: Tooperoopna Road 59
6.3.10 Representative Viewpoint 10: Tara Downs - Anabranch Mail Road 60
6.3.11 Representative Viewpoint 11: 2551 Anabranch Mail Road 61
6.3.12 Representative Viewpoint 12: 2860 Anabranch Mail Road 62
6.3.13 Representative Viewpoint 13: Anabranch Hall 63
6.3.14 Representative Viewpoint 14: Milpara rest area 64
6.4 Summary of preliminary visual impacts 65

7 Conclusions 69
7.1 Landscape Character impacts 69
7.2 Visual impacts 69
7.2.1 Visual magnitude 69
7.2.2 Multiple wind turbines 69
7.2.3 Viewpoint assessment 70
7.2.4 Cumulative impacts 70
7.3 Next steps 70

8 References 72

Appendices

Appendix A

Mapped results of the preliminary assessment tool for visual magnitude and multiple turbine parameter

Appendix B

Aerial imagery of residential dwellings

Appendix C

Visual Prominence Rationale

Appendix D

Project Area Plant Community Types

Figures

Figure 1-1 Lake Victoria Wind Farm – Regional context
Figure 2-1 Indicative WTG dimensions (turbine model TBC)
Figure 2-2 Lake Victoria Wind Farm – Preliminary layout (page 1 of 2)
Figure 2-3 Lake Victoria Wind Farm – Preliminary layout (page 2 of 2)
Figure 3-1 Graph indicating Visual magnitude thresholds for PLCVIA (reproduced from VIA Bulletin)
Figure 3-2 Potential visibility of turbines generated within the ZTV mapping
Figure 4-1 View of the Darling River Anabranch at Anabranch Town Hall (image: Aurecon October 2023)
Figure 4-2 Waterbody on the west of Anabranch Mail Road (image: Aurecon October 2023
Figure 4-3 Grasslands northeast of Lake Victoria (image: Aurecon October 2023)
Figure 4-4 Vegetation near Nulla Nulla Homestead (image: Homely, 2020)
Figure 4-5 Dry saline wetlands on Nulla Nulla Station (image: Homely, 2020)
Figure 4-6 Wetlands and River Red Gums along the Anabranch Mail Road (image: Aurecon, October 2023)
Figure 4-7 Black Box open woodland (image: Aurecon, October 2023)
Figure 4-8 Mid-stratum trees and grassland (image: Aurecon, October 2023)
Figure 4-9 Lake Victoria Wind Farm - Land Zoning Map (GIS data source NSW Department of Planning)
Figure 4-10 Lake Victoria Wind Farm - Land Use (GIS data source NSW Department of Planning)
Figure 4-11 Lake Victoria Wind Farm - Digital Elevation and Hydrology Map (GIS data source NSW Department of Planning)
Figure 4-12 Lake Victoria Wind Farm - Vegetation Mapping (refer to Appendix D for descriptions) (GIS data source NSW DCEEW)
Figure 4-13 Public Lookout at Lake Victoria (image: Aurecon, October 2023)
Figure 4-14 View north across Lake Victoria (image: Aurecon, October 2023)
Figure 4-15 Anabranch Hall (image: Aurecon, October 2023)
Figure 4-16 Milpara Rest Area (image: Aurecon, October 2023)
Figure 4-17 Nulla Road (image: Aurecon, October 2023)
Figure 4-18 Anabranch Mail Road near Milpara Road (image: Aurecon, October 2023)
Figure 4-19 Tooperoopna Road (image: Aurecon October 2023)
Figure 4-20 Renmark Road, paved section (image: Aurecon, October 2023)
Figure 4-21 Nulla Nulla Homestead (image: Homely.com.au, June 2020)
Figure 4-22 Anabranch Hall (image: www.wentworth.nsw.gov.au/portfolio-item/item-94-anabranch-hall/)
Figure 4-23 Key Regional Features
Figure 5-1 Landscape Character Types within Study Area
Figure 5-2 View towards east from Nulla Road, with shrublands in the foreground and woodland in the background. (image: Aurecon October 2023)
Figure 5-3 View towards southeast from Nulla Road, with shrublands in the foreground and woodland in the background. (image: Aurecon October 2023)
Figure 5-4 View towards north from Renmark Road, with grasslands and scattered occasional cypress. (image: Aurecon October 2023
Figure 5-5 View west from Tooperoopna Road showing grass and herb understorey with small tree coverage.
Figure 5-6 View of the Great Darling Anabranch from the Anabranch Hall (image: Aurecon, October 2023)
Figure 5-7 View towards the Great Darling Anabranch from the Anabranch Mail Road (image: Aurecon, October 2023)
Figure 5-8 View of a flood plain area from the Anabranch Mail Road (image: Aurecon, October 2023)
Figure 5-9 View of a flood plain and pelicans from the Anabranch Mail Road (image: Aurecon, October 2023)
Figure 5-10 View of a flood plain area from the Anabranch Mail Road (image: Aurecon, October 2023)
Figure 5-11 Eucalypts, grasses and herbs, from Anabranch Mail Road (image: Aurecon, October 2023)
Figure 5-12 View of pasture and sheds from Anabranch Mail Road eastwards (image: Aurecon, October 2023)

Figure 5-13 View of crops from Anabranch Mail Road (image: Aurecon, October 2023)
Figure 5-14 View of working landscape from Tooperoopna Road (image: Aurecon, October 2023)
Figure 5-15 Lake Victoria with tree trunks in water (image: Aurecon, October 2023)
Figure 5-16 Lake Victoria southern shoreline embankment with outlet in the background (image: Aurecon, October 2023)
Figure 5-17 ZTV – Turbine entire height
Figure 5-18 ZTV – Turbine rotor swept path
Figure 5-19 ZTV – Turbine hub and above
Figure 6-1 Visual magnitude diagrams
Figure 6-2 Multiple wind turbine assessment tool indicating 60° sectors visible within 8,000 metres from a dwelling (source: VIA Bulletin)
Figure 6-3 Renewable Energy Zones and existing or proposed projects
Figure 6-4 Viewpoint locations

Tables

Table 1-1 PLCVIA report chapter description
Table 2-1 Key parameters
Table 3-1 Evaluating level of landscape sensitivity
Table 3-2 Evaluating level of viewpoint sensitivity
Table 3-3 Visibility distance zones
Table 3-4 Visual sensitivity matrix
Table 3-5 Criteria for determining the visual modification level
Table 3-6 Impact determination matrix
Table 4-1 Summary of visual amenity value of local landscape captured during stakeholder interviews
Table 4-2 Summary of landscape and visual elements valued by community
Table 4-3 Summary of landscape features and public viewpoints
Table 6-1 Summary of preliminary impacts to landscape character
Table 6-2 Private receivers and public viewpoints within 5,800 metres of the Project
Table 6-3 Visual magnitude rating
Table 6-4 Summary of preliminary visual impacts
Table 6-5 Summary of turbine visibility within 5,800 metres of private receivers or public viewpoints

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Glossary

Term	Definition
Barkandji PBC	Barkandji Prescribed Bodies Corporate (PBC), native land council
BioNet VIS	NSW BioNet Vegetation information System
CHMP	Cultural Heritage Management Plan
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DPE	Department of Planning and Environment (NSW)
Dwelling	A structure for residential use.
EP &A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection Biodiversity Conservation Act 1999
ESO	Environmental Significance Overlay
Foreground	The area that immediately surrounds the project up to a distance of 2 kilometres.
FOV	Field of View (typically in discussing the horizontal extent that the Project occupies the view)
HO	Heritage Overlay
IBRA	Interim Biogeographic Regionalisation for Australia.
Km	kilometre
Landscape	Its constituent elements, its character and the way this varies spatially, its geographic extent, its condition, the way the landscape is experienced, and the value attached to it.
LCT	Landscape Character Types
LEP	Local Environmental Plan
LPPF	Local planning policy framework: Local planning policies are tools used to implement the objectives and strategies of the Municipal Strategic Statement.
M	metre
Magnitude	The apparent size of a wind energy project in the landscape or when viewed from a given viewpoint.
PCT	Plant Community Type: identified using the PCT classification system described in the BioNet Vegetation Classification
PLCVIA	Preliminary Landscape and Visual Impact Assessment: The assessment of the impacts of the proposal on landscape and visual values. The preliminary PLCVIA is conducted to determine the likelihood of high impacts and assist in determining further assessment.
Private receiver	A privately owned or used viewpoint type
Public viewpoint	A publicly owned or used viewpoint type
SSD	State Significant Development
Study Area	The area designated relevant for assessment of the Project
the Project	Lake Victoria Wind Farm
Project area	Proposed construction and operational area for the Project
Sensitive receptor	Those visual receivers within the Study Area that are likely to view the Project from their dwelling, a popular or significant viewing location (such as a lookout).
Viewpoint (VP)	Moderate or high sensitivity location from which views to the construction process or components of the project may be possible.
Viewshed	The area visible from a particular viewing location.
Visual amenity	The qualities of a landscape setting that are appreciated and valued by a viewer.
Visual catchment	The area over which an object can be seen within the landscape based on the line of sight.
Visual impact	The result of assessing the sensitivity level of a viewer and the modification level of a development.

Term	Definition
Visual sensitivity	The degree to which various user groups would respond to change based on their expectation of a particular experience in each setting for example the expectation of a high level of visual amenity in a national park.
ZTV	Zone of Theoretical Visibility

1 Introduction

Aurecon Australasia Pty Ltd (Aurecon) has been engaged by Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Trust (WestWind) to assist with the environmental and planning approvals for the Lake Victoria Wind Farm (the Project).

1.1 Project overview

WestWind is proposing to build the Lake Victoria Wind Farm, which would include the construction and operation of up to 203 wind turbine generators (WTGs) spread over an area of about 41,700 hectares about 24 kilometres northwest of Wentworth in south-western NSW (the Project area). The Project would be located within the Wentworth Shire Local Government Area (LGA) and would be spread across nine host dwellings. Refer to Figure 1-1 for the location of the Project.

The Project is a renewable energy development with a generation capacity of up to 1.5 gigawatts (GW), enough to power over 800,000 households across the national electricity market (NEM). The Project would also include the installation of one to four battery energy storage systems (BESS) within the Project area. The Project is currently in the early stages of development, including stakeholder engagement and concept design.

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

All SSD development applications are required to follow a comprehensive impact assessment process and community participation. Furthermore, all SSD projects are determined by the Minister for Planning and Public Spaces based on their merits, having regard to their economic, environmental, and social impacts and the principles of ecologically sustainable development.

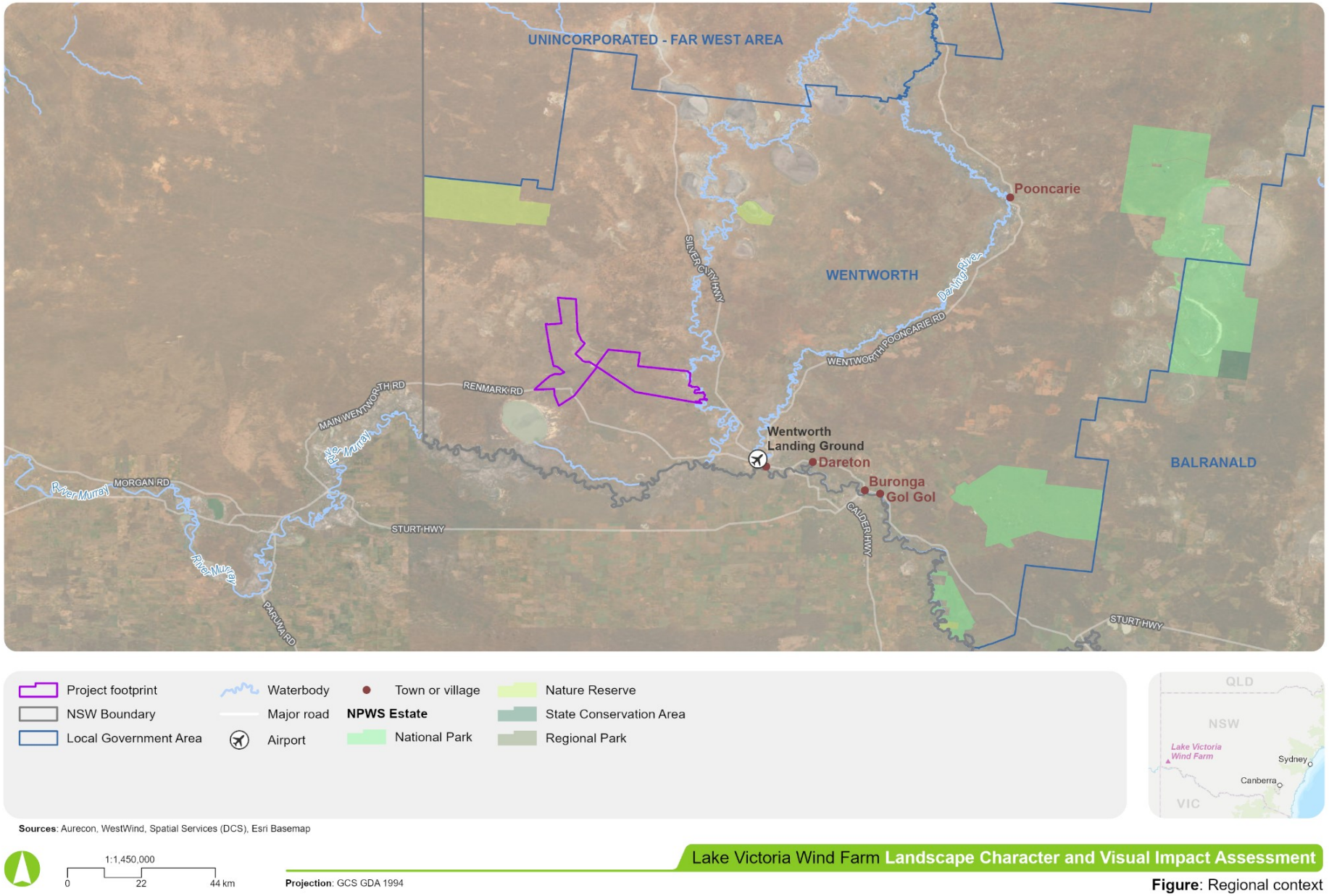


Figure 1-1 Lake Victoria Wind Farm – Regional context

1.2 Purpose

This report is a Preliminary Landscape Character and Visual Impact Assessment (PLCVIA) and responds to requirements set out in guidelines 'Wind Energy Visual Impact Assessment Bulletin' (VIA Bulletin, NSW Department of Planning and Environment, 2016), to assess the preliminary landscape and visual impacts of the Project.

The objective of the preliminary assessment is to inform the final design of the wind farm and ensure compliance with relevant legislation and policy. The project methodology is derived from existing best practice in landscape character and visual impact assessment with reference to:

- Local Policy Framework and zoning for Wentworth Shire
- Best practice guidelines for implementation of wind energy projects in Australia (Auswind, Dec 2006)
- Wind farms and Landscape values: national Assessment Framework (Australian Wind Energy Association and Australian Council of National Trusts, June 2007)
- EP&A Act.

The landscape and visual amenity assessment is undertaken in two stages:

- A preliminary assessment of landscape significance to inform the wind farm design process
- A detailed assessment as part of the planning and approval process.

This report relates to the preliminary assessment phase. The requirements for the preliminary phase of the LCVIA study are described in Table 1-1.

Table 1-1 PLCVIA report chapter description

Addressed in report	Bulletin requirements
Chapter 2 Project description Chapter 4 Landscape context	Production of a map detailing key landscape features (informed by community consultation and any ground-truthing undertaken), the preliminary wind turbine layout, the location of dwellings and key public viewpoints, and an overlay of the wind resource.
Chapter 4.2 Community engagement	Undertake community consultation to establish key landscape features valued by the community, key viewpoints in the area (both public and private) along with information about the relative scenic quality of the area.
Chapter 6 Potential impacts	Results of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters
Chapter 6.2.3 Cumulative visual impact analysis	The use of Geographic Information Systems (GIS) to facilitate the application of the tools will streamline the evaluation phase of a project during the pre-lodgement stage. Most GIS systems can establish the theoretical 'zone of visual influence' of the proposal (the area from which the proposal is theoretically visible or the 'visual catchment')

1.3 Assumptions and limitations

The following assumptions and limitations apply to this report:

- The PLCVIA process aims to be objective and, as such, seeks to describe any changes factually. Potential changes resulting from the Project have been defined. However, the significance of these changes requires qualitative (subjective) judgements to be made. Therefore, the conclusions to this assessment combine both objective measurement and subjective professional interpretation. This assessment has attempted to be objective; however, it is recognised that visual assessment can be highly subjective, and individuals are likely to associate different visual experiences to the Study Area.

- The PLCVIA is based on the Preliminary Site Layout Figure 2-2:
  - The design of the substation and ancillary infrastructure has not been confirmed at the time of this assessment. The substation location and options for the transmission line have been included and considered in the assessment.
- A night-time visual assessment is not included in this assessment.
- Access to all identified dwellings identified within the Study Area was limited by:
  - Private land was not accessed.
  - Access to dwellings were not accessible on public roads:
    - Therefore, viewpoints were selected to represent dwellings from as close as was accessible (to capture the typical existing visual conditions) and aerial imagery of the environment surrounding dwellings was undertaken to analyse the potential for views in the direction of the Project. It is noted that the accuracy of these viewpoint assessments for private land are limited to what is visible in the viewpoint and subsequent aerial photography.
  - Where 'do not access, private property' signs were posted on public roads, these were acknowledged by the site team and were not accessed.
- For the purpose of the assessment, an unobstructed viewpoint from a publicly accessible location has been used as a worst-case scenario of potential visual impacts.
- Sensitive receptors have been identified through mapping of dwellings, property titles, street view analysis and verification through a field visit.
- Methodology, program and timing of the construction works are currently indicative and dependent upon planning approvals.
- This report has been developed based on the following assumptions:
  - Desktop investigations were undertaken to inform the findings of this report.
  - A site visit was undertaken by a registered landscape architect in October 2023 to ground-truth the desktop analysis and undertake site photography.
  - Community and stakeholder consultation/engagement has commenced and is ongoing.
- Further investigation is required to confirm the findings of this report and inform the approvals pathway.
- The PLCVIA is based on the Project Description as outlined in Section 2. As the design layout of the Project is not yet finalised, our advice provides a point in time reference that may be subject to change.
- The methodology adopted for this PLCVIA assumes that if the works would not be seen, there is no impact.
- The zone of theoretical visibility (ZTV) mapping taken from the location and height of proposed wind turbines assumes that those areas not highlighted in the mapping, cannot see the wind turbine due to intervening topography.

2 Project description

The following section provides details on the location and scope of the Project.

2.1 Location

The Project is in southwestern NSW, approximately 24 kilometres northwest of Wentworth and within the Wentworth Shire LGA. The Project is located directly west of the Great Darling Anabranch, part of the confluence of the Murray and Darling Rivers; and approximately five kilometres northeast of Lake Victoria. A regional context and project overview map that shows the Project in relation to nearby key features is provided in Figure 2-2 and Figure 2-3.

2.2 Description of works

The Project includes the following permanent and ancillary infrastructure. Further information on the parameters and layout of this infrastructure is provided in Table 2-1.

Table 2-1 Key parameters

Feature	Parameters	Quantity
Turbines (refer to Figure 2-1)		
Indicative Power	Up to 1.5 GW (total)	203 (maximum number)
Maximum Hub Heights (above ground level)	150 to 180 m	
Maximum Blade Length	200 m	
Maximum Tip Height (above ground level)	280 m	
Minimum Clearance (space between ground and lowest point of blade)	50 m	
Wind turbine foundations (TBC: concrete gravity foundations or rock anchor)	25 to 30 m diameter approximately	
Ancillary Infrastructure - Permanent		
Collector stations	TBC	4
Terminal station	TBC	1
Underground cabling	1 m depth	269 km (LVEP_ UndergroundCable_V04-02) TBC
BESS	Up to 2,400 MWh (up to 600 MW over 4 hours) 250 x 250 m area	1 to 4
Operation and maintenance building, including a car park and an office	100 m x 100 m	1
Permanent meteorological monitoring masts	125 to 200 m high	1 to 2 (TBC)
Access tracks	5.5 m on straights, widened to 7 m on corners	416 km (LVEP_ AcessTracks_V04-02) TBC
Ancillary Infrastructure – Temporary		
Construction compound	100 m x 100 m	2 to 4 (TBC)
Concrete batching plant	50 m x 100 m	3 to 4 (TBC)
Laydown area	100 m x 200 m	TBC
Temporary workers accommodation	140 m x 140 m	1

2.3 Project timing

The Project timing is estimated as follows, pending confirmation of staging for financing purposes.

The wind farm construction phase is anticipated to last for approximately 2 to 3 years (2028 to 2031), and would include civil works, mechanical and structural works, electrical works, testing and commissioning. The operational life is expected to be approximately 25 to 40 years (2031 to 2071).

The construction phase would include 2 to 4 construction compounds (TBC), numerous turn-around bays and temporary workers accommodation for approximately 375 FTE on-site during peak of construction activity.

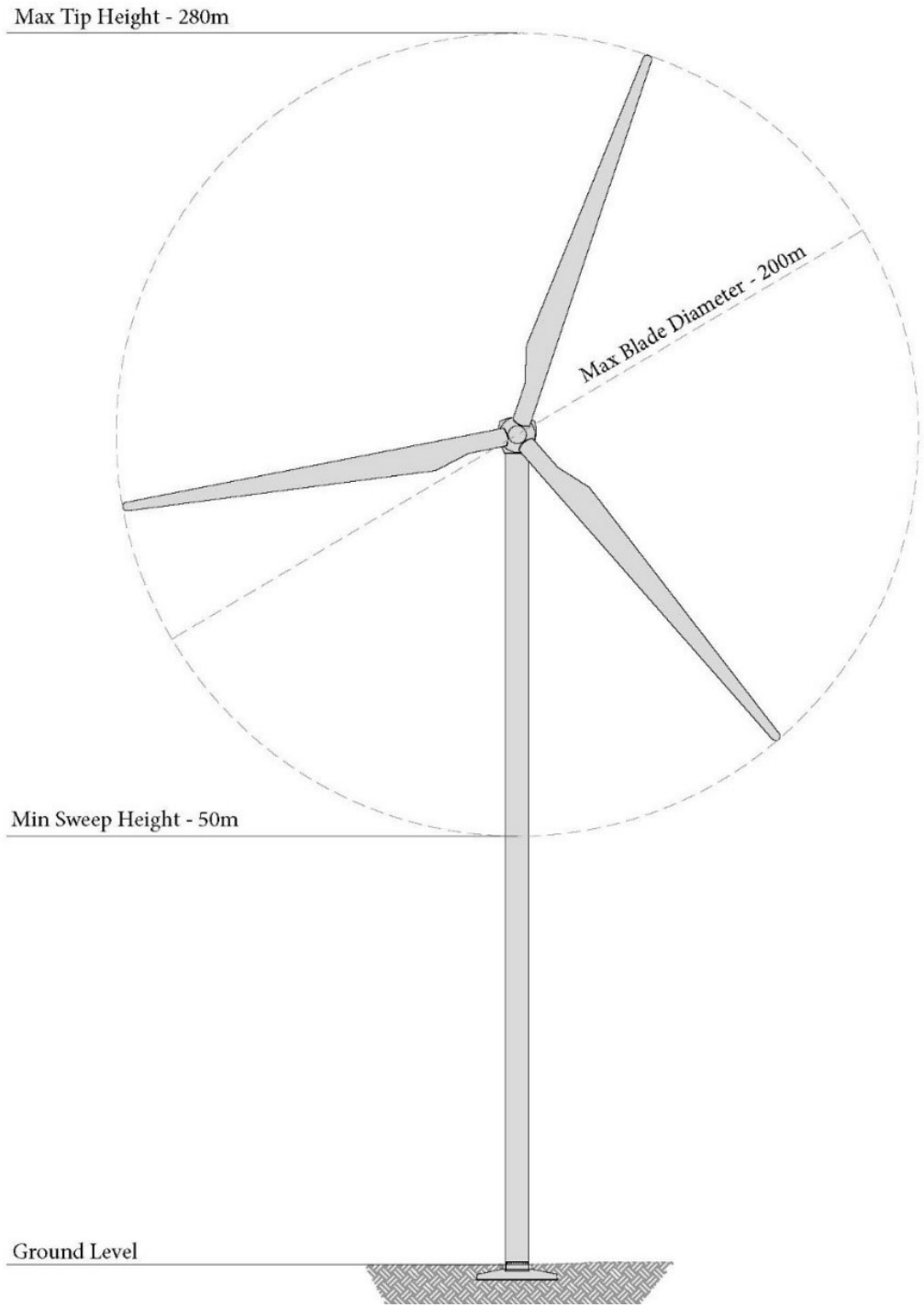


Figure 2-1 Indicative WTG dimensions (turbine model TBC)

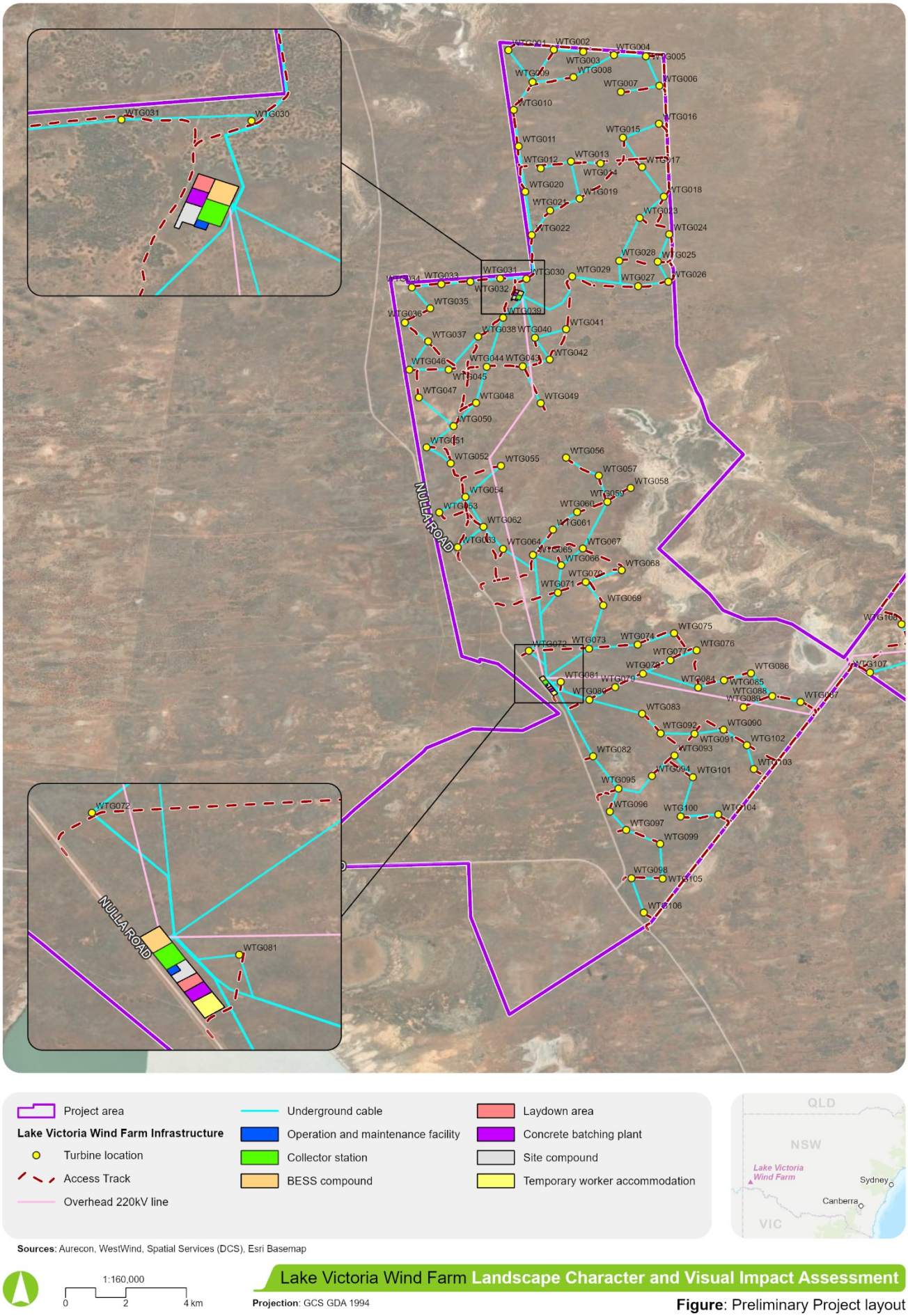


Figure 2-2 Lake Victoria Wind Farm – Preliminary layout (page 1 of 2)

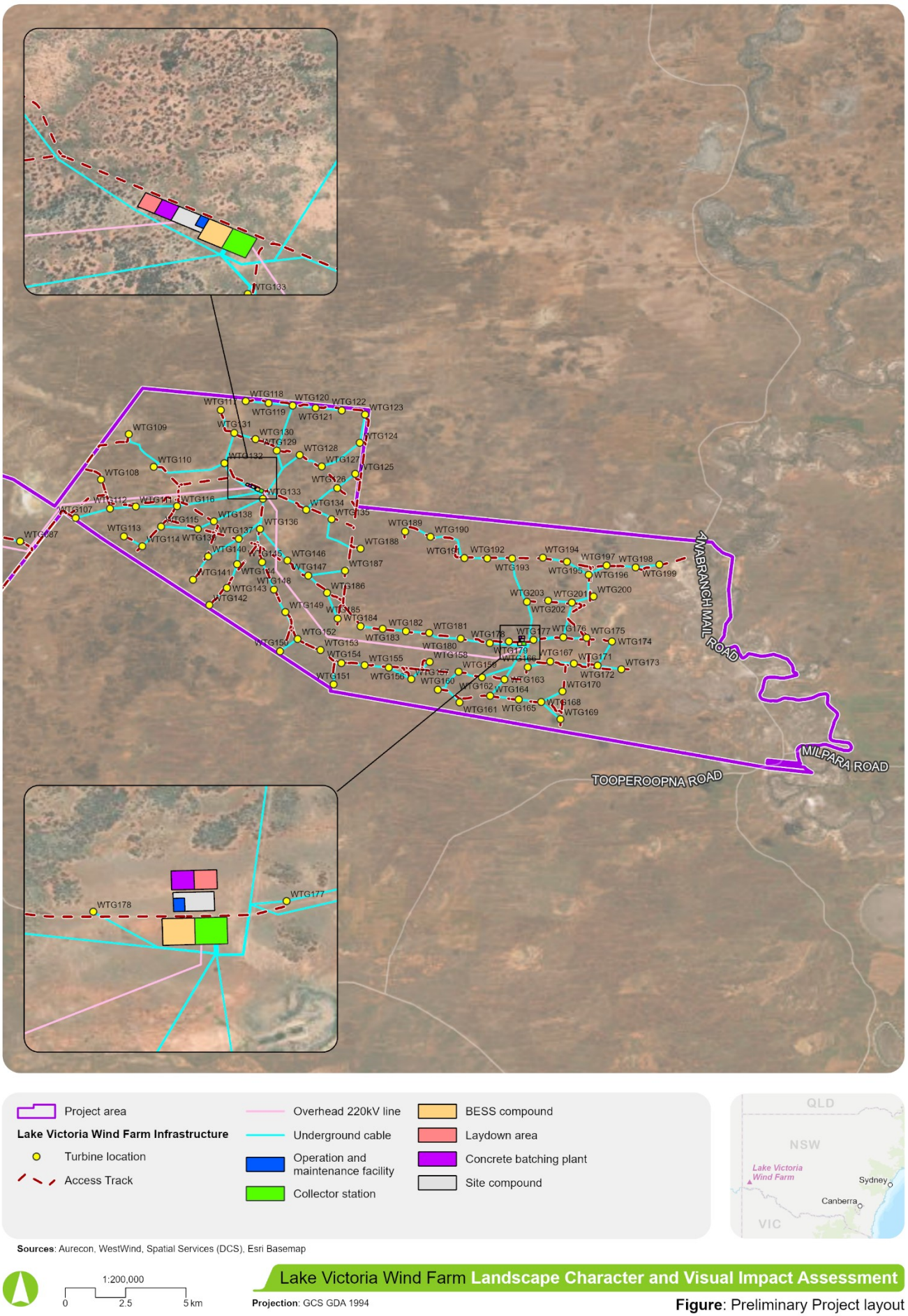


Figure 2-3 Lake Victoria Wind Farm – Preliminary layout (page 2 of 2)

3 Methodology

3.1 Approach to the assessment

The PLCVIA makes consideration of the potential impact of the proposed Lake Victoria Wind Farm on dwellings and key public viewpoints (as determined with access constraints).

The PLCVIA comprises a desktop evaluation of the Project and its various components, turbines and ancillary facilities, identifying sensitive viewpoints with potential of high adverse impacts. A field visit was conducted by a qualified landscape architect (report reviewer) in October 2023, to ground truth the desktop analysis and undertake site photography.

3.1.1 PLCVIA guidelines

The following documents have influenced the methodology for this study and are considered best practice within the industry. They set out a clear and systematic approach in documenting the baseline landscape character and visual conditions, potential impacts and mitigation.

The assessment conforms generally with the direction offered by the following guidance documents:

- Wind Energy Visual Assessment Bulletin (VIA Bulletin, NSW Planning and Environment, 2016).

The VIA Bulletin has been a key guide to have influenced the methodology and is considered best practice within the industry for the visual assessment of wind farms. The VIA Bulletin provides guidance on the assessment of visual impacts that may arise from wind farm projects. The guidance notes that the visual impact will depend upon the characteristics and values of the existing landscape, the extent to which the existing landscape is changed by the Project and how these changes will be perceived by individuals and the broader community.

The objectives of the VIA Bulletin are to:

- Provide the community, industry and decision-makers with a framework for visual impact analysis and assessment that is focused on minimising and managing the most significant impacts
- Facilitate improved wind turbine and ancillary infrastructure siting and design during the pre-lodgement phase of a project, encourage early consideration of visual impacts to minimise conflicts and delays where possible, and provide for a better planning outcome
- Provide the community and other stakeholders with greater clarity on the process along with an opportunity to integrate community landscape values into the assessment process, and
- Provide greater consistency in assessment by outlining appropriate assessment terminology and methodologies.

3.2 Identifying the Study Area

The assessment Study Area has been set at 12,000 metres from the Project area (location of proposed turbines). At this distance, the visual assessment is to identify those dwellings or key public viewpoints within the visual magnitude threshold and of higher visual influence for foreground and middle ground views. The visual magnitude threshold is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints as shown in Figure 3-1.

The proposed wind turbines are based on a worst-case scenario with a tip height of 280 metres. The ‘blue line’ intersects at 5,800 metres and the ‘black line’ intersects at 3,850 metres.

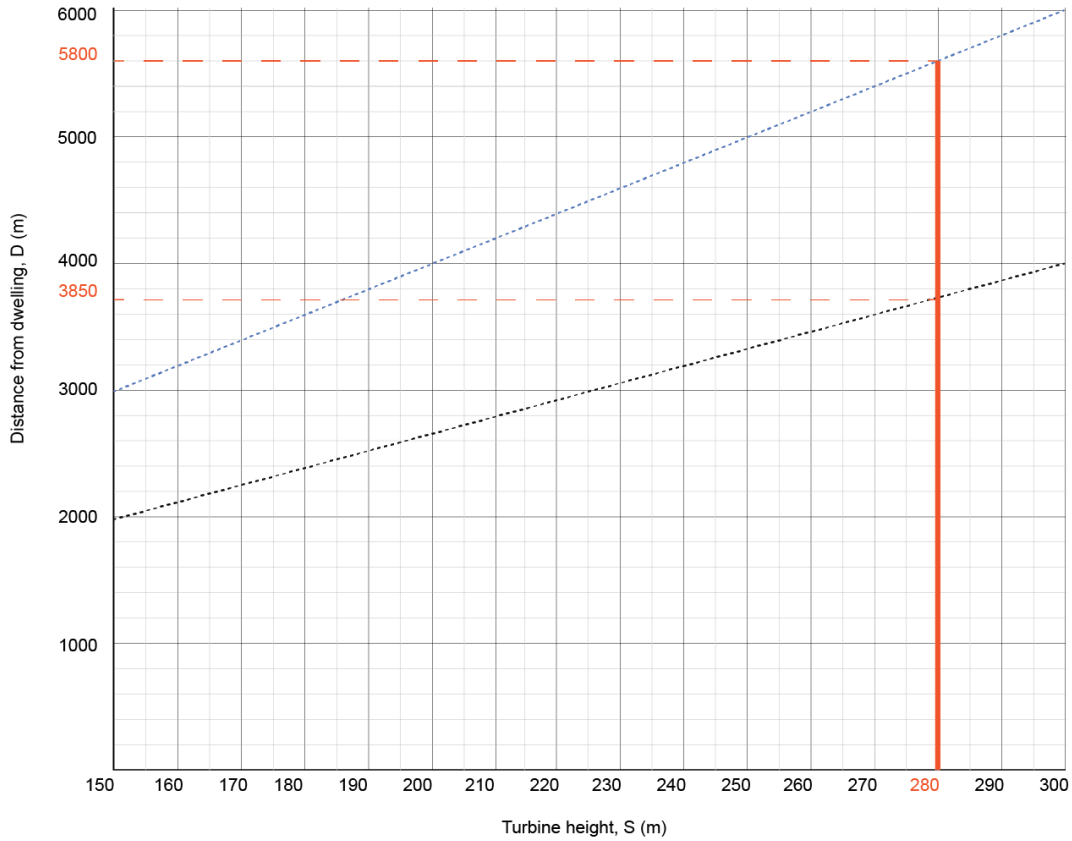


Figure 3-1 Graph indicating Visual magnitude thresholds for PLCVIA (reproduced from VIA Bulletin)

3.2.1 Visual magnitude thresholds

The area where potential effects of the Project are likely to be more acute for both landscape and visual impacts, is approximately 3,850 metres from any turbine (at 280 metres height). This provides an early indication of where placement of turbines will require further assessment and justification, and where consultation with potentially affected landowners needs to be focused. If a sensitive receiver is located within the setback distance it will trigger a high visual impact unless the turbine(s) would be largely screened by topography or vegetation.

3.2.2 Identification of Zone of Theoretical Visibility

Within the Study Area, the production of a Zone of Theoretical Visibility (ZTV) mapping, illustrates the theoretical area from which the mapped components could be visible.

Three ZTV analyses (refer to Figure 5-17 to Figure 5-19 for ZTV mapping) were undertaken to provide a preliminary representation of the likely ‘worst case’ visual envelope of the wind turbine layout currently under investigation. These mapping outputs illustrate the number of wind turbines potentially visible from within the Study Area for the following wind turbine elements (refer to Figure 3-2):

- Entire height of turbine at 0 to 280 metres above ground
- Swept path of rotor from 50 to 280 metres height above ground
- Hub at 110 to 280 metres height above ground.

It should be noted that the outputs of these ZTV maps are limited to the available terrain data (Digital Elevation Model data (5 metres) loaded from ELVIS, Geoscience Australia 2015), and do not consider the screening effect of intervening vegetation or built form. Therefore the mapping provides an exaggerated indication of the theoretical extent of visibility of wind turbines. They are therefore used primarily to guide the desktop studies and inform site visit work.

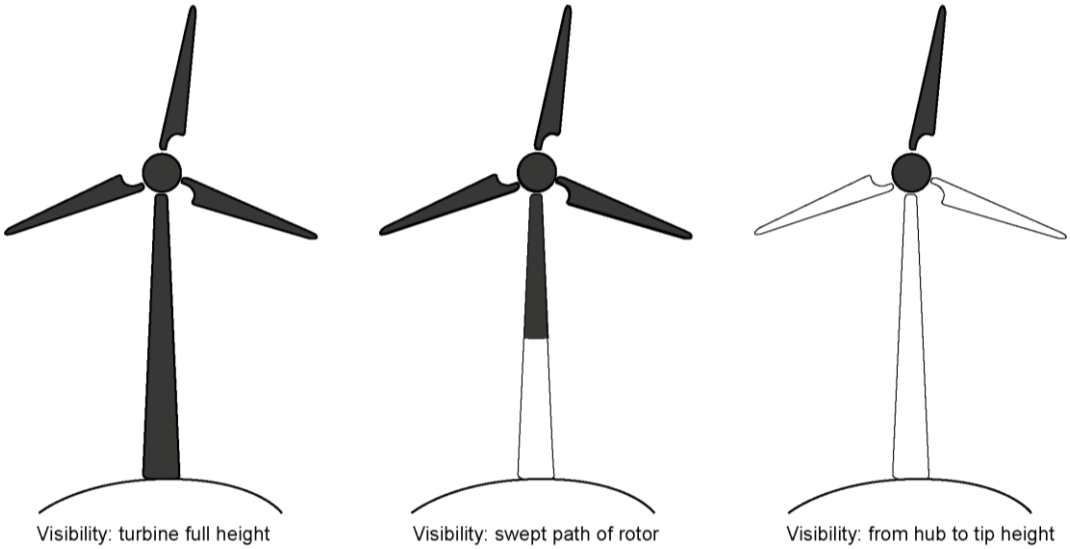


Figure 3-2 Potential visibility of turbines generated within the ZTV mapping

3.3 The assessment method

The level of visual impact resulting from the proposed development has been assessed against the following components:

- Visual sensitivity made up of the following:
  - Viewer sensitivity: the sensitivity of the viewer to the development/change and distance from the viewpoint
  - Landscape sensitivity: the ability of the landscape setting to absorb the development/change
  - Scenic quality: the scenic or aesthetic value of the landscape based on the relative presence or absence of key landscape features known to be associated with community perceptions of high, moderate or low scenic quality.
- Scale of modification: how well the development/change contrasts or blends with the surrounding land use based on varying levels of visual prominence.
- Establishing the level of visual impact involves assigning levels of visual sensitivity and modification such as high, medium, low or very low. A determination matrix (refer to Table 3-5) is then used to assign an overall level of visual impact.

3.3.1 Baseline analysis

A visual baseline study establishes the existing landscape and visual conditions. The baseline study should consider the following inputs in the 'visual catchment' for the Project:

- Elements of the landscape important to the community, including public and private viewpoints
- The sensitivity of the viewers who use those viewpoints, and the distances at which they may view the landscape and potential wind turbines and other ancillary facilities
- The character of the landscape environment, its key features and the relative scenic quality of the area; and
- The location of any existing operational or approved wind energy projects within both a regional and local context, including any nearby surrounding wind energy projects within 8,000 metres which may have the potential to create direct or indirect visual impacts between the proposed and any other operational, approved or proposed wind energy projects.

3.4 Impact assessment criteria

The potential level of impacts associated with the proposed development on landscape character and visual amenity have been assessed based on themes of magnitude and sensitivity.

3.4.1 Landscape sensitivity

The sensitivity of a landscape is judged based on the extent to which it is considered able to accept change of a particular type and scale without adverse effects on its character. Sensitivity varies according to the type of development and the nature of the landscape, including:

- Its inherent landscape value (its condition, perceptual qualities, cultural importance, and any specific values that may apply, such as landscape planning designations); and
- The likely congruency of the proposed change (i.e. the extent to which the proposal may fit or be 'visually absorbed' into the scale, landform, land use, pattern, texture of the existing landscape).

The attributes which influence the sensitivity of landscape character are outlined in Table 3-1.

Table 3-1 Evaluating level of landscape sensitivity

Landscape sensitivity rating	Description
High	Landscapes which by nature of their character would be unable to accommodate change of the proposed type. Typically, these would be: ■ Of high value with distinct elements and features making a positive contribution to character and sense of place ■ Likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale ■ Areas of special recognised value, through use, perception or historic and cultural associations. ■ The extent of alteration would result in the landscape losing significant natural landscape features, its character and/or sense of place. ■ Open, expansive and bare landscapes. ■ Elevated, bare and/or groundcover vegetation. ■ The viewer is highly sensitive to changes in their immediate surroundings such as residents or 'natural' areas such as National Parks.
Moderate	Landscapes which by nature of their character would be able to partly accommodate change of the type proposed. Typically, these would be; ■ Comprised of commonplace elements and features creating generally unremarkable character but with some sense of place ■ Locally designated, or their value may be expressed through non-statutory local publications ■ Containing some features of value through use, perception of historic and cultural associations. ■ Likely to contain some features and elements that could not be replaced ■ The extent of alteration would result in the landscape partially losing some natural or designed landscape features, its character and/or sense of place. ■ Open, expansive and moderately vegetated landscapes including canopy trees. ■ Elevated and vegetation landscape including canopy trees. ■ The viewer is moderately sensitive to changes in their immediate surroundings such as users of regional and local reserves.
Low	Landscapes which by nature of their characteristics would be able to accommodate change of the type proposed. Typically, these would be; ■ Not designated ■ Containing few, if any, features of value through use, perception or historic and cultural associations. ■ Likely to contain few, if any, features and elements that could not be replaced. ■ Built-up landscapes typically interspersed with canopy trees. ■ The viewer is aware of the change but not overly sensitive to changes in their immediate surroundings such as users of commercial areas and farming land.

Landscape sensitivity rating	Description
Very Low	Landscapes which by nature of their characteristics would be able to accommodate change of the type proposed. Typically, these would be; ■ Comprised of some features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place ■ Modified landscapes with an abundance of built form and limited natural characteristics. ■ The viewer is aware of the change but not overly sensitive to changes in their immediate surroundings such as users of industrial areas.

3.4.2 Visual sensitivity

The sensitivity of the viewers at the viewpoints is dependent upon factors including:

- The importance (scenic quality) of the view.
- Viewer exposure, typically assessed by measuring the number of viewers exposed to the resource change and the type and duration of viewer activity.
- The nature of the visual receptor (type and volume of sensitive receptors or viewers) experiencing the view.
- Distance of the proposal from the identified land use area.

The following Table 3-2 describes the level of viewpoint sensitivity.

Table 3-2 Evaluating level of viewpoint sensitivity

Viewpoint sensitivity rating	Description
High	Large numbers of viewers or those with proprietary interest and prolonged viewing opportunities such as residents and users of attractive and/or well-used recreational facilities. Views from a regionally important location such as a scenic lookout whose interest is specifically focussed on the landscape. ■ Residential properties ■ Users of public footpaths or other recreational trails (e.g. National Trails) ■ Users of recreational facilities where the purpose of that recreation is the enjoyment of the landscape (e.g. National Parks and designated scenic lookouts) ■ Users of designated tourist routes
Moderate	Medium numbers of residents and moderate numbers of visitors with an interest in their environment. Larger numbers of travellers with an interest in their surroundings. ■ Outdoor works ■ Users of scenic roads, railway corridors or waterways ■ Schools and other institutional buildings, and their outdoor areas
Low	Small numbers of visitors with a passing interest in their surroundings. Viewers whose interest is not specifically focussed on the landscape. ■ Indoor workers ■ Users of main roads or arterial roads ■ Users of recreational facilities where the purpose of that recreation is not related to the views. ■ Commuters
Very Low	Small numbers of viewers with little interest in their surrounds ■ Industrial workers ■ Road users, farm workers with proposal in middle ground or background views

The next critical component to rating the viewer sensitivity is the distance of the proposal from the identified land use area. The categories are defined from zone of greatest to least visual influence (decreasing by distance) as shown in Table 3-3.

Table 3-3 Visibility distance zones

Distance of view	Distance zone
0 – 500 m	Near foreground
500 m – 1 km	Mid foreground
1 – 2 km	Far foreground
2 – 4 km	Near middleground
4 – 8 km	Far middleground
8 – 12 km	Near background
12 – 20 km	Mid background
20 – 32 km+	Far background

Scenic quality

Scenic quality refers to the relative scenic, cultural or aesthetic value of the landscape within the viewshed based on the presence or absence of key landscape features known to be associated with community perceptions of low, moderate or high scenic quality. It is typically a complex process undertaken by experts in visual impact assessment and must take community values into consideration.

The scenic quality has been classified through considerations of landscape features and community values from the assessed viewpoints (refer to Section 6.3).

The visual sensitivity is determined through combining the viewpoint and scenic quality sensitivity ratings as matrix in Table 3-4.

Table 3-4 Visual sensitivity matrix

	High scenic quality	Moderate scenic quality	Low scenic quality
High viewpoint sensitivity	High	High	Moderate
Moderate viewpoint sensitivity	High	Moderate	Low
Low viewpoint sensitivity	Moderate	Low	Low
Very Low viewpoint sensitivity	Very Low	Very Low	Very Low

3.4.3 Magnitude of change

The magnitude of change affecting a landscape or visual receptor depends on the nature, scale and duration of the change that is expected to occur. It describes the extent of change and identifies elements which are removed or added, changed in colour or texture, and the compatibility of new elements with the existing landscape. Visual modification can result in an improvement or reduction in visual amenity.

Table 3-5 outlines the four categories of modification used for determining the degree of visual modification potentially resulting from the Project which include:

- Scale - with respect to the loss of addition of features in the view and changes in its composition.
- Degree of contrast or integration - form, scale and mass, line, height, colour, texture.
- Nature of view in relation to the proposal - angle, distance and extent.
- Mitigation - the degree to which mitigation would reduce the effect.

Table 3-5 Criteria for determining the visual modification level

Modification level	Description
High	The proposal is highly visible and intrusive in regard to the size, scale and geographical extent, and would disrupt views currently experienced from sensitive land use areas and/or strongly contrasts with the existing landscape setting which has limited capacity for change and/or the extent of area over which the changes would be visible from sensitive land use areas is significant.
Moderate	The proposal partially intrudes in regard to the size, scale and geographical extent or somewhat obstructs current views from sensitive land use areas and/or a noticeable compositional change to the existing landscape setting in which there is moderate capacity for change and/or the extent of area over which the changes would be visible from sensitive land use areas is moderate.
Low	The proposal is barely perceptible resulting in minor deterioration to the view currently experienced from sensitive land use areas; and/or results in a small change to the existing landscape setting in which change is possible without harm and/or the extent of area over which the changes would be visible from sensitive land use areas is limited.
Very low	There is minimal compositional contrast and a high level of integration of form, line, shape, pattern, colour or texture values between the proposal and the environment in which it sits. In this situation, the proposal may be noticeable, but does not markedly contrast with the existing landscape setting and/or the extent of area over which the changes would be visible from sensitive land use areas is negligible.
No impact	There are no views of the proposal components and as such, there is no impact.

3.5 Assigning a level of impact

The impact significance ratings have been determined through a combination of the sensitivity and magnitude of change assessments, in accordance with the scale defined within Table 3-1 (Landscape Sensitivity) and Table 3-2 (Visual Sensitivity).

The consequence of the application of the matrix is that (except where there are no visible works) the Project would have low, moderate or high impacts, depending on the level of visual modification and viewer sensitivity from the location at which the project can be viewed. Impacts can either be beneficial where the modification improves visual amenity or enhances landscape character, however the introduction of built form within the environment is typically considered to have an adverse effect. If the Project is not visible, there is no impact (neutral). The following Table 3-6 shows how the level of impact is determined through the matrix.

Table 3-6 Impact determination matrix

		Sensitivity			
		High	Moderate	Low	Very Low
Degree of modification	Very High	High	High	Moderate	Moderate
	High	High	Moderate	Moderate	Low
	Moderate	Moderate	Moderate	Low	Low
	Low	Moderate	Low	Low	Very Low
	Very Low	Low	Low	Very Low	Very Low

4 Landscape context

4.1 Regional landscape context

The Project is in southwestern NSW and adjacent to the west side of the Great Darling Anabranch. It is proximate to the Victorian state border which is located along the Murray River approximately 17 to 26 kilometres to the south of the Project area, and the South Australian border is approximately 29 kilometres to the west. The closest town of Wentworth is approximately 24 kilometres to the southeast.

The Project is located west of the NSW South-West Renewable Energy Zone (REZ), and north of the Murray River REZ (within Victoria). These zones have been identified as having high solar and wind renewable energy resource potential.

4.1.1 Bioregion

The Project is located within the Murray Darling Depression, Darling Riverine Plains and Riverina Interim Biogeographic Regionalisation of Australia (IBRA) Bioregions, in southwest NSW. This bioregion extends into Victoria and South Australia. The bioregion is characterised by shallow lakes, swamps and depressions with a range of vegetation character. Refer to the Preliminary Biodiversity Assessment (EnviroKey, March 2024) for further assessment.

There is a warm semi-arid climate in the southern half of the bioregion.

During the field visit (October 2023), wildlife was observed including lizards, snakes, birds and kangaroos. The water in the Anabranch was present and steady as seen in the photo near the Anabranch Town Hall in Figure 4-1. Low lying areas appeared to be green with only one significant water body observed adjacent to the Anabranch-Mail Road. This area was large and had an array of wildlife including pelicans present as shown in Figure 4-2.



Figure 4-1 View of the Darling River Anabranch at Anabranch Town Hall (image: Aurecon October 2023)



Figure 4-2 Waterbody on the west of Anabranch Mail Road (image: Aurecon October 2023

4.1.2 Topography and soils

The landscape in the region is characterised by dune fields, sandplains, and undulating plains. It is generally flat with minor rises of calcareous sand materials.

The soils in the region differ depending on the landform. On the dune fields, red, brown, and yellow calcareous sands are prevalent, with more clayey materials found in the swales. On the sandplains, the soil tends to be heavier, displaying brown gradational or texture contrast profiles. Lakes and depressions have clay floors, while salt lake floors carry little to no vegetation. Lunettes consist of varying soils, including clean sands, brown clayey sands, and mixed sand to clay.

The drainage in this area is minimal, but there are numerous lakes, swamps, and depressions, some of which are influenced by saline groundwater (refer to Figure 4-11).

4.1.3 Hydrology

The Great Darling Anabranch is an ephemeral system branching from the main course of the Darling River, that is refreshed in times of flood. The Darling River is regulated by releases from the Menindee Lakes Scheme (to the north of the Study Area). Inflows to the Menindee Lakes come from the Barwon-Darling River and its tributaries. The Great Darling Anabranch is an ancestral channel of the Darling River.

Several large overflow lakes connected to the anabranch are important habitat for birds, fish and other species, and works as an important ecological asset between the Murray and Darling River systems.

The systems are under threat from salinity, water abstraction and regulation, levee banks and lakebed cropping.

Lake Victoria is a shallow lake that occurs naturally, situated downstream of the junction of the Murray-Darling River. The lake covers an area of 12,200 hectares and has a relatively shallow maximum depth of around 5.5 metres when it reaches its full capacity.

Regarding water management within the Murray Darling Basin, the primary function of Lake Victoria is to ensure that South Australia receives its full water share as defined in the Murray–Darling Basin Agreement. It serves as an 'off-river' storage which aids in regulating the flow and salinity of the Murray River as it enters South Australia. In the 1920s, embankments and regulators were constructed to manage the inflow of water from the River Murray via Frenchman's Creek. These modifications increased the lake's maximum capacity. Water is released from the lake through an outlet regulator located at its southern end, flowing into the Rufus River and eventually returning to the Murray downstream. The water level is operated in harmony with the Menindee Lakes.

A few other small depressions north of Lake Victoria form ephemeral lakes during large rainfall events (refer to Figure 4-11). There are unique biodiversity areas including arid and semi-arid saline wetlands near the centre-north of the Project area (refer to Figure 4-5), and the northeast of Lake Victoria; and freshwater wetlands near the south-west.

4.1.4 Vegetation

Vegetation communities differ depending on topography, access to water and soil types. The groups include sandplain spaces with shrubs and spear grass. Dunes support diverse mallee species with mixed shrubs, saltbush and spinifex. Swales support Belah, rosewood and spear grass species. Vegetation on the lunettes varies according to the soil types and the large rocky hills support mulga species and shrub species.

The photos below (refer to Figure 4-3 to Figure 4-8) indicate typical vegetation patterning in the Study Area.

Plant Community Types (PCTs) are mapped in Figure 4-12 and listed in Appendix D. The distribution pattern comprises mainly low (ground stratum) open shrubland of the arid and semi-arid plains to the west of the Project area, mixes of Black Oak and spinifex to the centre-east and the Great Darling Anabranch is surrounding by upper-stratum River Red Gums and mid-stratum Black Box open woodland wetland with chenopod understorey.

The native vegetation within the Project Area has been listed in Appendix D; with the height ranges identified to gain an understanding of the screening value of vegetation.



Figure 4-3 Grasslands northeast of Lake Victoria (image: Aurecon October 2023**)**



Figure 4-4 Vegetation near Nulla Nulla Homestead (image: Homely, 2020)



Figure 4-5 Dry saline wetlands on Nulla Nulla Station (image: Homely, 2020)



Figure 4-6 Wetlands and River Red Gums along the Anabranch Mail Road (image: Aurecon, October 2023)



Figure 4-7 Black Box open woodland (image: Aurecon, October 2023)



Figure 4-8 Mid-stratum trees and grassland (image: Aurecon, October 2023)

4.1.5 Zones and overlays

Zones

Lake Victoria Wind Farm is located within RU1 Primary Production zone as shown in Figure 4-9. The Wentworth Local Environmental Plan (LEP) objectives of the zone include:

- *Encouraging sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *Encourage diversity in primary industry enterprises and systems appropriate for the area. To minimise fragmentation and alienation of resource lands*.
- *To minimise conflict between land use within this zone and land uses within adjoining zones.*

Other zones within the Study Area (outside of the Project area) include:

- Natural Waterways (W1) – Applies to the Great Darling Anabranch
- Environmental Conservation / Management zone (C2) – Applies to Lake Victoria
- Infrastructure (SP2) – Applies to the shoreline of Lake Victoria).

The land use (refer to Figure 4-10, GIS data source NSW Department of Planning) within the Project area is primarily for farm practices comprising rearing livestock within vast paddocks, with some farm dams, including:

- Grazing native vegetation overing much of the area; and
- Grazing modified pastures – to the southeast where crops are grown.

Some marsh / wetland (east of Nulla Road) and lakes (northeast of Nulla Road) are located adjacent to the project area. These water bodies are ephemeral, with the marsh / wetland forming large dry bowls in dry periods.

Additional local Provisions

Clause 7.4 Terrestrial biodiversity

This Clause applies to land identified as 'Terrestrial Biodiversity' on the *Natural Resource—Terrestrial Biodiversity Map.* Objectives of this clause include:

- *protecting native fauna and flora, and*
- *protecting the ecological processes necessary for their continued existence, and*
- *encouraging the conservation and recovery of native fauna and flora and their habitats.*

Parts of the project area is located within land identified as Terrestrial Biodiversity, particularly to the north and west. Terrestrial Biodiversity is spread throughout the broader region.

Clause 7.5 Wetlands

This Clause applies to land identified as 'Wetlands' on the *Natural Resource – Wetlands Map*. The objective of this designation is:

- *to ensure that natural wetlands are preserved and protected from the impacts of development.*

Land proximate to the project area within this designation include:

- Marsh/wetland situated north of the project area
- The Great Darling Anabranch

- Lake Victoria
- Murray River.

Clause 7.7 Riparian land and Murray River and other watercourses – general principals

This Clause applies to land identified as 'Watercourse' on the *Natural Resource—Watercourse Map*, and land situated within 40 metres of the top of the bank of such watercourse. Objectives of this Clause include:

- *water quality within the Murray River and other watercourses;*
- *the stability of the bed and banks of the Murray River and other watercourses; and*
- *aquatic riparian habitats.*

Land proximate to the project area within this designation includes:

- The Great Darling Anabranch
- Lake Victoria
- Murray River.

Wentworth Shire Development Control Plan 2011

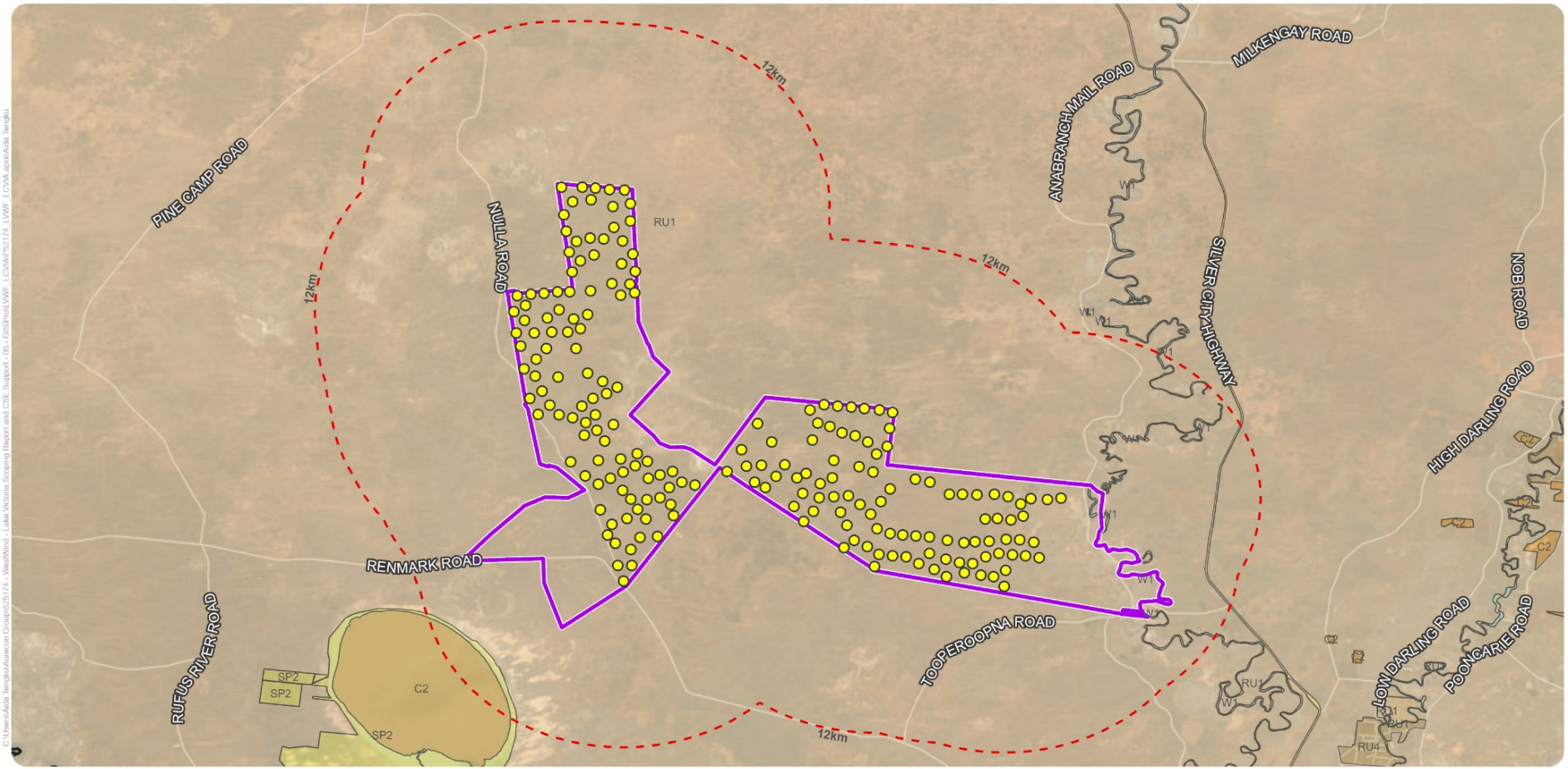
The DCP recognises the visual quality of the rural landscape, stating that development in rural areas should be 'consistent with the rural character' and avoid 'significant environmental features, such as natural forms, remnant native vegetation, wetlands or natural watercourses and drainage' (DCP chapter 5, s.5.3).

Relevance to PLCVIA

The land in the region is generally within RU1 which includes uses associated with goat and sheep farming, where herds graze over areas of natural vegetation. Dwellings are widely dispersed and typically located well within ownership boundaries.

Where possible, the environmental features identified above are to be avoided by the Project including:

- Wetlands
  - Saline wetlands to the centre of the Project area, east and northeast of Nulla Road
- Riparian Lands and Watercourses
  - Murray-Darling Anabranch.



Project area
PLCVIA study area

Lake Victoria Wind Farm Infrastructure
Turbine location

Land Zoning
C2 - Environmental Conservation / Management
C4 - Environmental Living
RU1 - Primary Production
RU4 - Primary Production Small Lots
SP2 - Infrastructure
W1 - Natural Waterways



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:415,000
0 5 10 km

Projection: GCS GDA 1994

Lake Victoria Wind Farm **Landscape Character and Visual Impact Assessment**

Figure: Land Zoning

Figure 4-9 Lake Victoria Wind Farm - Land Zoning Map (GIS data source NSW Department of Planning)

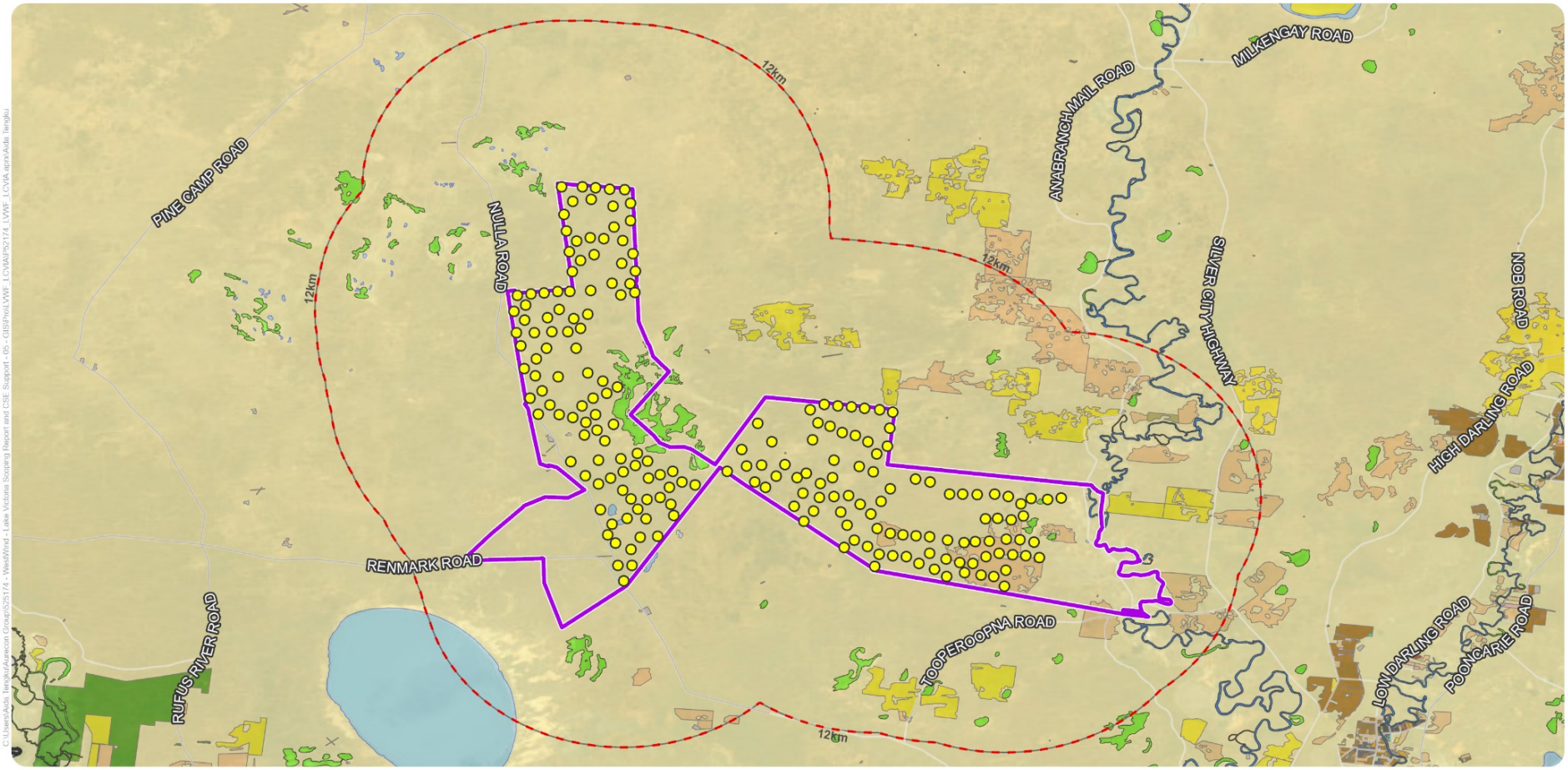


Figure 4-10 Lake Victoria Wind Farm - Land Use (GIS data source NSW Department of Planning)

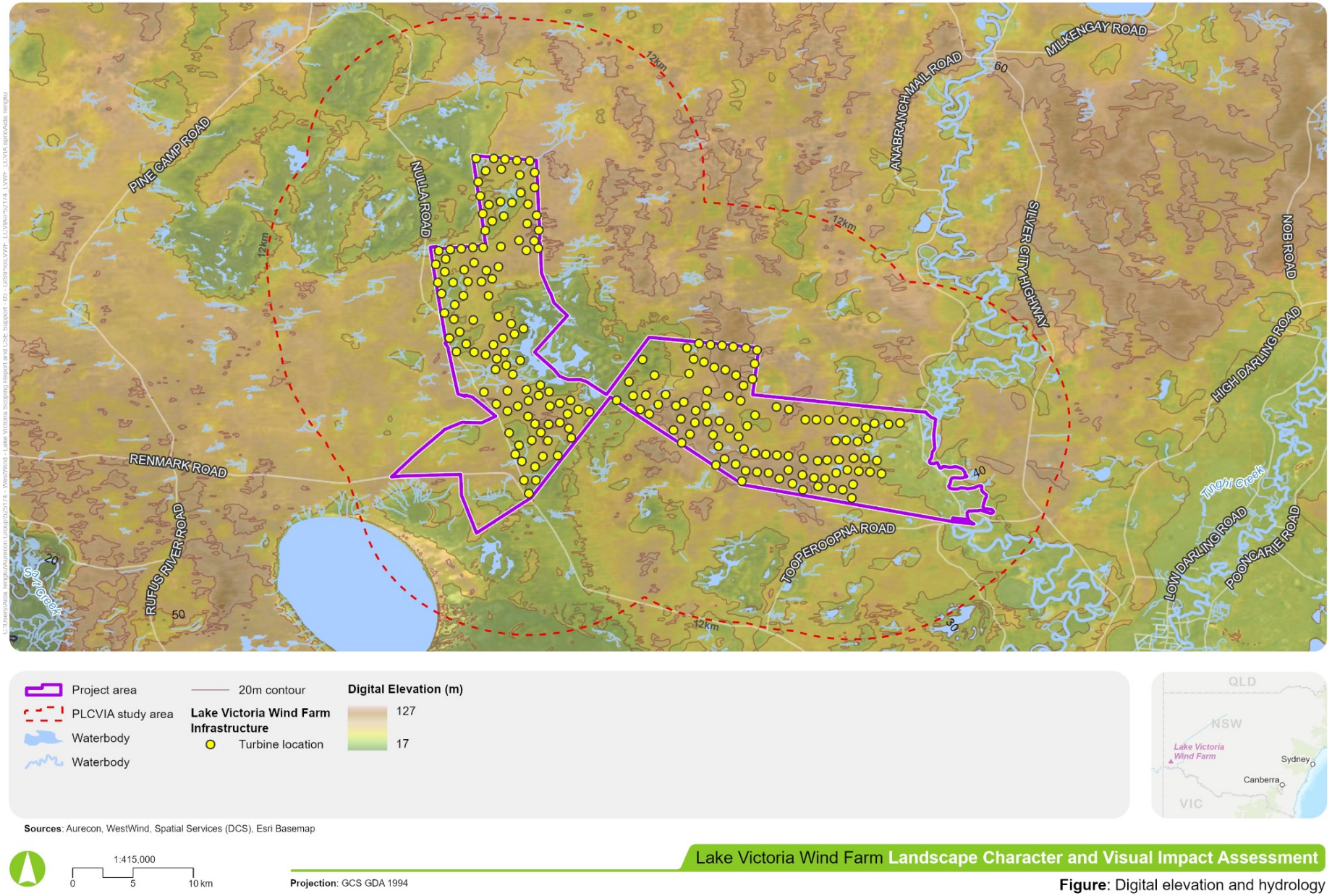


Figure 4-11 Lake Victoria Wind Farm - Digital Elevation and Hydrology Map (GIS data source NSW Department of Planning)

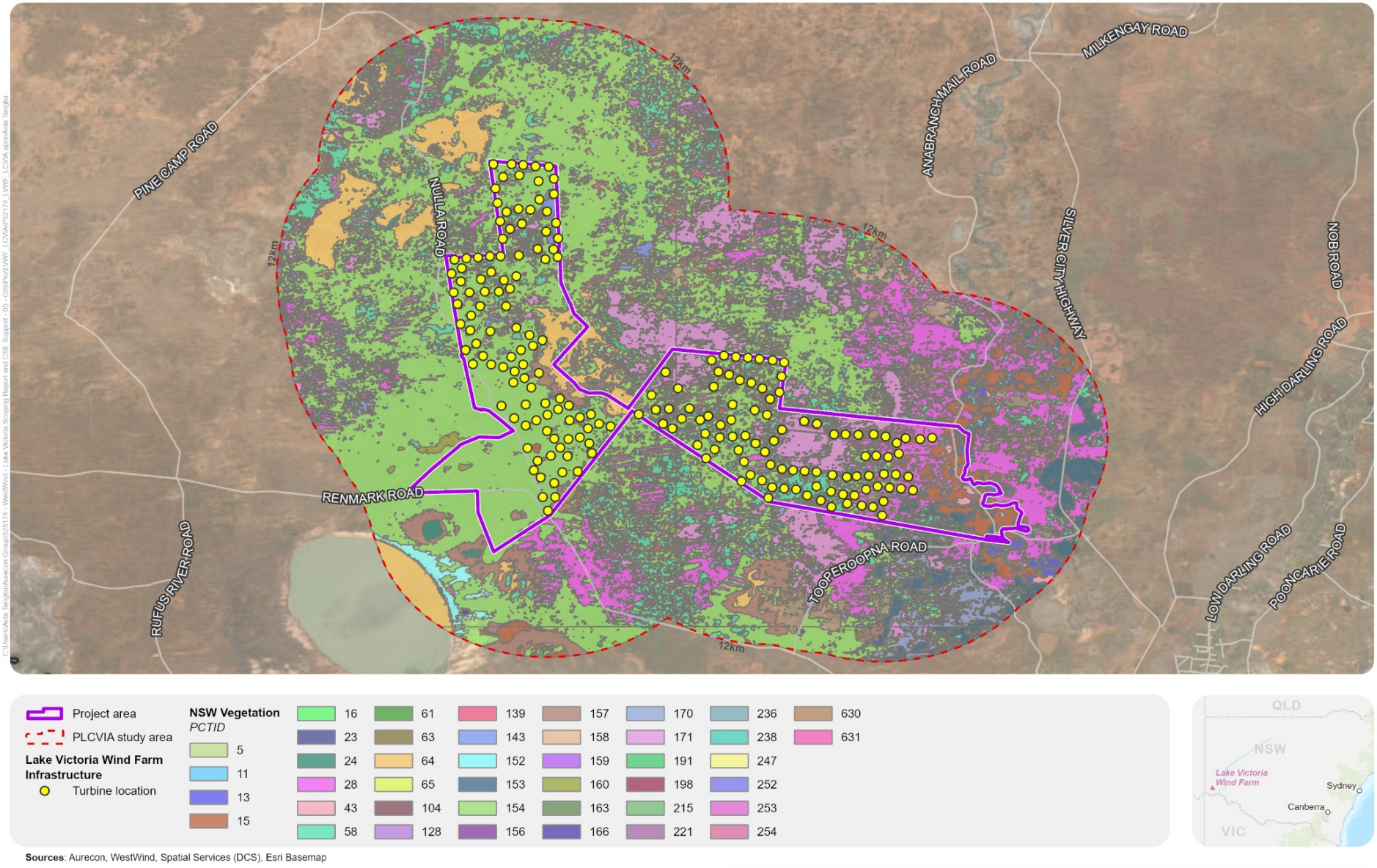


Figure 4-12 Lake Victoria Wind Farm - Vegetation Mapping (refer to Appendix D for descriptions) (GIS data source NSW DCEEW)

4.1.6 Landscape features and views

Recreation and public areas

Conservation areas within the Study Area include:

- Lake Victoria (refer to Figure 4-13 to Figure 4-14) is located to the southwest of the Project area. There is public access along the southern bank, with a rest area and public viewing across the lake with informational and interpretative signage. Lake Victoria is managed (by Murray-Darling Basin Authority) water storage facility, with Aboriginal burials and archaeological sites of cultural significance to the area around the lake. An Aboriginal heritage impact permit (AHIP) was issued in 1988 to ensure ongoing conservation and protection actions for Aboriginal cultural heritage through partnerships with the Aboriginal community and Heritage NSW. Whilst there are some designated swimming areas, the lake is not for recreational use.

Community facilities within the Study Area include:

- Anabranch Hall (refer to Figure 4-15) situated along the Greater Darling Anabranch, is a historic rural community hall comprising restroom facilities, outdoor seating and BBQ area; and some dilapidated tennis courts.
- Milpara Rest Area (refer to Figure 4-16) is located along the Silver City Highway. This area includes a shelter with seating and public toilets. Due to the close proximity of trees and vegetation there is limited views out of this site.



Figure 4-13 Public Lookout at Lake Victoria (image: Aurecon, October 2023)



Figure 4-14 View north across Lake Victoria (image: Aurecon, October 2023)



Figure 4-15 Anabranch Hall (image: Aurecon, October 2023)



Figure 4-16 Milpara Rest Area (image: Aurecon, October 2023)

Towns and settlements

Wentworth is the closest regional town, 24 kilometres to the southeast, with a population of approximately 1,577 (Australian Bureau of Statistics, 2021 Census). The Victorian regional centre of Mildura is approximately 20 kilometres further east from Wentworth, on the south side of the Murray River and Victorian border. Renmark, within South Australia on the Murray River and Sturt Highway is approximately 60 kilometres to the southwest of the Project.

There are small settlements surrounding the Study Area, where clusters of rural dwellings share infrastructure and proximity to Murray River or Darling River resources; including Pomona, Ellerslie (southeast and northeast respectively), Anabranch, Pine Camp (northwest) and Rufus (southwest).

There is also a cluster of approximately 10 conservation staff houses, within a gated compound on the southern shore of Lake Victoria.

Roads

The main roads in the Study Area include Silver City Highway and Renmark Road. Silver City Highway is located to the east of the Project area, connecting Wentworth (and Victorian border) and Broken Hill to the north.

Renmark Road (refer to Figure 4-20) is to the south of the Project area traversing east-west between the towns of Wentworth and Renmark in South Australia. Renmark Road is sealed up until just east where the road bends to the north. Rufus River Road diverts from Renmark Road, traversing west parallel to the Murray River to the south side of Lake Victoria; onto Rufus, before turning north to meet with Renmark Road again.

North-south connecting roads include Nulla Road (refer to Figure 4-17), an unsealed road, to the west of the Project area. This road provides access to Nulla Nulla Station and a few other remote dwellings to the north. To the east of the Project area, Anabranch Mail Road (refer to Figure 4-18) runs north-south on the west side of the Great Darling Anabranch. The unsealed road accesses various rural dwellings and connects to occasional dry-weather river crossings, across the Great Darling Anabranch to Silver City Highway.

Various local roads and tracks connecting to rural properties, lie within these areas and are generally hard clay-sand as shown in Figure 4-19.



Figure 4-17 Nulla Road (image: Aurecon, October 2023)



Figure 4-18 Anabranch Mail Road near Milpara Road (image: Aurecon, October 2023)



Figure 4-19 **Tooperoopna** Road (image: Aurecon October 2023)



Figure 4-20 **Renmark Road, paved section** (image: Aurecon, October 2023)

4.1.7 Cultural heritage

Aboriginal cultural heritage

Lake Victoria, known as Tar-Ru to local Aboriginal people, is an important cultural landscape of aesthetic and social value. An Aboriginal Heritage Impact Permit (AHIP) for Lake Victoria (Tar-Ru) issued to the Murray Darling Basin Authority in December 2023 seeks to ensure that damage to Aboriginal heritage from the operation and maintenance of the Lake is minimised and prevented where possible. Key aesthetic values relevant to the PLCVIA, in relation to Lake Victoria's cultural values, include:

- Lake Victoria is a landmark feature because of the visual contrast it provides as a very large lake set into a semi-arid landscape.
- Associated Aboriginal people feel that the landscape is an important part of the significance of the area. The burial sites and other heritage material can only retain their integrity if the environment remains intact. The aesthetic quality of the landscape is part of the spiritual aspects of Lake Victoria, so social and aesthetic significance are closely related.

To the northern shores of Lake Victoria, including Noola Beach and Nulla Northern Beach; there are sites of Aboriginal cultural heritage significance comprising burial sites in cliff, some ovens, shell middens, stone artefacts and skeletal fragments. The '*Lake Victoria cultural landscape plan of management'* (CLPoM) describes the cultural landscape as follows.

The Lake Victoria cultural landscape is a highly significant place, preserving the material evidence of both Aboriginal and European history, the patterns of human use of the landscape seen in the camping places and river crossing places, roads and tracks, which have been in use by people for generations, and associations such as spiritual feelings about burial grounds, massacres, past connections and the natural environment. (Chapter 1.5.1, CLPoM)

Refer to Section 6.7 of the Scoping report for further details on Aboriginal cultural heritage context and preliminary potential impacts.

Non-Aboriginal historical heritage

European occupation was established in the area through land sales in Ivanhoe in 1869. The area was settled by graziers, with large sheep stations established. Within the Study Area, elements of heritage significance associated with early pastoralism, include the following.

- Heritage overlay:
  - Nulla Nulla Station (refer to Figure 4-21). The property boundary includes the west portion of the Project area and further west, and down to the north shore of Lake Victoria. Nulla Nulla Homestead (Item 93 – Wentworth Heritage Study) was constructed in 1920 of Queenslander-style, with other associated buildings including a local heritage-listed raised woolshed with a distinctive sawtooth roof and the ruins of an original post office and general store.
- Heritage items:
  - Anabranch Hall: a rural community hall of simple construction including timber and corrugated iron, typical of a rural shed (refer to Figure 4-22). The hall played an important role in establishing communication links and combatting isolation is the pastoral area (Item 94 - Wentworth Heritage Study).
  - Moorna Station Woolshed, Renmark Road: constructed in 1880, Moorna was a large sheep station, with the woolshed a hive of activity and enabled transport of wool bales to barges along the adjacent Murray River (Item 75 - Wentworth Heritage Study).



Figure 4-21 **Nulla Nulla Homestead** (image: Homely.com.au, June 2020)



Figure 4-22 **Anabranch Hall** (image: www.wentworth.nsw.gov.au/portfolio-item/item-94-anabranch-hall/)

4.2 Community engagement

Community engagement has been undertaken by WestWind Energy to inform the community and gauge their sentiments about the Project, including:

- Direct consultation with landowners within 10 kilometres of the Project area
  - Some landowners expressed concerns relating to visual impacts from turbines on local landscapes.
- Traditional owners Barkandji Native Title PBC
- Local government
- Community and interest groups.

Ten residents identified key landscape features valued by the broader community, which are summarised in Table 4-1.

Table 4-1 Summary of visual amenity value of local landscape captured during stakeholder interviews

Location	Scenic quality
Anabranch River	Medium to High
Anabranch Hall	Medium to High
Lake Victoria	High
Bushland (Flood plain, woodlands and salt bush)	High
Murray and Darling River	High
Unnamed Bluff	Medium

Refer to Scoping report, chapter 5 Engagement for comprehensive for further details on engagement parties, type and feedback received.

Environmental assessments and consultation reports for the EnergyConnect project which spans part of the Project area, have been reviewed to understand key areas valued by the community. These are listed in Table 4-2.

Table 4-2 Summary of landscape and visual elements valued by community

Significance	Location / description	Relevance
Cultural heritage / landscape value	Lake Victoria – access tracks (in restricted public access) used by local Aboriginal community to access the northern camps of Lake Victoria (source: EnergyConnect LCVIA)	Landscape of high value to the local Aboriginal people and is associated with the visual setting of Lake Victoria.
Visual impacts	Murray-Darling Anabranch: Impact of structures on sightlines, especially on river views; impact on property value if visual amenity reduced (source: EnergyConnect Environmental Scoping Report section 5.6 Summary of feedback received)	Scenic quality of river environs

4.3 Key landscape features and public viewpoints

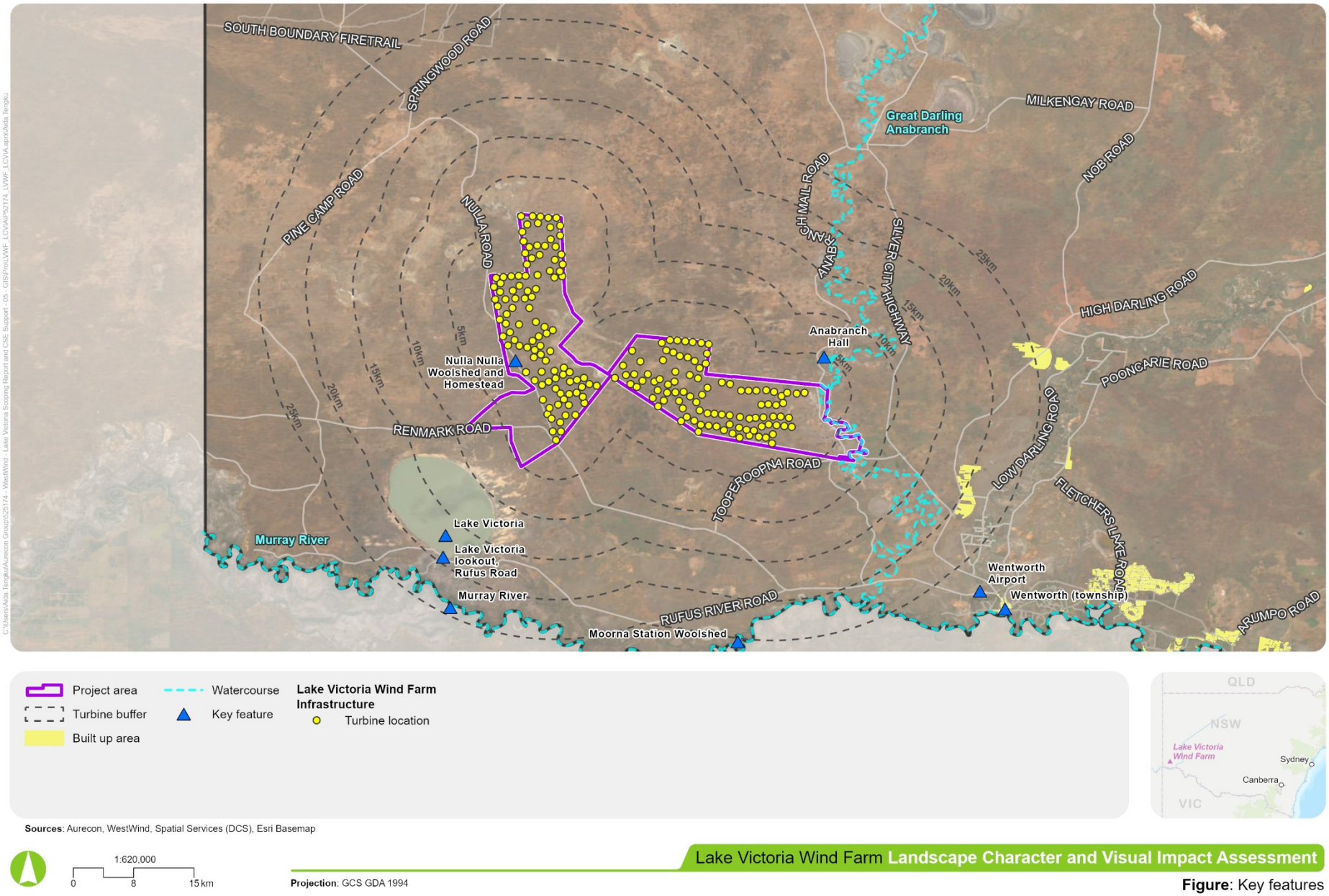
There are no significant features or public viewpoint located within the Project area, however there are in the broader Study Area. Due to the flat topography, vast landscape views and the height of the proposed turbines; regionally significant views and the cultural sensitivity of Lake Victoria is considered in this assessment.

Table 4-3 identifies the key landscape features and public viewpoints for assessment. Key features within the region are mapped in Figure 4-23.

Table 4-3 Summary of landscape features and public viewpoints

Significance	Location	Relevance to PLCVIA
High landscape, historical and visual value of regional significance	Lake Victoria Lake Victoria lookout, Rufus River Road	▪ Lake Victoria is a landmark feature because of the visual contrast it provides as a very large lake set into a semi-arid landscape. It is also the most substantial and likely the most ancient lake along the central River Murray. ▪ Lake Victoria lookout located Rufus River Road - south side of the lake, looking northwest to northeast. ▪ The combination of natural and cultural aspects, both social and historic, makes Lake Victoria an important cultural landscape which has both aesthetic and social value.
Regional environmental, historical and high visual value	Murray River	▪ The river is of environmental significance and provides recreational use (boating and fishing). ▪ It is of Aboriginal cultural significance.

Significance	Location	Relevance to PLCVIA
Regional environmental value	Great Darling Anabranch	■ Of regional environmental significance, providing habitat for fish, waterbirds and vegetation. It's an ephemeral and changing waterway, flooding the surrounding area. ■ It provides recreational use (boating, fishing and nature-watching). ■ It is of cultural significance, traditional lands of the Barkandji people.
Local landscape value associated with historical significance	Nulla Nulla Woolshed and Homestead, Nulla Road	■ Historic significance relevant for rural landscape characterisation
Local landscape value associated with historical significance	Anabranch Hall	■ Historic significance relevant for rural landscape characterisation
Local landscape value associated with historical significance	Moorna Station woolshed	■ Historic significance relevant for rural landscape characterisation



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:620,000
0 8 15 km

Projection: GCS GDA 1994

Lake Victoria Wind Farm **Landscape Character and Visual Impact Assessment**

Figure: Key features

Figure 4-23 Key Regional Features

5 Baseline analysis

5.1 Landscape Character

Landscape Character Types (LCT) help to identify unifying aspects of the landscape and distinguish why one landscape is visually distinct from another (refer to Section 3.4.1 for assigning landscape sensitivity). The character zones have been determined through both desktop and field analysis, determining that the Project has the potential to influence the LCT within the Study Area. Each character type identified is based on the consideration of the following attributes, some of which have been previously described in Sections 4.1.1 Bioregion and 4 Landscape context.

- Landscape value, i.e. landscape designated for their scenic or landscape importance or valued recreational function (as described
- Landscape elements that contribute to defining character, i.e. residential, commercial and landform
- Landscape character attributes, including scale, grain, perceptual characteristics such as connection to natural landscape, industrial nature of the area
- Observed land uses and current and future land use zones outlined in strategic planning documents and Local Environmental Plans (as described in Section 4.1.1)
- Topography and vegetation.

The LCTs identified within the Study Area are shown in Figure 5-1 and include:

- LCT 1: Plain and Dune Woodlands and shrublands
- LCT 2: Floodplains and Riverine Forests
- LCT 3: Plains and floodplain pastures
- LCT 4: Lakeland conservation

Roads are assumed to take on the character of adjacent LCTs.

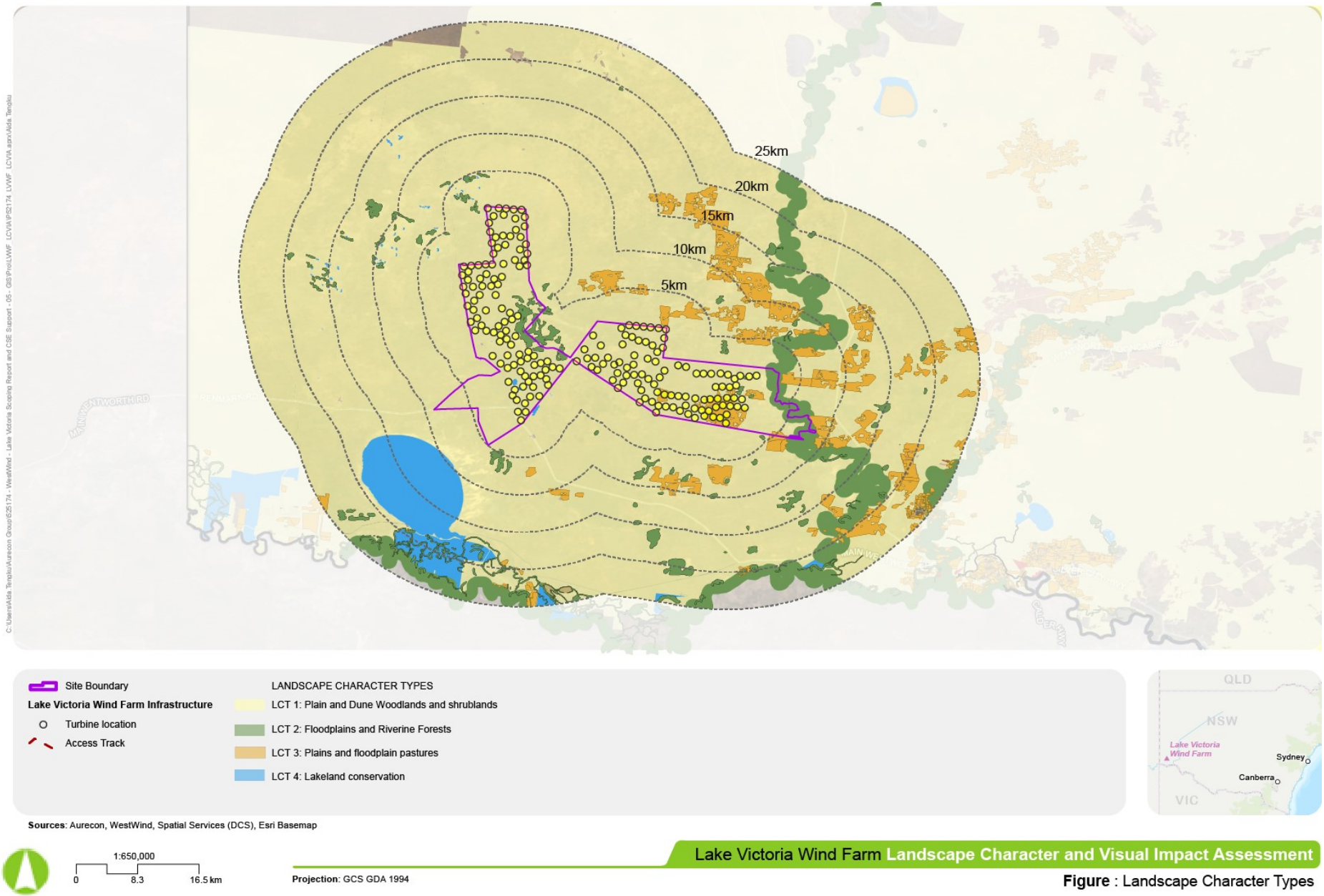


Figure 5-1 Landscape Character Types within Study Area

5.1.1 LCT 1: Plain and Dune woodlands and shrublands

Plain and Dune Woodlands includes vegetation classification Semi-arid Sand Plain Woodlands, Sand Plain Mallee Woodlands, Dune Mallee Woodlands and Arid Chenopod Shrublands. Although rainfall in this area is limited to between 250 to 500 millimetres annually, this is enough to support tree-dominated vegetation and an understorey of either adapted shrubs or grasses and herbs (refer to Figure 5-2 and Figure 5-3). Parrots and cockatoos are a diverse and conspicuous inhabitant of woodland, providing a vibrant visual and sound element to this landscape.

This LCT is comprised of both grassy and shrubby understorey, with the grassy areas occurring on floodplains and shrubby areas take up higher ground. These two understorey types coexist with gentle variance in the topography. Sand dunes and lunettes are found throughout the LCT, exposing the red and orange hues of the outback.

In the drier areas away from the floodplains and drainage lines, the tree cover recedes and shrubs persist as a maximum of two metre-high cover across the landscape. The shrublands support a rich diversity of reptiles. The Study Area visited contains very small and limited pockets of treed vegetation being contained within areas that are mostly open with occasional trees.

Key characteristics and landscape features:

- Gently undulating or flat plains of sand and dunes.
- Thick coverage (where not overgrazed) of shrubs, grasses and herbs
- Scattering of small trees, some pockets with groups of trees
- Birdlife and reptiles
- Vast views due to flat topography
- A vast and open landscape with large skyscapes.



Figure 5-2 View towards east from Nulla Road, with shrublands in the foreground and woodland in the background. (image: Aurecon October 2023)



Figure 5-3 View towards southeast from Nulla Road, with shrublands in the foreground and woodland in the background. (image: Aurecon October 2023)



Figure 5-4 View towards north from Renmark Road, with grasslands and scattered occasional cypress. (image: Aurecon October 2023



Figure 5-5 View west from Tooperoopna Road showing grass and herb understorey with small tree coverage.

5.1.2 LCT 2: Floodplains and Riverine Forests

The Great Darling Anabranch is the dominant feature of the Floodplains and Riverine Forest LCT. The river, tributaries and drainage lines that feed into the river are clearly marked through trees that dominate the banks of the river and flood plains. River Red gums line the anabranch with old man saltbush and lignum.

Billabongs and floodplains support black box, cane grass and lignum vegetation types. Adjacent dunes contain prickly wattle, belah, narrow-leaf hopbush and bluebush species. The swampy areas contain more conspicuous aquatic plants such as common reeds, water couch and milfoil and duckweed.

The Anabranch and its floodplains support several threatened and endangered flora and fauna, and is important habitat for water birds. This attracts nature-watchers to explore the river. Typical landscape patterns are shown in Figure 5-6 to Figure 5-11.

Key characteristics and landscape features:

- Relatively dense tree coverage
- Taller trees at the rivers and drainage lines edge
- Greener and softer understorey vegetation
- River and wetland areas.



Figure 5-6 View of the Great Darling Anabranch from the Anabranch Hall (image: Aurecon, October 2023)



Figure 5-7 View towards the Great Darling Anabranch from the Anabranch Mail Road (image: Aurecon, October 2023)



Figure 5-8 **View of a flood plain area from the Anabranch Mail Road** (image: Aurecon, October 2023)



Figure 5-9 **View of a flood plain and pelicans from the Anabranch Mail Road** (image: Aurecon, October 2023)



Figure 5-10 **View of a flood plain area from the Anabranch Mail Road** (image: Aurecon, October 2023)



Figure 5-11 **Eucalypts, grasses and herbs, from Anabranch Mail Road** (image: Aurecon, October 2023)

5.1.3 LCT 3: Plains and floodplain pastures

Much of the agricultural landscapes that are for grazing can be described as LCT 1 or LCT 2 above. However, cropping and cleared grazing land has a distinctive character and in these locations is over a very large area warranting into its own LCT.

Additionally, as a working landscape, where there is infrastructure such as sheds these too have been grouped in this character type. At some of these locations, there is presence of exotic trees for ornamentation or shade purposes. Typical landscape patterns are shown in Figure 5-12 to Figure 5-14.

Key characteristics and landscape features:

- Mono-planting of crops or pasture
- Farming and agriculture infrastructure such as sheds
- Exotic trees.



Figure 5-12 View of pasture and sheds from Anabranch Mail Road eastwards (image: Aurecon, October 2023)



Figure 5-13 View of crops from Anabranch Mail Road (image: Aurecon, October 2023)



Figure 5-14 View of working landscape from Tooperoopna Road (image: Aurecon, October 2023)

5.1.4 LCT 4: Lakeland conservation

The LCT comprises of Lake Victoria (refer to Figure 5-15), some smaller lakes and the wetland area conservation zone between Lake Victoria and the Murray River. Within the semi-arid landscape, these large water bodies are a visual contrast to the surrounding area and are places of cultural significance. In addition, the south edge of the lake is highly modified comprising a built wall and outlet for water storage flow control. This area and flood land to the south of the lake is a managed conservation area.

Conservation staff housing (approximately 10 dwellings) and a water management facility is located between Rufus River Road and the lake (refer to Figure 5-16). The housing is fenced with lawns and large trees.

Key characteristics and landscape features:

- A very large lake set into a semi-arid landscape;
- A place of Aboriginal cultural and spiritual significance;
- Modified lake wall, outlet regulator and channel to the south side of the lake;
- Flood and wetland area comprising Rufus River and Brilka Creek are between the south side of the lake and the Murray River;
- Other wetland areas connected to the Murray River; and
- Small ephemeral lakes in semi-arid areas, north of Lake Victoria.



Figure 5-15 Lake Victoria with tree trunks in water (image: Aurecon, October 2023)



Figure 5-16 Lake Victoria southern shoreline embankment with outlet in the background (image: Aurecon, October 2023)

5.2 Visual baseline

The assessment of potential visual impacts is based on the sensitivity of the view and the degree of modification or changes to the view as part of the proposal at the operational phase. The following section outlines the preliminary impact assessment on the visual components at operation of the Project.

5.2.1 Visual catchment

The ZTV has been analysed to identify a preliminary representation of the likely 'worst case' visual envelope of the wind turbine layout, within the Study Area (refer to Section 6.2). The following is relevant when interpreting the findings of the ZTV:

- It takes into account the topographic constraints of the view and does not include land cover factors such as the presence of buildings and vegetation. As it only uses the landform, it is considered a worst-case scenario of the potential visual extents;
- It does not consider the effect of distance. Generally, the greater the distance from the wind farm, the less prominent it will be within the view due to its perceived scale and fading due to atmospheric conditions; and
- The ZTV identifies increased visibility due to altitude and ridgelines, as well as decreased visibility caused by intervening topography.

The ZTV (refer to Figure 5-17 to Figure 5-19) is used to guide the selection of representative viewpoints (refer to Section 6.2).

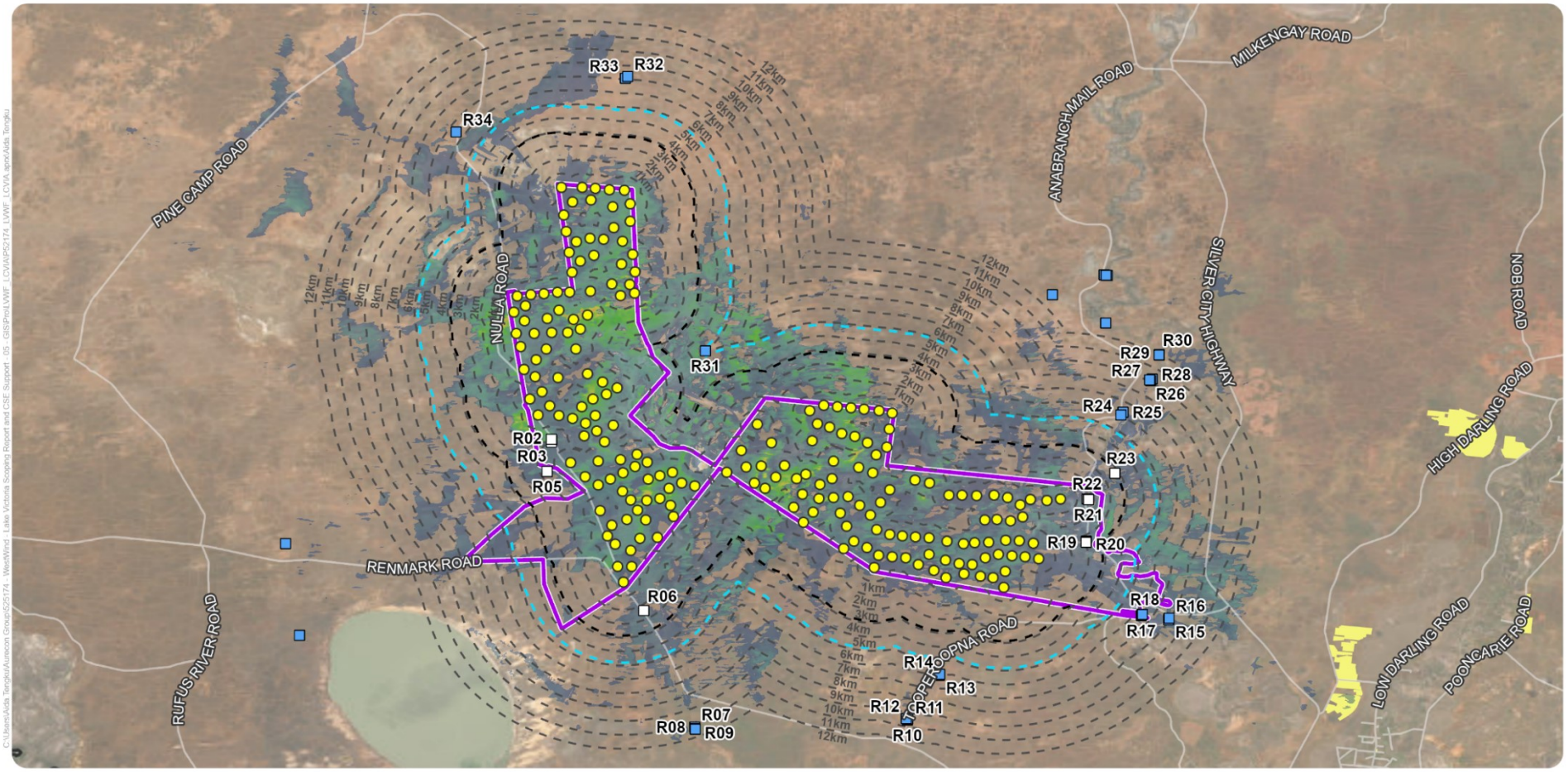


Figure 5-17 ZTV – Turbine entire height

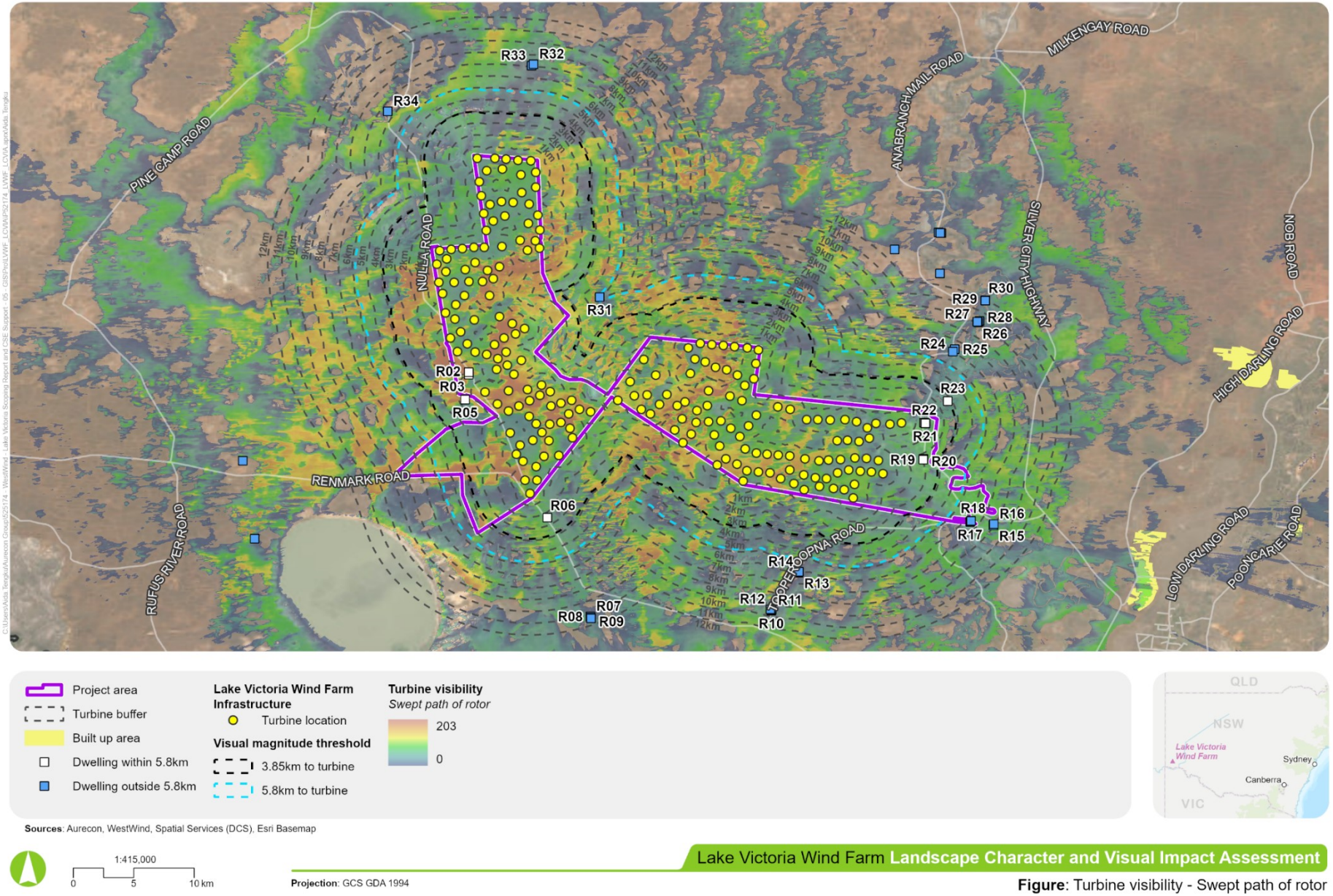


Figure 5-18 ZTV – Turbine rotor swept path

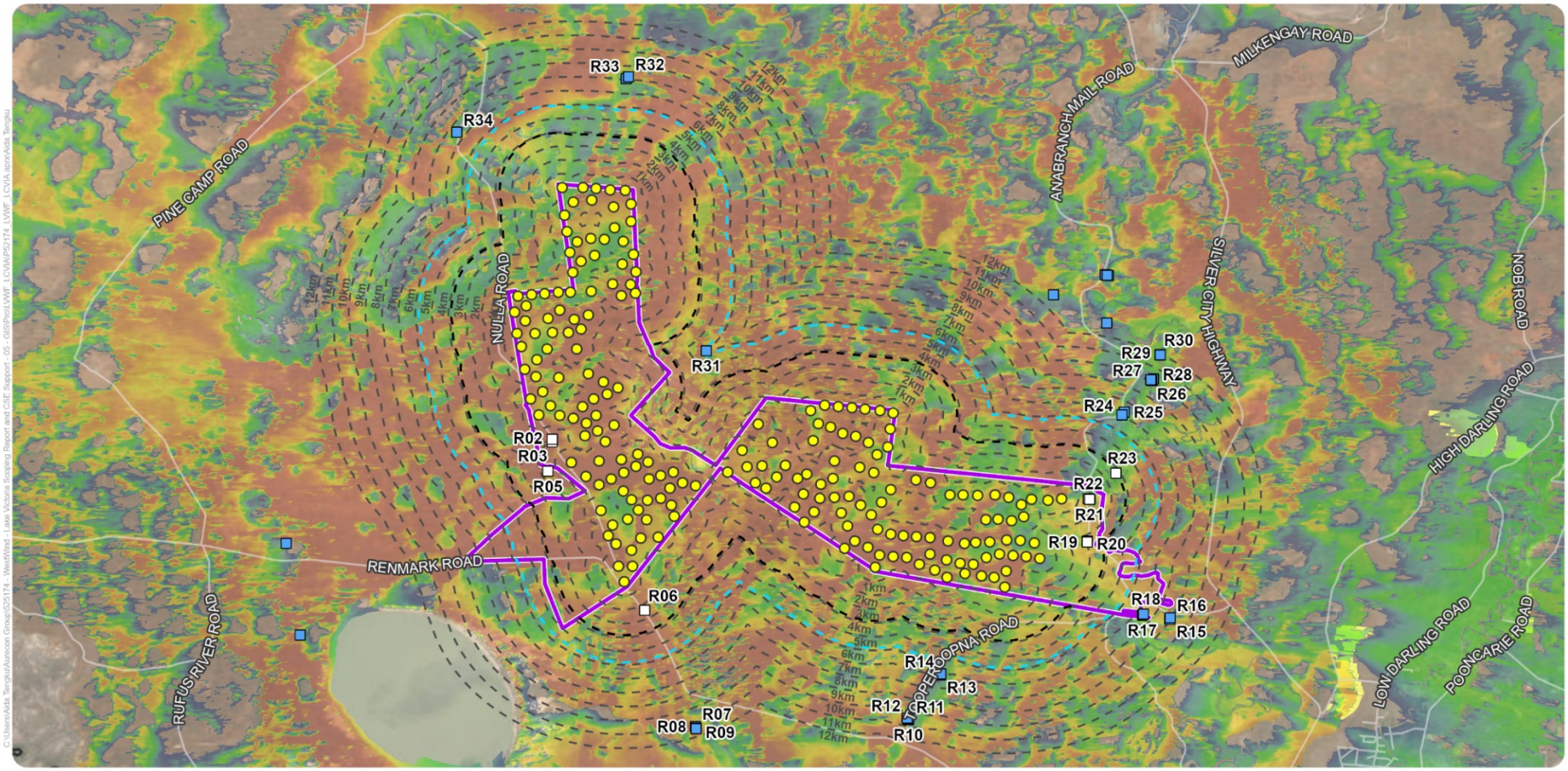


Figure 5-19 ZTV – Turbine hub and above

6 Potential impacts

6.1 Potential Landscape Character impacts

A summary of preliminary impacts to landscape character is shown in Table 6-1, providing a summary of matters for the referral which may require further investigation, assessment, management and mitigation.

The Project area lies within LCT 1 Plain and Dune Woodlands and shrublands, LCT 2 Floodplains and Riverine Forests and LCT 3 Plains and floodplain pastures.

Due to the visual influence dictated by the height of the turbines, there is a potential for landscape character impacts to adjacent LCTs, where the visual amenity is a part of the character. The potential for impacts arising on these LCTs have been considered from Day 1 of operation.

Table 6-1 Summary of preliminary impacts to landscape character

Landscape Character Type	Sensitivity	Magnitude	LCT Impact
LCT 1 **Plain and Dune Woodlands and shrublands**	**Low** ■ The LCT is relatively unmodified with a generally unremarkable character ■ The LCT covers an extensive area	**Low** ■ The proposed project infrastructure in this LCT would have a minor evident change in landscape characteristics in close range. However, the extent of this change is considered minor in relation to the extent and use of this LCT. ■ The scale and form of the Project infrastructure is a contrast to the existing character.	**Low**
LCT 2 **Floodplains and Riverine Forests**	**Moderate** ■ Riverine environs is of contrast to semi-arid surrounds and of cultural, environmental and recreational value	**Negligible** ■ The Project impacts are indirect, with placement of turbines and ancillary infrastructure avoided in forested areas or wetlands.	**No impact**
LCT 3 **Plains and floodplain pastures**	**Low** ■ Highly modified patchwork within vast rural landscape with no features.	**Very Low** ■ The proposed project infrastructure in this LCT will have a minimal compositional contrast to the existing modified and seasonally changing landscape characteristics in close range. The extent of this change is considered minor in relation to the extent and use of this LCT.	**Very Low**
LCT 4 **Lakeland conservation**	**High** ■ High cultural and environmental value, with modification limited to the south shore.	**Negligible** ■ The Project impacts are indirect, without modification to this LCT.	**No impact**

6.2 Potential visual impacts

To understand the potential visual impact of proposed wind turbines, the visual assessment tools identified in the VIA Bulletin have been employed to provide an early indication of where turbine locations require careful consideration. The preliminary assessment tools apply to both dwellings and key public viewpoints in the Assessment Area. The tools provide an early indication of where placement of turbines will require further assessment and justification, and where consultation with potentially affected landowners needs to be focused – including discussions for landowner agreements.

The preliminary assessment tools involve analysis of two key visual parameters:

1. Visual Magnitude (refer to Section 6.2.1)

2. Multiple Wind Turbine Tool (refer to Section 6.2.2)

Table 6-2 identifies the private receivers within 5,800 metres of a turbine and the potential visual conditions. There are 11 private receivers within the high visibility threshold, however only three of these are not associated with Project (R05, R06 and R23).

Table 6-2 Private receivers and public viewpoints within 5,800 metres of the Project

ID	Dwelling or view	Distance/ direction from closest turbine	Number of 60o sectors	Screening factors and no. of visible WTGs
R01-R04	Nulla Nulla Station, Nulla Road, Pine Camp Associated landowner	R01: 1,825 m SW of WTG064 R02: 1,879 m SW of WTG064 R03: 1,866 m NW of WTG072 R04: 1,763 m SW of WTG064	4x 60° sectors	▪ Low amount of vegetation screening in direction of Project, generally open views to surrounds. ▪ Within 8,000 m there are 10 potentially visible from ground up, 49 visible upwards of rotor swept path.
R05	Nulla Road, Pine Camp Non-associated landowner	1,559 m W of WTG072	3x 60° sectors	▪ Low-stratum vegetation with minimal screening value in direction of Project. ▪ Within 8,000 m there are 7 potentially visible from ground up, 49 visible upwards of rotor swept path.
R06	Renmark Road Non-associated landowner	2,391 m SE of WTG106	1x 60° sector	▪ Low amount of vegetation screening in direction of Project, generally open views to surrounds. ▪ Within 8,000 m there are 3 potentially visible from ground up, 53 visible upwards of rotor swept path.
R19, R20	2551 Anabranch Mail Road Associated landowner	R19: 3,084 m E of WTG173 R20: 3,124 m E of WTG173	2x 60° sectors	▪ Moderate level of upper-stratum vegetation screening in direction of Project and surrounding dwellings. ▪ Within 8,000 m there are 4 potentially visible from ground up, 26 visible upwards of rotor swept path.
R21, R22	2860 Anabranch Mail Road Associated landowner	R21: 1,680 m NE of WTG199 R22: 1,594 m NE of WTG199	2x 60° sectors	▪ High level of screening vegetation surrounding dwellings in direction of Project. ▪ Within 8,000 m there are 4 potentially visible from ground up, 24 visible upwards of rotor swept path.
R23	Anabranch Mail Road Non-associated landowner	3,754 m NE of WTG199	1x 60° sectors	▪ Moderate to high level of upper-stratum vegetation screening in direction of Project and surrounding dwelling. ▪ Within 8,000 m there are 2 potentially visible from ground up, 13 visible upwards of rotor swept path.
VP13	Anabranch Hall	4,210 m NE of WTG199	1x 60° sectors	▪ Moderate level of upper-stratum vegetation and earth bund, screening in direction of Project. ▪ Within 8,000 m there are 12 potentially visible upwards of rotor swept path.

6.2.1 Visual magnitude

The receivers identified within the 5,800 metres visual magnitude threshold (refer to Section 3.2.1) with their relative distances from proposed WTGs are presented in Table 6-2. An aerial analysis of the screening factors and viewing direction of the Project is presented in Appendix B.

The threshold distances in which private receivers and sensitive public viewpoints are to be identified and assessed include the following:

- Visual influence zone 1 (within 3,850 metres of a proposed turbine): eleven (11) private receivers (R01-04, R05, R06, R19-20, R21-22, R23) including three (3) non-associated private receivers (R05, R06, R23)
- Visual influence zone 2 (within 3,850 to 5,800 metres of a proposed turbine): Anabranch Hall (VP13), a public viewpoint of local historic and community significance.

As such, there are eight private associated receivers and three private non-associated receivers within the black line (3,850 metres), and no private receivers within the blue line (5,800 metres) as shown in Figure 6-4.

Table 6-3 provides a rating of the level of visual magnitude change of the Project from the three non-associated private dwellings and the public viewpoint. The topography has been considered and a conservative height of existing screening vegetation up to 10 metres where upper-stratum vegetation is present.

Table 6-3 Visual magnitude rating

ID	Visual magnitude rating	Rationale
R05	High	Turbines are in the far foreground, with a low degree of screening vegetation surrounding the dwelling. Turbines are likely to be prominent within the west-facing view with turbines visible from the ground (7no.) and upwards of the rotor swept path.
R06	High	Turbines located in the near middleground, with a low degree of screening vegetation surrounding the dwelling. Turbines are likely to be prominent within the north-facing view with turbines visible from the ground (3no.) and upwards of the rotor swept path.
R23	Moderate	A low number of turbines (3no.) are in near middleground within 3,850 m. There is a moderate to high degree of upper stratum screening vegetation. Turbines are likely to be visible within the west-facing view with turbines visible upwards of the rotor swept path.
VP13	Low	A low number of turbines (3no.) are in near middleground, with a moderate to high degree of upper stratum screening vegetation. Turbines are likely to be visible within the west-facing view with turbines visible upwards of the rotor swept path.

The visual magnitude rating is determined through the prominence, or distance of the turbine from the visual receiver and the extent of the turbine visible. Turbines have the potential to be partially screened from dwellings when:

- Turbines in foreground views (up to 2,000 metres) have screening vegetation located within 90 metres of a dwelling
- Turbines in middleground views (2,000 to 8,000 metres) have vegetation screening up to 380 metres from a dwelling.

Figure 6-1 demonstrates how the degree of visual magnitude is determined through both the distance of the vegetation from the dwelling and the distance of the nearest turbine. These demonstrate the distance (within foreground or middleground) that vegetation would make an impact on screening views from above the hub.

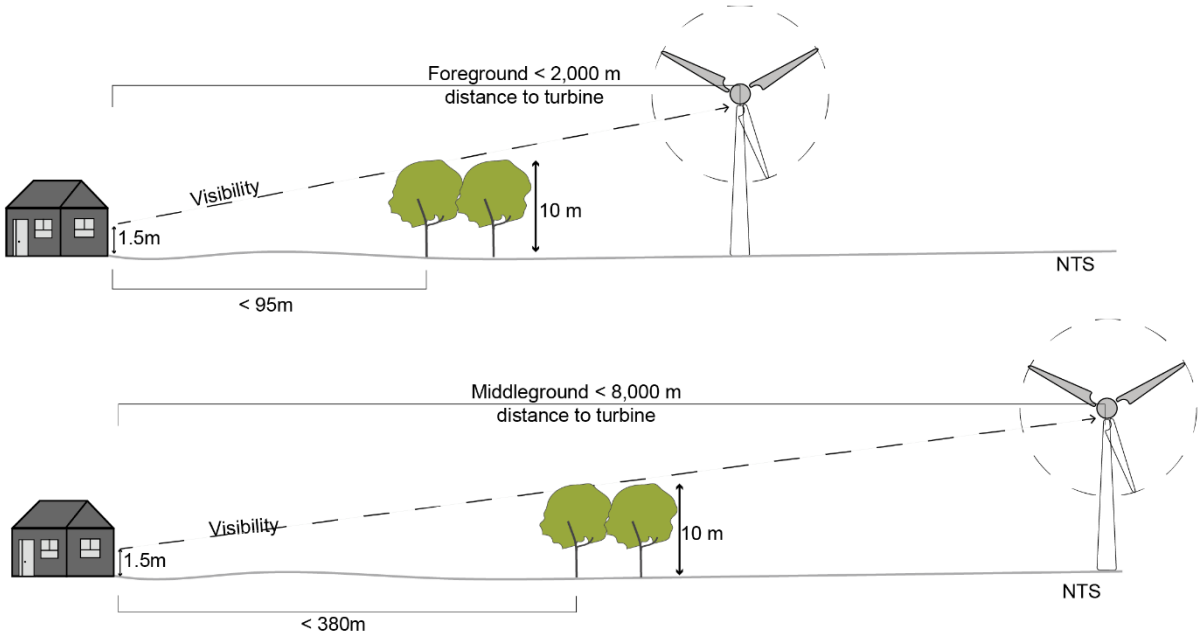


Figure 6-1 Visual magnitude diagrams

6.2.2 Multiple wind turbines

The VIA Bulletin provides a distance of 8,000 metres from a dwelling or public viewpoint for the analysis of multiple wind turbines. At 8,000 metres, turbines are likely to visibly recede into the background.

To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple wind turbines, the location in which wind turbines are potentially visible from the representative viewpoint are mapped within 360°. Should wind turbines be visible in three or more 60° sectors (refer to Figure 6-2), the potential cumulative impacts of multiple turbines should be considered as part of the EIA.

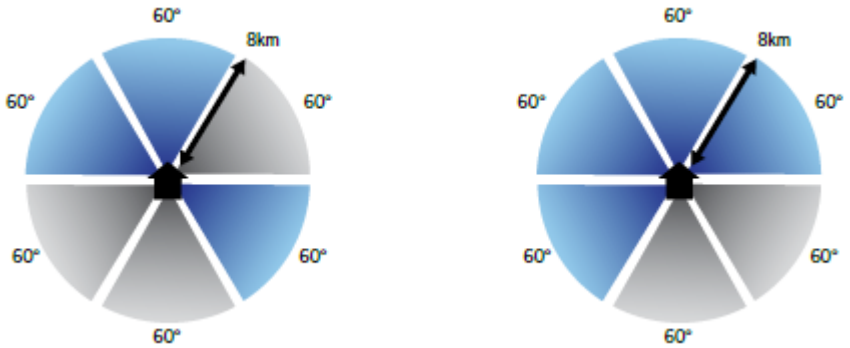


Figure 6-2 Multiple wind turbine assessment tool indicating 60° sectors visible within 8,000 metres from a dwelling (source: VIA Bulletin)

The non-associated dwellings with turbines within 8,000 metres covering three or more sectors of the view from the proposed Project layout include:

- R05: 3no. 60° sectors (refer to Table 6-2 and Appendix A), dwelling within 5,800 metres
- R31: 4no. 60° sectors (as analysis undertaken in Appendix B, Figure B-14), closest turbine 5,951 metres to dwelling.

6.2.3 Cumulative visual impact analysis

Cumulative landscape and visual effects result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it) or actions that occurred in the past, present or are likely to occur in the foreseeable future (Landscape Institute et al, 2002).

The potential cumulative visual impact is considered in relation to the potential visual impact when viewed sequentially. If a number of wind farms are viewed in succession as a traveller moves through the landscape (i.e. roads or walking tracks) this may result in a change in the overall perception of the landscape character.

Scottish Natural Heritage (2005) describes a range of potential cumulative landscape impacts of wind farms on landscapes, including:

- Combined visibility (whether two or more wind farms will be visible from one location).
- Sequential visibility (e.g. the effect of seeing two or more wind farms along a single journey, e.g. road or walking trail).
- The visual compatibility of different wind farms in the same vicinity.
- Perceived or actual change in land use across a character type or region.
- Loss of a characteristic element (e.g. viewing type or feature) across a character type caused by developments across that character type.

Wind Farm Projects

Currently, nine (9) other large-scale renewable energy projects have been proposed in the NSW South-West Renewable Energy Zone (REZ) (refer to Figure 6-3), with two of these within the Wentworth Shire including:

- Mallee Wind Farm (SEARs issued in February 2023): approximately 61 kilometres southeast of Project (15 kilometres east of Mildura / 37 kilometres east of Wentworth)
- Euston Wind Farm (request for SEARs September 2023): approximately 99 kilometres southeast of Project (51 kilometres southeast of Mildura / 77 kilometres southeast of Wentworth)

There are no current wind farms operating, approved or under consideration within the Victorian Murray River REZ (VicPlan, October 2023). The Victoria REZ are shown in Figure 6-3.

Other Projects

Project Energy Connect is a High-Voltage (HV) transmission line interconnector between NSW, SA and northwest Victoria is being constructed within the Study Area (shown in Figure 6-3), connecting to the Buronga substation north of Mildura. The HV transmission is located parallel to Renmark Road, then east of Nulla Road it traverses slightly north and then west along a new easement (north of the Project site) to Pooncarrie Road. The visibility of transmission towers has a much lesser distance than turbines due to the height and the visual permeability provided by the metal and wire structures.

The visual receivers likely to incur impacts of both the transmission line and the wind turbine include:

- Motorists along Renmark Road (west of Nulla Road)
- Rural dwelling on Renmark Road (as assessed in VP4)
- Rural dwellings near the northwest Project boundary (R21, R22 and R23 as assessed in VP12).

Copi Mineral Sand Mine is proposed to the north of the Project Area (to the north end of Nulla and Pine Camp Roads). The proposed Mine Site and therefore the areas of principal disturbance would be situated wholly within pastoral stations “Warwick”, “Nulla”, “Huntingfield”, “Belmore”; with access through “Colleraine” and “Bunnerungie”. The general infrastructure proposed which is of visual relevance for cumulative effects include:

- Sand stockpiles
- Mine Camp associated infrastructure for up to 200 personnel

- A 66kV transmission line from the 220kV Buronga to Broken Hill transmission line. The transmission line would be located adjacent to the Mine Site Access Road
- Solar Farm and associated infrastructure.
- A power station comprising modular, silenced, diesel generators and associated infrastructure for use during construction operations
- Offices and Administration Area
- Workshops, Stores and Laydown Areas.

The haulage access road connects into Anabranch Mail Road, 27 kilometres north of the Project area and thus is at a distance which does not impact on the same visual receivers.

The residential receivers which are within 8,000 metres of the Project and the proposed Copi Mineral Sand Mine include R34 ‘Huntingfield’ and R32 ‘Warwick’. These are both landowners associated with mine not considered sensitive receivers and therefore and exempt from assessment of cumulative effects.

Potential for cumulative impacts

Cumulative analysis has been completed to identify dwellings and significant viewpoints, within a distance of eight (8) kilometres from the Project and other surrounding wind farms, in accordance with VIA Bulletin guidance. At 8,000 metres, turbines and objects recede into the background in terms of visibility and thus, cumulative impacts are unlikely.

Due to the distance of the Project from any built or approved wind farms, there will be no cumulative views of two or more wind farms within 8,000 metres of the Project.

There is potential for localised cumulative impacts of Project EnergyConnect (NSW western section) and the Project introducing increased large-scale electrical infrastructure including transmission lines and ancillary electrical element, to the following areas.

- Motorists along Renmark Road (west of Nulla Road)
  - Low sensitive receivers, with views of electrical infrastructure viewed temporarily at speed would likely result in very low cumulative impacts
- Rural dwelling on Renmark Road (as assessed in VP4)
  - Moderate sensitive receivers have a high degree of vegetation surrounding the dwelling (refer to Figure B-16), therefore views of electrical infrastructure likely viewed outside of the dwelling, though introducing new elements, and not likely prominent, resulting in a very low cumulative impact.

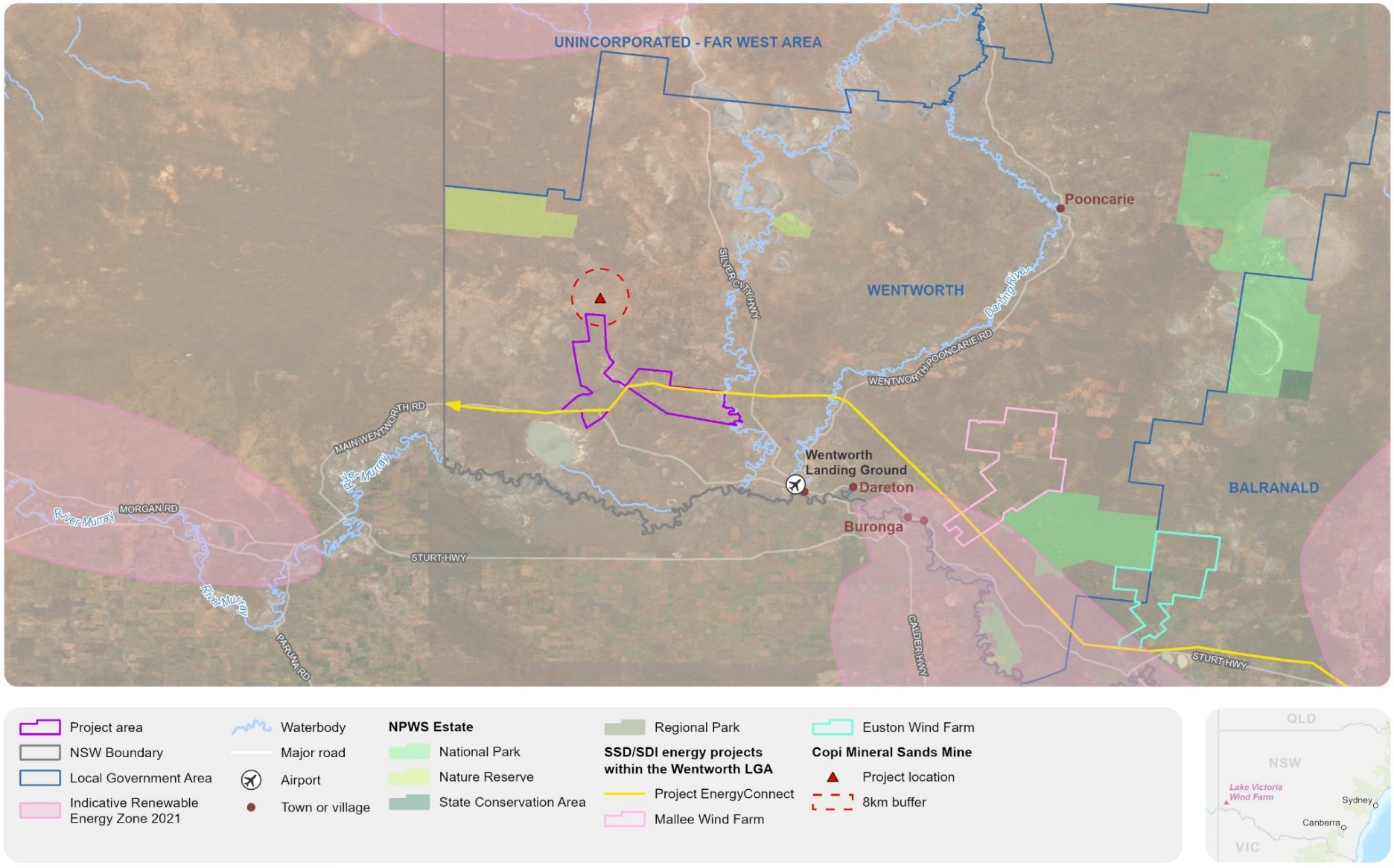


Figure 6-3 **Renewable Energy Zones and existing or proposed projects**

6.3 Viewpoint assessment

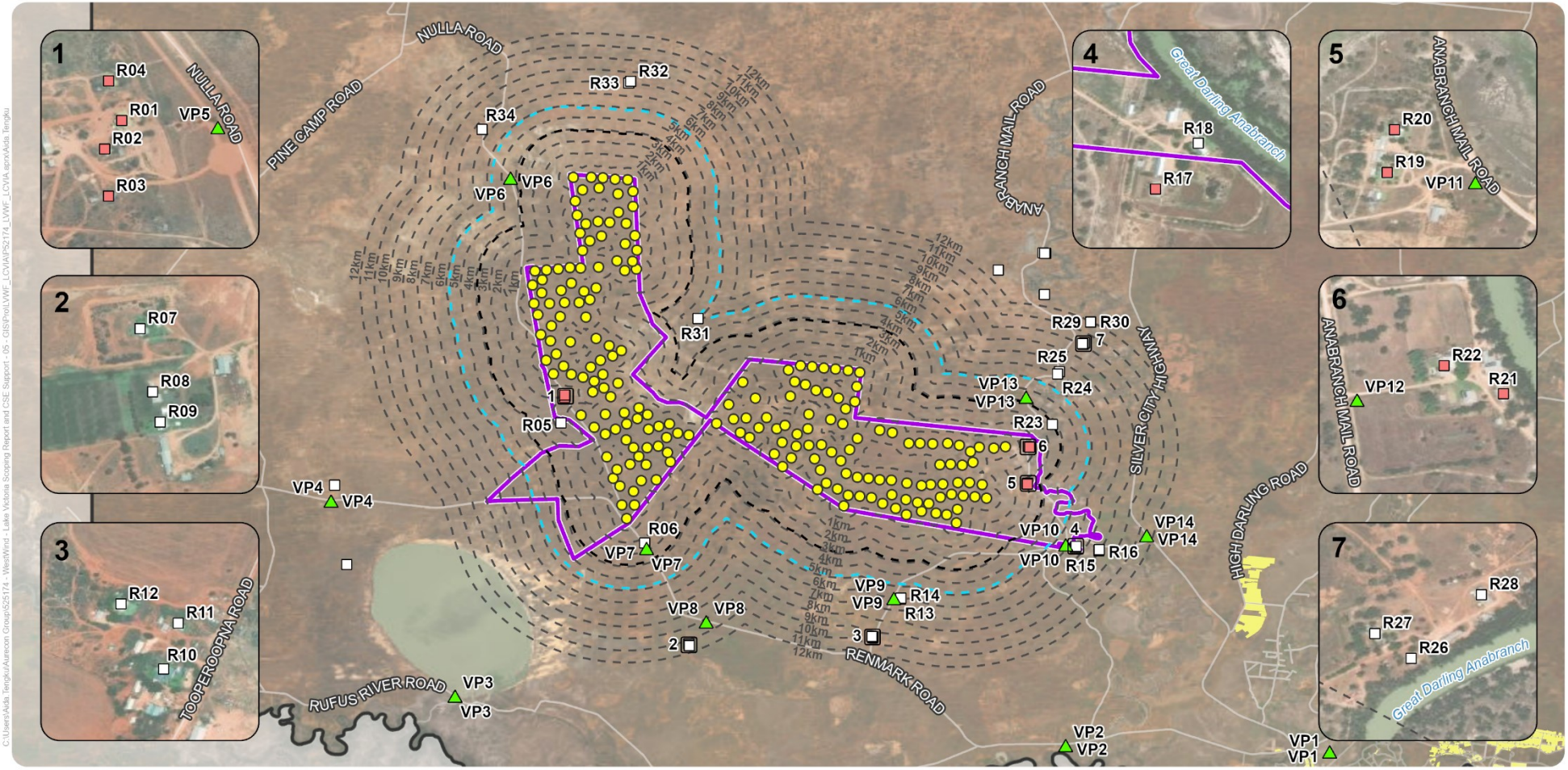
A total of 10 viewpoints representative of private and public views, were identified within the Study Area based on the design, viewing distance and aspect and significant views. A further four public viewpoints were assessed outside of the Study Area which are either a sensitive viewpoint or viewed by higher number of people. The locations of the 14 assessed viewpoints are shown in Figure 6-4.

- These viewpoints were selected based upon a four-stage process:
  - Identification within the ZTVs
  - Desktop studies identifying places within close vicinity of potential sensitive receptors
  - Significant viewpoints
  - Viewpoints that are publicly accessible.

The following are significant viewpoints or view corridors within the Study Area (identified in Section 4.1.6):

- Lake Victoria lookout, Rufus River Road

The details of viewpoint assessments including images of their existing conditions can be found in the following section. Viewsheds have been generated to inform the analysis for the key elements associated with the Project (refer to Appendix A).



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:480,000

0 6 12 km

Projection: GCS GDA 1994

Lake Victoria Wind Farm **Landscape Character and Visual Impact Assessment**

Figure: Viewpoints

Figure 6-4 Viewpoint locations

6.3.1 Representative Viewpoint 1: Wentworth Airport



Viewpoint 1: View south from south side of Wentworth Airport (image: Aurecon, October 2023)

Viewpoint selection	Representative of views from visitors at Wentworth Airport.		
Viewing distance (m)	Far background – c. 29,000 m from closest turbine (WTG173)		
Visual baseline	The view is directed northwest toward the Project, looking across the Wentworth Aerodrome from Renmark Road. In the foreground and middleground the airport infrastructure is viable including fencing, lighting and tarmac. In the middle ground are airport structures and lighting. Along the horizon line are trees. Renmark Road facilitates access to the airport and tourists and visitors travelling east west from Wentworth.		
Land use	Airport	Landscape Type	LCT 1: Plain and dune woodlands and shrublands
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor: 0	From hub: 0
Viewpoint discussion	■ The windfarm turbines are potentially visible in the far background of the view, with views likely from the hub to blade tip. At this distance the turbines are likely to be distinguishable due to the diminishing visibility. ■ Turbines have the potential to be visible in a narrow horizontal FOV, approximately 20° of the existing view.		
Scenic quality	Low	There is no key landscape features	
Visual sensitivity	Low	The airport is not used by commercial flights and therefore, a low number of users are focused on arriving at the airport facility though will be aware of the visual surrounds.	
Magnitude of change	Negligible	The turbines are unlikely to be distinguishable at this distance. The turbines will cover a narrow horizontal and vertical FOV.	
Potential visual impact	Negligible	Low sensitivity + Negligible magnitude of change = Negligible visual impact	
Further investigation	■ No further assessment required as the viewpoint is not sensitive and at a distance that the visual impact is negligible.		

6.3.2 Representative Viewpoint 2: 1703 Old Renmark Road, Anabranch South



Viewpoint 2: View north from 1703 Old Renmark Road, Anabranch South (image: Aurecon, October 2023)

Viewpoint selection	Representative of views from nearby Fort Courage Caravan Park and Moorna Station woolshed, located approximately 500 m south of the viewpoint. The caravan park is tourist accommodation alongside the Murray River, with direct access to the river.		
Viewing distance (m)	Mid background view - 17,800 m from closest turbine (WTG169)		
Visual baseline	This viewpoint looks across shrublands, northwest towards the Project. In the foreground vegetation typical of the shrublands is visible, with open uninterrupted views across a treeless plain. In the background construction compound with laydown and site sheds are visible. Renmark Road traverses across the viewpoint running east to west, with its only marker being the give way signage at the driveway intersection. Refer to Figure B-17.		
Land use	Grazing native vegetation	Landscape Type	LCT 2: Floodplains and Riverine forests
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor: 0	From hub:0
Viewpoint discussion	■ The windfarm turbines are potentially visible in the mid to far background of the view, with views likely from the hub to blade tip. ■ Turbines have the potential to be visible in a narrow horizontal FOV, approximately 30° of the existing view, due to the far distance.		
Scenic quality	Low	There is no key landscape features in the direction of the Project. The view for visitors will be in the opposite direction to the visual amenity of the river environs.	
Visual sensitivity	Low	Experienced by a small number of tourists and temporary caravan park residents (holidaymakers), with the view towards the Project generally of unremarkable character but some sense of place – vast outback area contrasting to the enclosed river environs.	
Magnitude of change	Very Low	Visibility of turbines covering 30° of viewpoint, in the background of the view and are therefore not prominent. There is intervening vegetation screening views towards the Project from within both the caravan park and from Moorna Station, with key views focused on the immediate surrounds and the river environs.	
Potential visual impact	Very Low	Low sensitivity + Very Low level of visual modification = Very low visual impact	
Further investigation	■ No further assessment required as the viewpoint is not sensitive and at a distance that the visual impact would be up to Very Low.		

6.3.3 Representative Viewpoint 3: Lake Victoria lookout



Viewpoint 3: View north from the south side of Lake Victoria at the public lookout (image: Aurecon, October 2023)

Viewpoint selection	The viewpoint is taken from the Lake Victoria Lookout and information area. This is a public, tourist point and has associated shelters, interpretative information, car parking and toilets. Conservation staff housing is located to the left of the viewpoint to the lakes edge.		
Viewing distance (m)	Mid-background – 18,900 m from closest turbine (WTG106)		
Visual baseline	The viewpoint looks out across Lake Victoria, with the Lake at capacity. The view is directed northeast towards the Project site. The view takes in some of the edges to the lake on the southern boundary, seen as green treetops in the background to the east (right). The edge of the lake is barely distinguishable in the background on the horizon line, being constructed of earth with minimal tall vegetation cover. The foreground and middleground show the expanse of water, with a fence line and tree trunks in the middle and background, where the lake has flooded former woodland. Refer to Figure B-17.		
Land use	Nature conservation	Landscape Type	LCT 4: Lakeland conservation
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor: 0	From hub:0
Viewpoint discussion	■ The windfarm turbines are potentially visible in the mid to far background of the view, with views likely from the hub to blade tip. ■ Turbines have the potential to be visible in a narrow horizontal FOV, approximately 30° of the existing view, due to the far distance.		
Scenic quality	High	Inland lake of cultural, environmental significance and perceived as high visual amenity due to its contrast from the semi-arid surrounds. Consider of high scenic quality to locals (refer to Table 4-2).	
Visual sensitivity	Moderate	The lookout is in a remote location and has a small number of visitors. Those visitors do have an interest in the view across the large inland lake.	
Magnitude of change	Very Low	Visibility of turbines covering 30° of viewpoint, in the background of the view and are therefore not prominent. The Project introduces a highly modified structures to the background view, however due to these partially fading in the distance, are not prominent with the key view focused on the lake.	
Potential visual impact	Low	Moderate sensitivity + Very Low level of visual modification = Low visual impact	
Further investigation	■ A photomontage indicating the view of the Project may be considered dependant on outcomes of engagement with Regional Aboriginal Party (RAP) and community, stating their perceived value of visual sensitivity across Lake Victoria.		

6.3.4 Representative Viewpoint 4: Renmark Road (west) dwelling



Viewpoint 4: View east from Renmark Road, Rufus (image: Aurecon, October 2023)

Viewpoint selection	Representative of views from nearby rural residential property, located approximately 1.25 km to the north of the viewpoint; and views from Renmark Road.		
Viewing distance (m)	Mid background – 17,600 from closest turbine (WTG053)		
Visual baseline	The viewpoint is located within Plain and dune woodlands (LCT 1), with patches of trees amongst shrublands. The view is directed east towards the project. To the north (left of the image) open shrubland gives way to woodland seen on the horizon line. As the plains are mostly flat the woodlands appear very small on the horizon line due to the distance they are away. The middle ground has a small scattering of low trees set amongst the shrublands which are seen together with a road that extends east. The background of the view both east and south (centre and right in the image) shows woodlands in closer proximity in the background, forming a dense line. In the background 4 new transmission towers can be seen, with some under construction. (No lines had been connected at time of site visit). The towers are more difficult to see in this perspective due to the fine metal structure. The towers diminish in height towards the horizon line, with the closest tower being approximately 2.5 times the height of the woodland at a similar location. Refer to Figure B-16 for aerial analysis.		
Land use	Grazing native vegetation	Landscape Type	LCT 1 Plain and dune woodlands and shrublands
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor: 0	From hub: 0
Viewpoint discussion	■ The Project turbines will be visible in the background of the view, with the extent of the turbine visible from above the hub to tip. ■ The blades are likely to be barely noticeable due to the distance and intervening vegetation both near to dwelling and on horizon. ■ Turbines have the potential to be visible in a narrow horizontal FOV, approximately 70° , due to the far distance. ■ Views of new HV transmission towers will be more noticeable in the foreground of the viewpoint. There is potential for a very low level of cumulative impact due to the introduction of two electrical infrastructure Projects.		
Scenic quality	Low	There is no key landscape features in the direction of the Project.	
Visual sensitivity	Moderate	Experienced by rural residents	
Magnitude of change	Very Low	Visibility of a turbines to the background view in a narrow FOV will be of low prominence, partially obscured by intervening vegetation.	
Potential visual impact	Low	Moderate sensitivity + Very Low magnitude of change = Low impact	
Further investigation	■ No further assessment required as the viewpoint is at a distance that the visual impact would be up to Very Low.		

6.3.5 Representative Viewpoint 5: Nulla Nulla Station



Viewpoint 5: View northeast from Nulla Road, Pine Camp (Nulla Nulla Station) (image: Aurecon, October 2023)

Viewpoint selection	Representative of views from Nulla Nulla Station which comprises dwellings R01, R02, R03 and R04		
Viewing distance (m)	Near foreground – 1,763 from closest turbine (WTG064)		
Visual baseline	The view is direct northeast towards the Project. The view is wide an open due to lack of trees in the Plain. Some patches of trees can be seen on the horizon line; however they are barely noticeable due to their distance away. The middle ground takes in shrub land in sandy and dry conditions, with no trees. A very gentle undulation can be seen across the Plain. The foreground shows a sandy road. To the far left of the image is a tree associated with the dwellings at Nulla Nulla Station. There are four dwellings, including two large dwellings with wrap-around balconies (refer to Figure 4-21) to the first floor, and two small cottages. There in an increase in vegetation surrounding the dwellings, however they are set in an open location with extensive views in all directions. Refer to Figure B-1 for aerial analysis of dwellings.		
Land use	Grazing native vegetation	Landscape Type	LCT 1: Plain and Dune woodland and shrublands
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 7	Swept path of rotor: 36	From hub: 36
Viewpoint discussion	■ 36 turbines are anticipated to be visible from the northeast to southeast. Of these, 11 will potentially be visible from the ground upwards and 25 will have the full blades visible. The blades are likely to be noticeable with little intervening vegetation. ■ 18 turbines within 3,850 m (WTG052-55, 060-067, 069-72, 081). The closest proposed visible turbine is within the foreground view, at a distance at 1,763 m away, with the full blades visible. Turbines at this distance will have a high magnitude of change. ■ Turbines have the potential to be visible across 180° of the existing view.		
Scenic quality	Low	There is no key landscape features in the direction of the Project.	
Visual sensitivity	Moderate	Experienced by rural residents	
Magnitude of change	High	Visibility of a moderate number of turbines covering 180o s FOV, in foreground views within little intervening vegetation to screen views. Turbines have a high magnitude of change from this viewpoint.	
Potential visual impact	Moderate	Moderate sensitivity + High magnitude of change = Moderate visual impact	
Further investigation	■ Dwellings are associated with the Project and therefore are not considered a sensitive receiver and are exempt from approvals – no further visual assessment is required. However, as the dwelling is a listed non-Aboriginal heritage item, potential indirect impacts on its heritage significance would need to be considered as part of historic heritage assessment to be prepared as part of the EIS. ■ Nearby dwelling R05 will be subject to commensurate visual environment and potential for high visual impacts, with consultation with landowners required (refer to Figure B-2).		

6.3.6 Representative Viewpoint 6: Nulla Road north



Viewpoint 6: View south from boundary of Huntingfield Station, Nulla Road, Pine Camp (image: Aurecon, October 2023)

Viewpoint selection	Representative of views towards Project, closest public access to dwelling (R34) approximately 4.5 km further north.		
Visual baseline	The view is directed southeast toward the Project. The topography rises gently from this viewpoint. The horizon line has low trees, with a stand considerable further away in the east (left of the image) than the stand in the background further south (right in the image). The middle and foreground of the image shows Plain and dune shrubland. To the right of the image Nulla Road extends south, and in the centre-left of the image an access track extends east along a fence line. The northern area in the viewpoint (left of the image) includes a fence and gate, with some scattered medium height shrubs and low trees in the background. An access track also extends on the northern side of the fence. The dwelling has a moderate amount of low to mid stratum scattered vegetation, both near to the house and towards the Project. Refer to Figure B-15 for aerial analysis of dwelling.		
Viewing distance (m)	Far middleground – 7,504 m from closest turbine (WTG001)		
Land use	Grazing native vegetation	Landscape Type	LCT 1: Plain and Dune Woodlands and shrublands
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor: 0	From hub:0
Viewpoint discussion	■ There are no turbines within the high visibility threshold. ■ Turbines have the potential to be visible over a 70° FOV in the far middleground. At this distance, turbines are likely to be noticeable but not prominent. ■ Turbines are potentially visible from the swept path of the blades. ■ There is a moderate amount of vegetation to foreground views which will partially obscure views of turbines.		
Scenic quality	Low	There is no key landscape features in the direction of the Project.	
Visual sensitivity	Moderate	Experienced by rural residents	
Magnitude of change	Low	Turbines are likely to be visible in a narrow FOV, at a distance where they begin to recede into the background. The magnitude of change for rural residents is considered low.	
Potential visual impact	Low	Moderate sensitivity + Low magnitude of change = Low visual impact	
Further investigation	■ Detailed assessment of the screening value of intervening vegetation through the preparation of a photomontage.		

6.3.7 Representative Viewpoint 7: Renmark Road (central) dwelling



Viewpoint 7: View north from Renmark Road, Rufus (image: Aurecon, October 2023)

Viewpoint selection	Representative of views from nearby rural dwelling (R06).		
Viewing distance (m)	Near middleground – 2,391 m from closest turbine (WTG106)		
Visual baseline	The view is directed north towards the Project site from Renmark Road near a private dwelling (seen in the middle ground of the photo). The foreground includes Renmark Road running in a northwest – southeast direction. In the foreground and middle ground the vegetation appears highly modified for farming practices. Fences, sheds and a dwelling are present in the middle ground with a scattering of small to medium height trees. In the background the landscape slightly undulates and rises, with woodland increasing in the distance and on the horizon line. The dwelling is set in an open location with extensive views in all directions. A few sparse trees and some shed to the northeast of the dwelling, provide minimal screening. Refer Figure B-3 for aerial analysis of dwelling.		
Land use	Grazing native vegetation	Landscape Type	LCT 1: Plain and Dune Woodlands and shrublands
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 3	Swept path of rotor: 11	From hub:11
Viewpoint discussion	■ 11 turbines are anticipated to be visible within 5,800 m. Of these, four (4) are within the 3,850 m visual magnitude threshold. ■ 3 turbines have the potential to be visible from the ground at this vantage point and 8 will have the full blades visible. ■ There are 20 turbines within 8,000 m potentially visible across 60° horizontal FOV, to the north of the dwelling. ■ Other Project turbines are potentially visible in a wider FOV, at great distances and therefore not prominent. ■ There is little intervening screening.		
Scenic quality	Low	There is no key landscape features in the direction of the Project.	
Visual sensitivity	Moderate	Experienced by rural residents and motorists (low sensitivity)	
Magnitude of change	High	Turbines are within the high visibility threshold with minimal intervening screening. The wind turbines will be a prominent new feature to the viewpoint.	
Potential visual impact	Moderate	Moderate sensitivity + High magnitude of change = Moderate visual impact	
Further investigation	■ Detailed assessment of the screening value of intervening vegetation through the preparation of a photomontage. ■ Consultation with property owners for approval of turbines within 3,850 m of dwelling.		

6.3.8 Representative Viewpoint 8: Renmark Road (central-south) dwelling



Viewpoint 8: View northwest from Renmark Road (image: Aurecon, October 2023)

Viewpoint selection	The viewpoint is representative of dwellings (R07, R08 and R09) located approximately 2.3 km south (no public access).		
Viewing distance (m)	Near background – 11,293 m from closest turbine (WTG106)		
Visual baseline	The view is directed north towards the Project from Renmark Road. The vegetation is highly modified for farming practices. Renmark Road can be seen running in a north-northeast direction in the left of the photograph. The view is open with a low rise in the background, obscuring a longer view as seen to the left of Renmark Road. There is a scattering of small trees in the middle and background, with further wildlands seen on the far horizon left of Renmark Road. The dwellings (R07, R08 and R09) are located south of the viewpoint and are farm cottages with surrounding landscaped yards, including some vegetation screening in the direction of the Project (refer to Figure B-4 for aerial analysis of dwelling).		
Land use	Grazing native vegetation	Landscape Type	LCT 1: Plain and Dune Woodlands and shrublands
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor:0	From hub: 0
Viewpoint discussion	■ There are no turbines within the high visibility threshold. ■ Turbines have the potential to be partially visible over a 110o FOV in the near background. At this distance, turbines are likely to be noticeable but of diminishing visibility over 8,000 m. ■ There is a moderate amount of vegetation to the foreground of dwellings which will partially obscure views of turbines.		
Scenic quality	Low	There is no key landscape features in the direction of the Project.	
Visual sensitivity	Moderate	Experienced by rural residents and motorists (low sensitivity)	
Magnitude of change	Very Low	Turbines are potentially visible in the background of the view, at diminishing visibility. Though noticeable, the magnitude of change is considered very low.	
Potential visual impact	Low	Moderate sensitivity + Very Low magnitude of change = Low visual impact	
Further investigation	■ No further assessment due to distance of dwellings outside of high visual threshold		

6.3.9 Representative Viewpoint 9: Tooperoopna Road



Viewpoint 9: View northwest from Tooperoopna Road (image: Aurecon, October 2023)

Viewpoint selection	Representative of views from nearby dwellings (R10-R14)		
Viewing distance (m)	Far middleground – 6,974 m (R14) from closest turbine (WTG161)		
Visual baseline	The view is directed northwest towards to Project from Tooperoopna Road. The landscape rise in this direction is notable in a gently undulating broader landscape. The vegetation is highly modified crop/pasture due to farming practices. In the background to the south (left of the image) a mixture of exotic and native trees can be seen that are associated with structures in and around the dwelling (R12, out of picture). R10, R11 and R12 dwellings are located further south of Project, with R13 and R14 at a closer range (6,974 m). As shown in Figure B-5, R10-12 have a high amount of intervening screening vegetation to the perimeter of the landscaped yards. R13 and R14 (refer to Figure B-6) have some screening vegetation, however the surrounds are much more open, though with scattered vegetation. Refer to Figure B-5and Figure B-6 for aerial analysis of dwellings.		
Land use	Cropping	Landscape Type	LCT 3: Plains and Floodplain pastures
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor: 0	From hub: 0
Viewpoint discussion	■ Zero turbines are anticipated to be visible within the high visual magnitude threshold. ■ The closest proposed visible turbine is at a moderate distance at over 6 km to the north. At this distance, turbines are likely to be noticeable, however will not be prominent. ■ There is a moderate amount of intervening vegetation which will partially screen views from the dwellings		
Scenic quality	Low	There is no key landscape features in the direction of the Project.	
Visual sensitivity	Moderate	Experienced by rural residents	
Magnitude of change	Low	Turbines are potentially visible in the far middleground of the view, with turbine blades noticeable between scattered vegetation. Though noticeable, the magnitude of change is considered low.	
Potential visual impact	Low	Moderate sensitivity + Low magnitude of change = Low visual impact	
Further investigation	■ Detailed assessment of the R13 and R14 within viewing range (<8,000 m) of the Project. ■ Consultation with property owners and ground-truth vegetation screening from properties. ■ Preparation of photomontage to demonstrate visibility of turbines in middleground views.		

6.3.10 Representative Viewpoint 10: Tara Downs - Anabranch Mail Road



Viewpoint 10: View west from Anabranch Mail Road (Tara Downs) (image: Aurecon, October 2023)

Viewpoint selection	Viewpoint is representative of nearby dwelling, (R17 and R18 - Tara Downs) approximately 700 m to the east of the viewpoint		
Viewing distance (m)	Far middleground – 7,393 m from closest turbine (WTG173)		
Visual baseline	The view is directed north-northwest towards the Project. In the foreground and middleground is a mixture of low shrubs and herbs with open views. The background stands of trees mark areas of floodplains and depressions. The dwellings are located alongside the Great Darling Anabranch, comprising significant River Red Gums to the edge and within the waterway east of the dwellings. There are several farming sheds near to the dwellings, rows of trees to the perimeter of the dwellings and landscaped yards. The view to the west in the direction of the Project is fairly open, with scattered low to medium stratum vegetation and perimeter trees which would provide some screening. Refer to Figure B-8 for aerial analysis of dwellings.		
Land use	Grazing and Native vegetation	Landscape Type	LCT 2: Floodplains and Riverine Forests
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor: 0	From hub: 0
Viewpoint discussion	■ Zero turbines located within the high visual magnitude threshold. ■ The closest proposed visible turbine is at a moderate distance at over 7 km to the west, potentially visible from the blades upwards. At this distance, turbines are likely to be noticeable within approximately 40° horizontal FOV and are not prominent elements. ■ There is a moderate amount of intervening vegetation which will partially screen views from the dwellings.		
Scenic quality	Moderate	There is no key landscape features in the direction of the Project. Consider 'Bushland' of high scenic quality to locals (refer to Table 4-2).	
Visual sensitivity	Moderate	Experienced by rural residents	
Magnitude of change	Very Low	Visibility of turbines covering a narrow horizontal FOV, in the far middleground. Turbine blades will be visible between low-moderate stratum intervening vegetation. Though noticeable, the magnitude of change is considered very low.	
Potential visual impact	Low	Moderate sensitivity + Very Low magnitude of change = Low visual impact	
Further investigation	■ Dwellings are associated with the Project and therefore exempt from approvals – no further assessment required.		

6.3.11 Representative Viewpoint 11: 2551 Anabranch Mail Road



Viewpoint 11: View west from 2551 Anabranch Mail Road, Anabranch South (image: Aurecon, October 2023)

Viewpoint selection	Representative of views from adjacent dwellings (R19 and R20)		
Viewing distance (m)	Near middleground – 3,084 m from closest turbine (WTG173)		
Visual baseline	The view is directed west towards the Project Site from Anabranch Mail Road. The overall view takes in a relative domestic view of the dwellings and farm infrastructure seen in the background. These structures including sheds, fences, driveway and residences are partially screened by vegetation on all sides, including two tall trees and many medium to small trees that range from exotic to native. From the viewpoint the landscape gently rises with the buildings set on the highest point. The foreground includes herbaceous vegetation and scattered shrubs. The dwellings (refer to Figure B-9 for aerial analysis) are located on a land peninsula surrounding by the Great Darling Anabranch. The yards are landscaped with cultivated lawn and some large trees. There are several sheds to near to the west/ southwest side of the dwellings. The view to the west in the direction of the Project comprises scattered trees which are mostly located within or near to the waterway. The main access to these dwellings in Anabranch Mail Road, however aerial analysis over several years indicated that portions of this road and some other surrounding access tracks, get inundated.		
Land use	Grazing and Native vegetation	Landscape Type	LCT 2: Floodplains and Riverine Forests
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 2	Swept path of rotor: 17	From hub: 17
Viewpoint discussion	■ 17 turbines are anticipated to be visible within 5,800 m. Of these, five (5) are within the 3,850 m high visual magnitude threshold. One will have likely be visible for the full height and 4 will be visible upwards from swept path of the rotor. ■ 12 turbines are potentially visible from 3,850 m to 5,800 m. One of these is potentially visible for the full height and other others from the swept blades of the rotors. ■ Turbines within 8,000 m have the potential to be visible across 120° horizontal FOV. ■ There is a moderate to high amount of intervening vegetation between the dwellings and the Project which will partially screen turbines.		
Scenic quality	Moderate	The Great Darling Anabranch is a key landscape feature, visible from the dwellings in the direction of the Project. The area to the west of the dwellings is an ephemeral wetland, oscillating from shallow wetland to dry riverbed with a dry-season access track.	
Visual sensitivity	Moderate	Experienced by rural residents that are associated with the Project.	
Magnitude of change	High	Turbines are within the high visibility threshold, though are likely to be partially screened by intervening vegetation. Turbines within 8,000 m span up to 120° horizontal FOV to the northwest to west of the dwellings.	
Potential visual impact	Moderate	Moderate sensitivity + High magnitude of change = Moderate visual impact	
Further investigation	■ Detailed assessment of the screening value of intervening vegetation through the preparation of a photomontage. ■ Consultation with property owners for approval of turbines within 3,850 m of dwelling and determine screening value of intervening vegetation.		

6.3.12 Representative Viewpoint 12: 2860 Anabranch Mail Road



Viewpoint 12: View southwest from 2860 Anabranch Mail Road, Anabranch South (image: Aurecon, October 2023)

Viewpoint selection	Representative of view from dwellings at 2860 Anabranch Mail Road (R21 and R22)		
Viewing distance (m)	Far foreground – 1,594 m from closest turbine (WTG199)		
Visual baseline	The view is directed southwest from Anabranch Mail Road at the driveway of dwellings. In the foreground herbaceous vegetation and grasses can be seen on sandy soils. The middleground includes one large Eucalyptus tree and a scattering of native trees. In the background a relatively dense area of woodland can be seen with medium to tall trees. These are situated on the edge of a flood zone which is part of the Great Darling Anabranch Lakes. The dwellings (refer to Figure B-10 for aerial analysis) are located west of Great Darling Anabranch and approximately 140 m east of Anabranch Mail Road. The yards are landscaped with cultivated lawn and some large trees to the east and west of the dwellings, which limit outward-looking views.		
Land use	Grazing and Native vegetation	Landscape Type	LCT 2: Floodplains and Riverine Forests
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 3	Swept path of rotor: 15	From hub: 15
Viewpoint discussion	■ 15 turbines are anticipated to be visible within 5,800 m. Of these, three (3) are within the 3,850 m high visual magnitude threshold, visible upwards from swept path of the rotor. The blades are likely to be prominent within the view above and between intervening vegetation. ■ 12 turbines are potentially visible from 3,850 m to 5,800 m. Three (3) are potentially visible for the full height and other others from the swept path of the rotor. ■ 28 turbines within 8,000 m have the potential to be visible across 120° horizontal FOV. ■ There is a moderate to high amount of intervening vegetation between the dwellings and the Project which will partially screen turbines. ■ Views of new HV transmission towers to the northwest of the viewpoint will be barely noticeable due to intervening vegetation and the distance. There is very low potential cumulative impact due to the introduction of two electrical infrastructure Projects.		
Scenic quality	Moderate	The Great Darling Anabranch is a key landscape feature, visible from the dwellings in the direction of the Project. The area to the west of the dwellings is an ephemeral wetland, oscillating from shallow wetland to dry riverbed with a dry-season access track. Consider ‘bushland’ of high scenic quality to locals (refer to Table 4-2).	
Visual sensitivity	Moderate	Experienced by rural residents that are associated with the Project.	
Magnitude of change	Low	Turbines are within the high visibility threshold, though are likely to be screened by intervening vegetation close to the dwellings. Turbines within 8,000 m span up to 120° horizontal FOV to the southwest of the dwellings.	
Potential visual impact	Low	Moderate sensitivity + Low magnitude of change = Low visual impact	
Further investigation	■ Dwellings are associated with the Project and therefore exempt from approvals – no further assessment required.		

6.3.13 Representative Viewpoint 13: Anabranch Hall



Viewpoint 13: View southwest from Anabranch Hall, Anabranch Mail Road West (image: Aurecon, October 2023)

Viewpoint selection	Representative of views from Anabranch Hall, an historic community hall, looking west in the direction of the Project.		
Viewing distance (m)	Near middleground – 4,210 m from closest turbine (WTG199)		
Visual baseline	The view is directed southwest from Anabranch Hall. The foreground view is open with an area for car parking, with the driveway to the hall from Anabranch Mail Road extending west into the background of the image. In the middle ground disused structures can be seen set amongst grassy areas. In the background scattered Eucalypts extend to the horizon line. Toward the west, where the driveway is located the topography is clearly seen where a small, but steep hill marks the background and extent of view. Refer to Figure B-12 for aerial analysis mapping.		
Land use	Grazing and Native vegetation	Landscape Type	LCT 2: Floodplains and Riverine Forests
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 1	Swept path of rotor: 3	From hub: 3
Viewpoint discussion	■ 3 turbines are potentially visible at 3,850 m to 5,800 m, upwards of the swept path of the rotor. ■ There are 12 turbines within 8,000 m potentially visible across 60° horizontal FOV. ■ There is a moderate to high amount of intervening vegetation and a small topography rise, between the viewpoint and the Project which will partially screen turbines.		
Scenic quality	Moderate-high	The community hall is of local heritage significance and is in close proximity to the Great Darling Anabranch which is of high scenic quality. The scenic quality in the direction of the Project is low, comprising farmland and scattered trees. Consider 'Anabranch Hall' of medium to high scenic quality to locals (refer to Table 4-2).	
Visual sensitivity	Moderate	Experienced by local residents visiting the community hall.	
Magnitude of change	Low	There are a low number of turbines within the visual magnitude threshold, which will likely be partially screened by intervening vegetation. Views toward the turbines of higher visual magnitude (up to 8,000 m) are in a narrow horizontal FOV.	
Potential visual impact	Low	Moderate sensitivity + Low magnitude of change = Low visual impact	
Further investigation	■ Detailed assessment of the screening value of intervening vegetation through the preparation of a photomontage. ■ Community consultation feedback on the scenic quality and visual sensitivity of the viewpoint.		

6.3.14 Representative Viewpoint 14: Milpara rest area



Viewpoint 14: View west from Silver City Highway, roadside rest area (image: Aurecon, October 2023)

Viewpoint selection	The roadside rest area on Silver City Highway is a place where motorists are likely to observe their surroundings as there are limited public rest areas.		
Viewing distance (m)	Near background – 10,600 m from closest turbine (WTG173)		
Visual baseline	The view is directed west towards the Project, from Silver City Highway roadside rest area. There is a moderate degree of intervening vegetation surrounding the viewpoint, comprising upper stratum trees and low stratum grasses. The horizon is barely visible to the background, between trees in the foreground. The roadside rest area comprises an off-road sealed carparking with perimeter traffic barriers, a small shelter and separate small toilet.		
Land use	Grazing and Native vegetation	Landscape Type	LCT 1 Plain and Dune Woodlands and shrublands
No. of turbines potentially visible within 5,800 m	Entire height of turbine: 0	Swept path of rotor: 0	From hub: 0
Viewpoint discussion	■ There are no turbines within the visual magnitude threshold. ■ The closest proposed turbine is a relatively moderate distance at 10,600 m, with turbines of diminishing visibility from 8,000 m and therefore will not be a prominent element on the horizon. ■ There is a moderate to high amount of intervening vegetation which is more prominent in the foreground and likely screening views of the turbines to the background.		
Scenic quality	Low	The Great Darling Anabranch is in the direction of the viewpoint, however, is not noticeable. There is no other key landscape features in the direction of the Project.	
Visual sensitivity	Low	Representative of temporary views from motorists and rest area users.	
Magnitude of change	Negligible	The proposed turbines are unlikely to be visible from this viewpoint, experienced by stopping motorists.	
Potential visual impact	No visual impact	Low visual sensitivity + Negligible modification = No visual impact	
Further investigation	■ No further assessment required		

6.4 Summary of preliminary visual impacts

A summary of the preliminary visual impacts is provided in Table 6-4 based on the level of sensitivity and visual modification potentially experienced from representative viewpoints.

The location of the receptors is indicated in Figure 6-4 and the ZTV maps of all the below representative viewpoints are within Appendix A. The extent of screening is determined through a desktop analysis as shown in Appendix B.

Table 6-5 further summarises the ZTV findings, determining the extent of potential visibility from representative viewpoints within 8,000 metres of any proposed turbine, based on the proposed turbine layout.

Table 6-4 Summary of preliminary visual impacts

Viewpoint no. and location	Potential visual impact	Visual sensitivity	Visual modification
VP1 Wentworth Airport, Renmark Road 29,000 m southeast	Negligible	Low Airport users/visitors	Negligible degree of visual modification including: ■ Turbines indistinguishable due to distance and narrow FOV ■ Open views in highly modified setting
VP2 Fort Courage Caravan Park, 1703 Old Renmark Road 17,800 m south	Very low	Low - temporary tourists and visitors	Very Low degree of visual modification including: ■ Turbines are at a distance that will be barely visible and cover a narrow horizontal and vertical FOV. ■ Existing intervening vegetation and few open views from park towards Project
VP3 Lake Victoria lookout 18,900 m southwest	Low	Moderate - lookout of regional significance	Very low degree of visual modification including: ■ Turbines are at a distance that will be barely visible and cover a narrow horizontal and vertical FOV. ■ Open views across lake
VP4 Renmark Road west 17,600 m west	Low	Moderate – rural dwellings	Very low degree of visual modification including: ■ Visibility of a turbines to the background view in a narrow FOV will be of low prominence. ■ Vegetation surrounding dwelling provides screening, with some potential views to the background.
VP5 Nulla Nulla Station Landowner associated with Project (R01-04) 1,763 m west	Moderate	Moderate – rural dwellings	High degree of visual modification including: ■ 35 turbines visible within 5,800 m cover 225-degree horizontal FOV ■ 18 turbines are within the high visibility threshold of 3,850 m. ■ Low intervening vegetation surrounding residential dwellings
VP6 Huntingfield Station, Nulla Road (R34) 7,504 m northwest	Low	Moderate – rural dwellings	Low degree of visual modification including: ■ 0 turbines visible within 5,800 m ■ Turbines are likely to be visible in a narrow FOV, at a distance where they begin to recede into the background. ■ Moderate amount of scattered intervening vegetation
VP7 Renmark Road - central dwelling (R06) 2,391 m south	Moderate	Moderate – rural dwellings	High degree of visual modification including: ■ Turbines are within the high visibility threshold ■ 11 turbines visible within 5,800 m covering 60° FOV ■ Limited intervening vegetation screening

Viewpoint no. and location	Potential visual impact	Visual sensitivity	Visual modification
VP8 Renmark Road – central-south dwelling (R07-9) 11,293 m south	Low	Moderate – rural dwellings	Very low degree of visual modification including: ■ Turbines are potentially visible in the background of the view, at diminishing visibility. ■ Moderate amount of intervening vegetation surrounding dwellings
VP9 Tooperoopna Road dwellings (R10-14) 6,974 m south	Low	Moderate – rural dwellings	Low degree of visual modification including: ■ Turbines are potentially visible in the far middleground of the view, ■ Turbine blades noticeable between scattered vegetation.
VP10 Tara Downs – Anabranch Mail Road Landowner associated with Project (R17-18) 7,393 m southwest	Low	Moderate – rural dwellings	Very Low degree of visual modification including: ■ Turbines are potentially noticeable in the far middleground at a distance where elements start to diminish. ■ There is a moderate amount of low to medium stratum intervening vegetation.
VP11 2551 Anabranch Mail Road Landowner associated with Project (R19-20) 3,084 m west	Moderate	Moderate – rural dwellings	High degree of visual modification including: ■ 5 turbines are within the high visibility threshold of 3,850 m and 12 up to 5,800 m covering 120° FOV ■ Moderate to high amount of intervening vegetation
VP12 2860 Anabranch Mail Road Landowner associated with Project (R21-22) 1,594 m west	Low	Moderate – rural dwellings	Low degree of visual modification including: ■ 3 turbines are within the high visibility threshold of 3,850 m and 12 turbines visible within 5,800 m covering 120° FOV ■ Moderate to high amount of intervening vegetation surrounding dwellings
VP13 Anabranch Hall – Anabranch Mail Road 4,210 m west	Low	Moderate – community hall	Low degree of visual modification including: ■ 3 turbines visible within 5,800 m cover 60° FOV ■ Moderate to high amount of intervening vegetation and low earth bund.
VP14 Milpara rest area, Silver City Highway 10,600 m west	Negligible	Low – road rest area	Negligible degree of visual modification including: ■ Turbines are unlikely to be visible due to distance ■ High amount of intervening vegetation surrounding viewpoint.

Table 6-5 Summary of turbine visibility within 5,800 metres of private receivers or public viewpoints

Private receiver ID	Dist. to nearest turbine (m)	Nearest turbine ID	No. turbines potentially visible (not considering intervening vegetation or bult form)						Visibility: no. 60° sectors within 8,000 m
			Full height of turbine	Turbine ID	Swept path of rotor (>50 m height)	Turbine ID	From hub (>150 m height)	Turbine ID	
R01, R02, R03, R04	1,763, 1,879, 1,866, 1,763	WTG064	6	Within 5,800 m: WTG053, 055, 064- 066, 072	36	36 within 5,800 m: WTG047-75,77-83	36	36 within 5,800 m: WTG047-75,77-83	4
			4	>5,800 m: WTG071, WTG046, WTG119, WTG038	142	>5,800 m: WTG001-46, 76, 84-170, WTG174, WTG176, WTG179-185, WTG187, WTG190, WTG192, WTG194, WTG197	167	All: WTG001 – WTG203	
R05	1,559	WTG072	5	WTG065, 071, 098, 100, 128	30	30 within 5,800 m: WTG60-75, 77-83, 52-55, 92, 94-96	30	30 within 5,800 m: WTG60-75, 77-83, 52-55, 92, 94-96	3
			2	WTG049, 055,	124	WTG001-51, 56-59, 76, 91, 97-99, 101-111, 113-133, 136-154, 158, 186-187, 191-203	173	All: WTG001 – WTG203	
R06	2,391	WTG106	3	WTG103, WTG099, WTG090	19	19 within 5,800 m: WTG082-084, 089-100, 102-106	182	19 within 5,800 m: WTG082-084, 089-100, 102-106	1
			0		41	WTG060, 065, 069-81, 85-88, 101-106,11 -115, 133, 137 -145, 151, 156		WTG009-013, WTG018-81, 85-88, 101, 107-203	
R19, R20	3,084, 3,124	WTG173	2	WTG159, 172, 174, 203	17	17 within 5,800 m: WTG167, 169-176,195-202	17	17 within 5,800 m: WTG167, 169-176,195-202	2
			2	WTG159, 203	58	WTG120-130, WTG133-138, WTG145-147, WTG148-165, 168, 186, WTG188-194, 203	121	WTG005-006, WTG016, WTG018, WTG023-024, WTG041, WTG061, WTG069, WTG073-080, WTG083-166, 168, 203	
R21, R22	1,680, 1,594	WTG199	3	WTG171, WTG172, WTG201	15	15 within 5,800 m: WTG171-176,194-202	15	15 within 5,800 m: WTG171-176,194-202	2
			1	WTG203	46	WTG143-170, 177-193, 203	108	WTG077, WTG078, WTG080, WTG082-093, WTG096-107, WTG111-193, 203	

Private receiver ID	Dist. to nearest turbine (m)	Nearest turbine ID	No. turbines potentially visible (not considering intervening vegetation or bult form)						Visibility: no. 60° sectors within 8,000 m
			Full height of turbine	Turbine ID	Swept path of rotor (>50 m height)	Turbine ID	From hub (>150 m height)	Turbine ID	
R23	3,754	WTG199	0		3	Within 5,800 m: WTG197-199	3	Within 5,800 m: WTG197-199	1
			2	WTG171, WTG172	42	WTG153-183, WTG189-90, 193-196,200-203	91	WTG110-203	
Anabranch Hall (VP13)	4,440	WTG199	0		3	Within 5,800 m: WTG197-199	3	Within 5,800 m: WTG197-199	1
			5	WTG158-159, WTG192,WTG194WTG172	82	WTG090, WTG111, WTG114-116, WTG124-129, WTG133-203	135	WTG097, WTG108, 110-174, 176-203	1

7 Conclusions

The purpose of this report is to offer an initial evaluation of the potential effects on landscape and visual quality that may arise from the Project. The preliminary impacts resulting from the Project were evaluated in accordance with the VIA Bulletin. The preliminary assessment of landscape and visual impacts considers both the degree of modification compared to the existing conditions and the susceptibility of a landscape or view to change.

7.1 Landscape Character impacts

Preliminary impact assessment to the Landscape Character indicate that the Project will have low to negligible impacts including:

- **Potential Low landscape character impacts:**
  - LCT 1: Plain and Dune woodland and shrubland
  - LCT 3: Plains and floodplain pastures
- **No landscape character impacts:**
  - LCT 2 and LCT 4.

7.2 Visual impacts

7.2.1 Visual magnitude

The visual magnitude threshold for the Project, where impacts are likely to be more significant, has been calculated at up to 5,800 metres and 3,850 metres for a high visual magnitude threshold for private receivers and public viewpoints.

There are a total of four non-associated private receivers and sensitive public viewpoints identified within the visual magnitude threshold with **potential high to low magnitude of visual change**, including:

- Visual influence zone 1 within 3,850 metres of a proposed turbine:
  - R05 Nulla Road at 1,559 metres to the closest turbine with limited intervening screening vegetation
  - R06 Renmark Road at 2,391 metres to the closest turbine with limited intervening screening vegetation
  - R23 Anabranch Mail Road at 3,754 metres to the closest turbine with a moderate to high degree of intervening screening vegetation.
- Potential sensitive public viewpoint within 5,800 metres of a proposed turbine:
  - VP13 Anabranch Hall at 4,210 metres to the closest turbine with a moderate-high degree of intervening screening vegetation and earth bund.

7.2.2 Multiple wind turbines

Two (2) non-associated dwellings with turbines within 8,000 metres covering three or more sectors of the view from the proposed Project layout include:

- R05 Nulla Road: 3x 60° sectors
- R31 Nulla Road (north of Project): 4x 60° sectors

7.2.3 Viewpoint assessment

The preliminary assessment identified 10 viewpoints within the Study Area, and four further afield; representative of receptors of higher sensitivity including from rural dwellings and community places of interest. The assessment considered the sensitivity of the viewpoint and the magnitude of change, resulting in the following preliminary visual impacts.

- Potential for **moderate visual impacts**, representative of rural dwellings and public places:
  - VP5: Nulla Nulla Station – landowner associated with the Project (R01-R04)
  - VP7: Renmark Road – non-associated landowner (R06)
  - VP11: Anabranch Mail Road - landowner associated with the Project (R19 and R20)
- Nine (9) viewpoints were assessed as low or very low visual impacts. This was due to the intervening distance which would render the turbines barely visible and within a narrow horizontal FOV.
- Two (2) of the assessed viewpoints (VP1 and VP14) were rated with negligible visual impacts. The turbines are unlikely to be visible due to the viewing distance causing them to be indistinguishable.
- There is one significant viewpoint overlooking Lake Victoria (regional importance), located 19 kilometres to the southwest of the Project area. This is located out of the visual magnitude threshold, however due to its significance, an assessment was undertaken and resulted in a very low visual impact. Potential views of turbines would appear as very small objects to the mid background of the view, across a narrow horizontal FOV and dependent on viewing weather conditions.

7.2.4 Cumulative impacts

The closest built or approved wind farm (Mallee wind farm) is approximately 61 kilometres southeast of the Project and another (Euston wind farm) is 99 kilometres southeast. At this distance, there is not expected to be any cumulative views of the Project and the two other wind farms.

There is potential for localised cumulative impacts due to the new HV transmission line and the Project introducing increased large-scale electrical infrastructure, to the following areas.

- Motorists along Renmark Road (west of Nulla Road) – very low cumulative impact.
- Rural dwelling on Renmark Road (as assessed in VP4) – very low cumulative impact.

To the north boundary of the Project is the proposed Copi Mineral sand mine. Though the projects are in close proximity to each other, the two residential receivers (R31 and R34) which are likely to experience cumulative views of both projects within eight kilometres, are associated with the proposed sand mine and therefore exempt from cumulative assessment.

7.3 Next steps

The assessment is limited to representative viewpoints from public locations. Consultation with residents to undertake further visual assessment from selected sensitive viewpoints on private property, would determine the viewing conditions, with further assessment of landscape character and visual impacts:

- It is recommended that consultation with potentially affected landowners needs to be focused on private dwellings R05, R06, R23, R31 and the Anabranch Community Hall; which are within the visual magnitude threshold of 5,800 metres.
- Further ground-truthing of the visual conditions for private dwellings up to 8,000 metres (within middle ground) from a turbine, and not able to be closely accessed through adjacent public roads.

As the project progresses further community consultation will be undertaken. Additional viewpoints and areas of sensitivity may be identified for detailed assessment:

- Further assessment required of sensitive viewpoints and characteristics which have been / could be highlighted in community consultation sessions.

- Community engagement is still occurring including with the Barkandji PBC. This consultation could identify further areas or views that are of cultural and local value, which will be addressed regarding the potential visual impacts as a result of the Project.
- Mitigation of potential visual impacts should be considered, along with ongoing design and location of turbines as warranted through the assessment.

This PLCVIA has identified that there are potentially moderate visual impacts from three private receivers (R05, R06 and R23) and one public viewpoint (Anabranch Community Hall), that are within the high visual magnitude threshold; and ratings moderate or higher trigger the requirement for further assessment.

8 References

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Appendix A

Mapped results of the preliminary assessment tool for visual magnitude and multiple turbine parameter

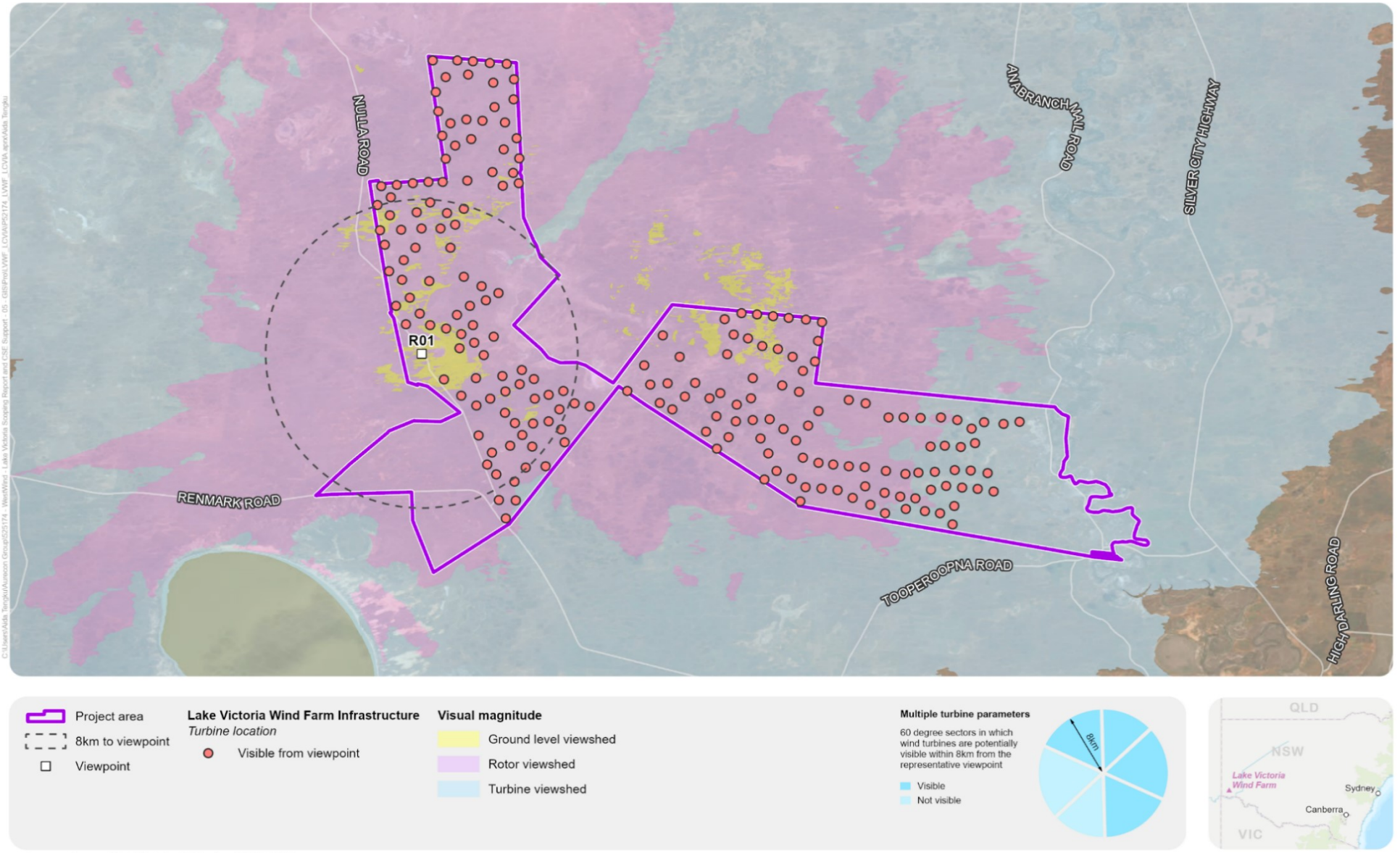


Figure A-1 Viewshed from dwelling R01 – including R02, R03 and R04

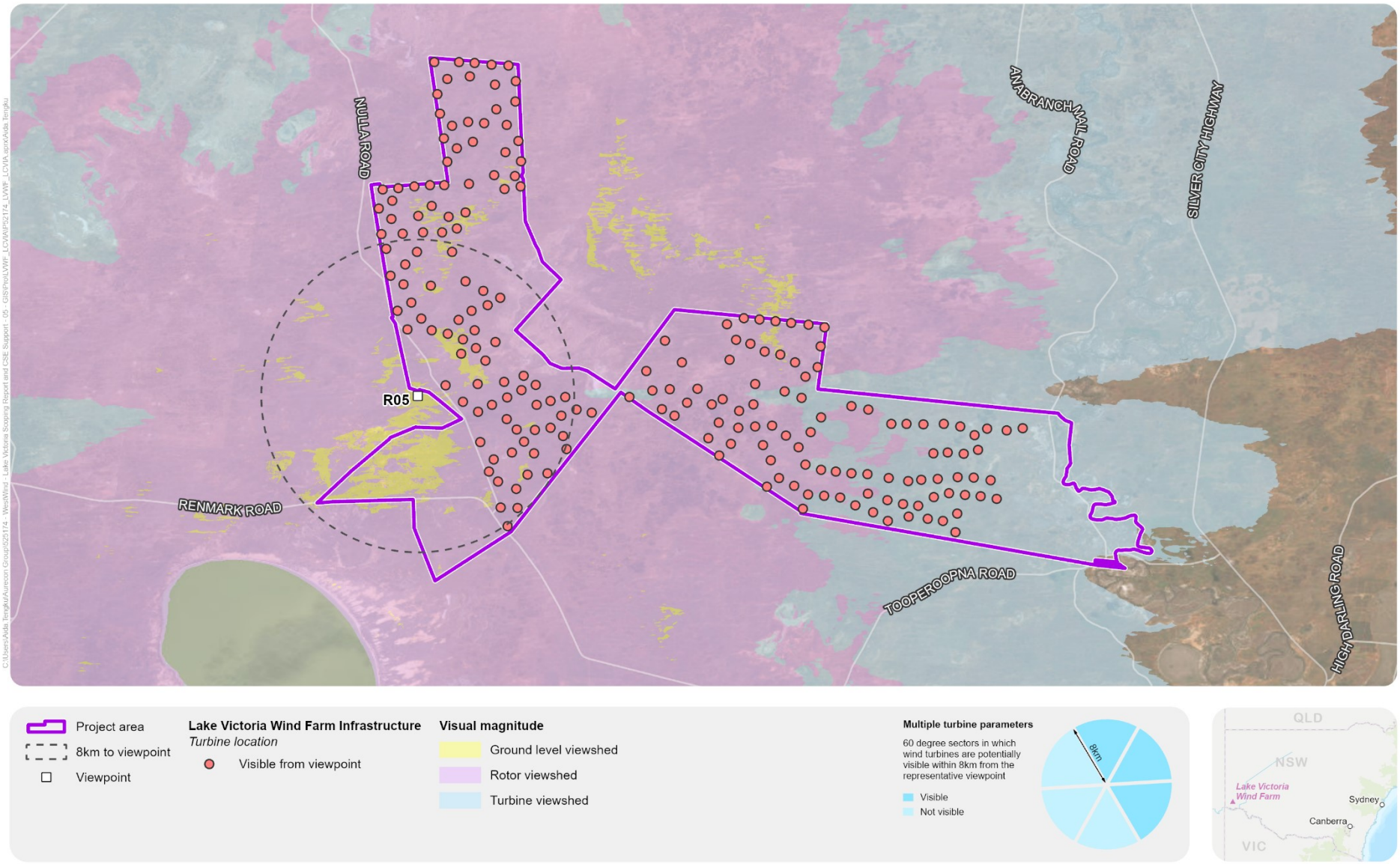


Figure A-2 Viewshed from dwelling R05

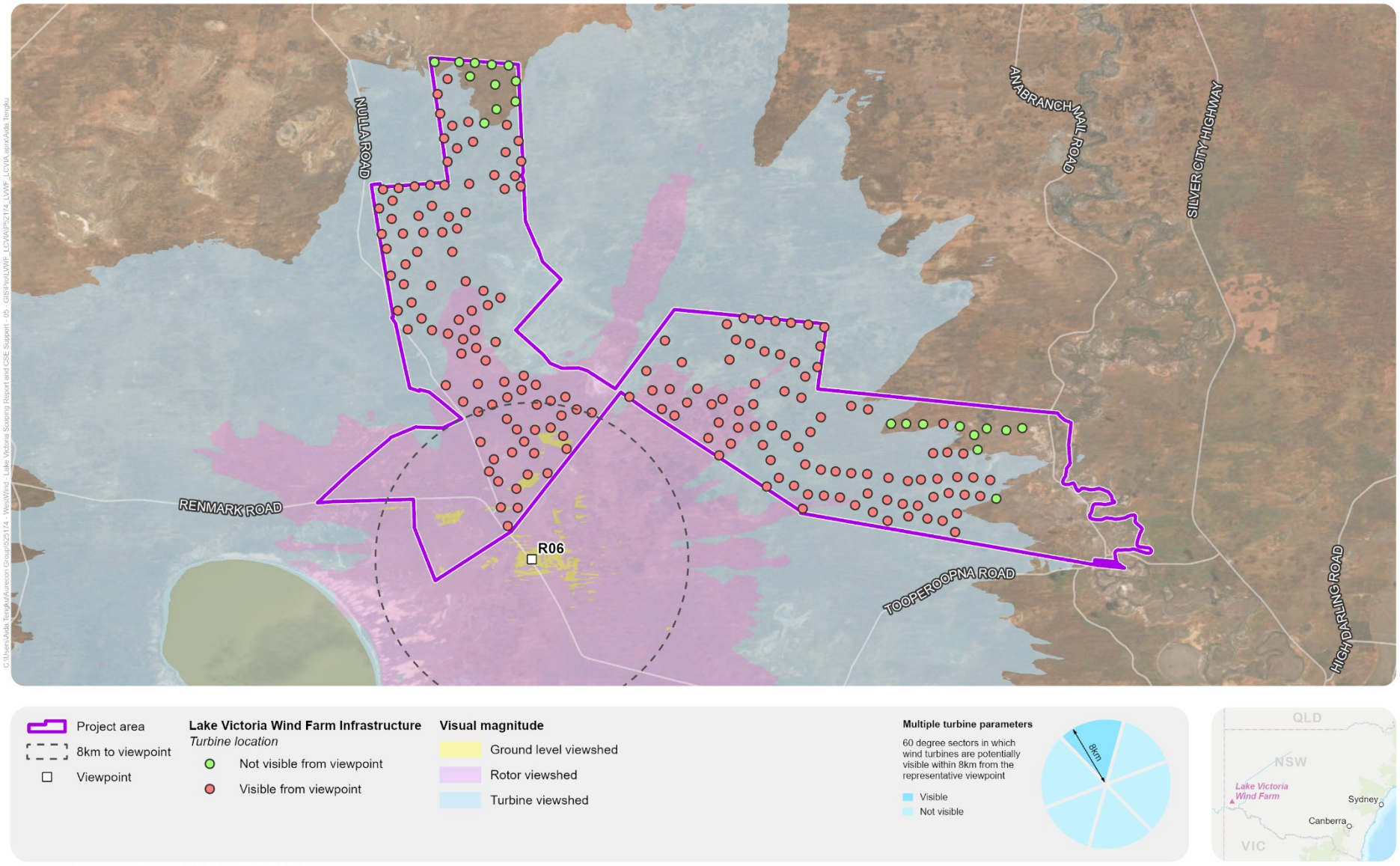


Figure A-3 Viewshed from dwelling R06

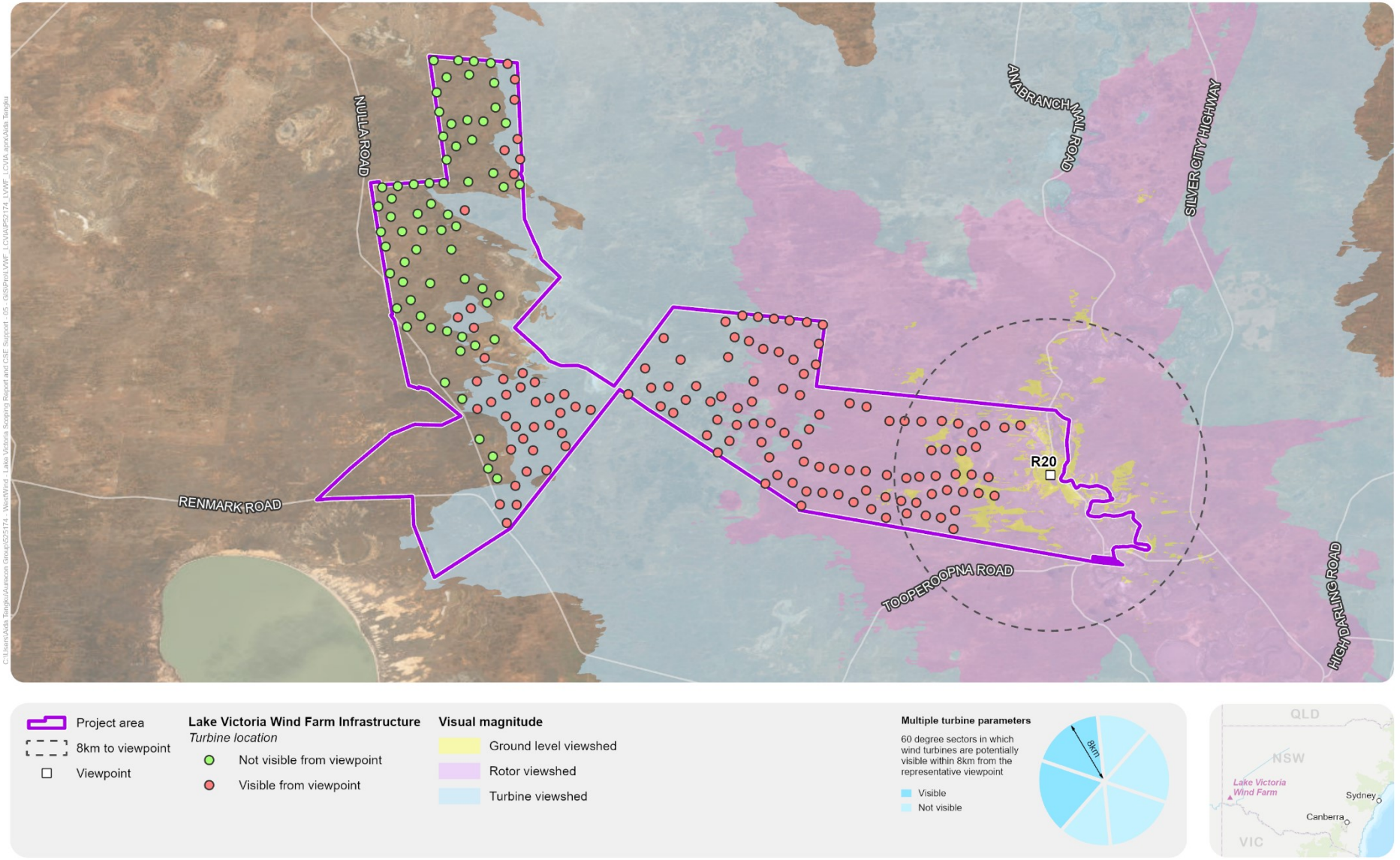


Figure A-4 Viewshed from dwelling R20

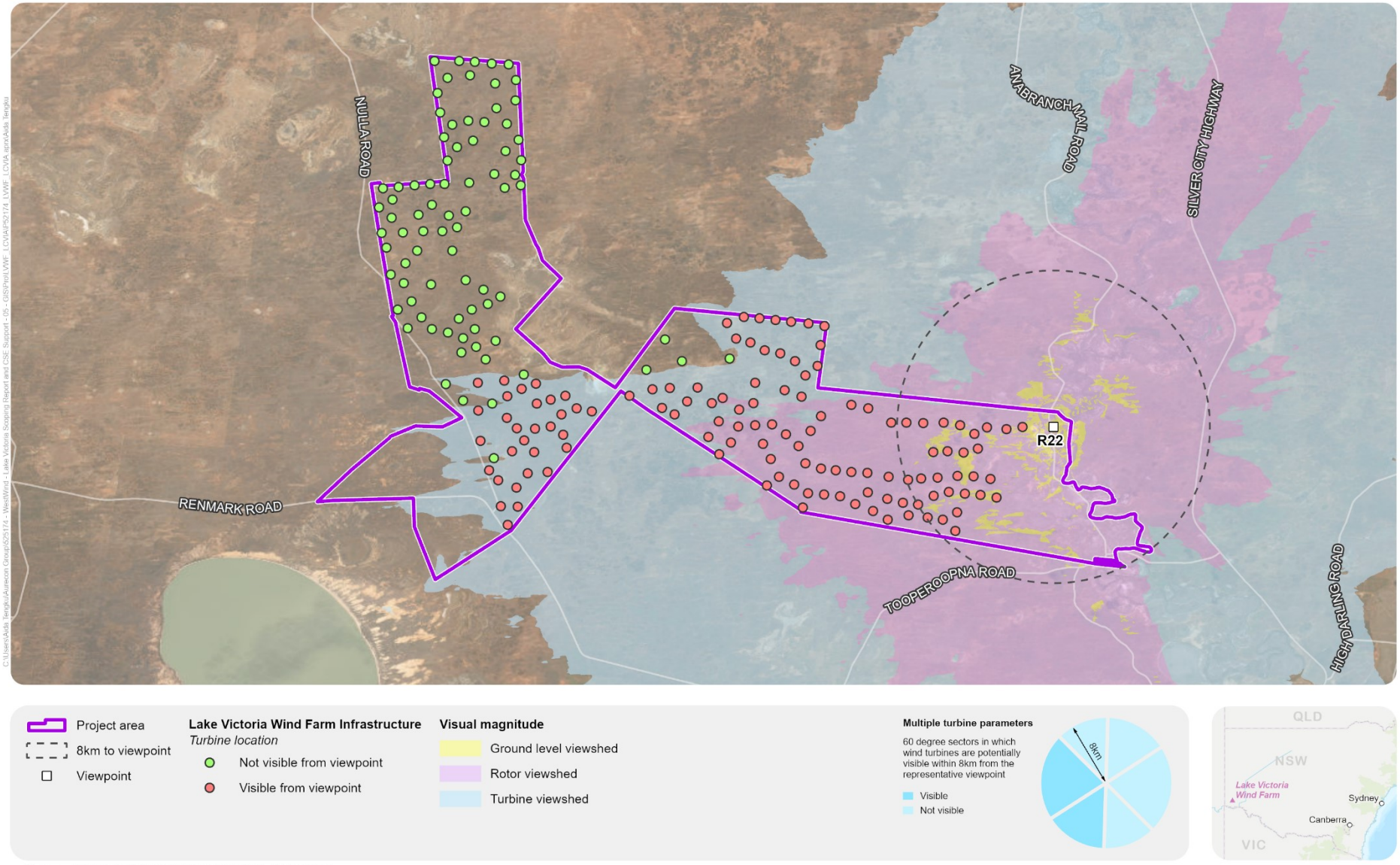


Figure A-5 Viewshed from dwelling R22

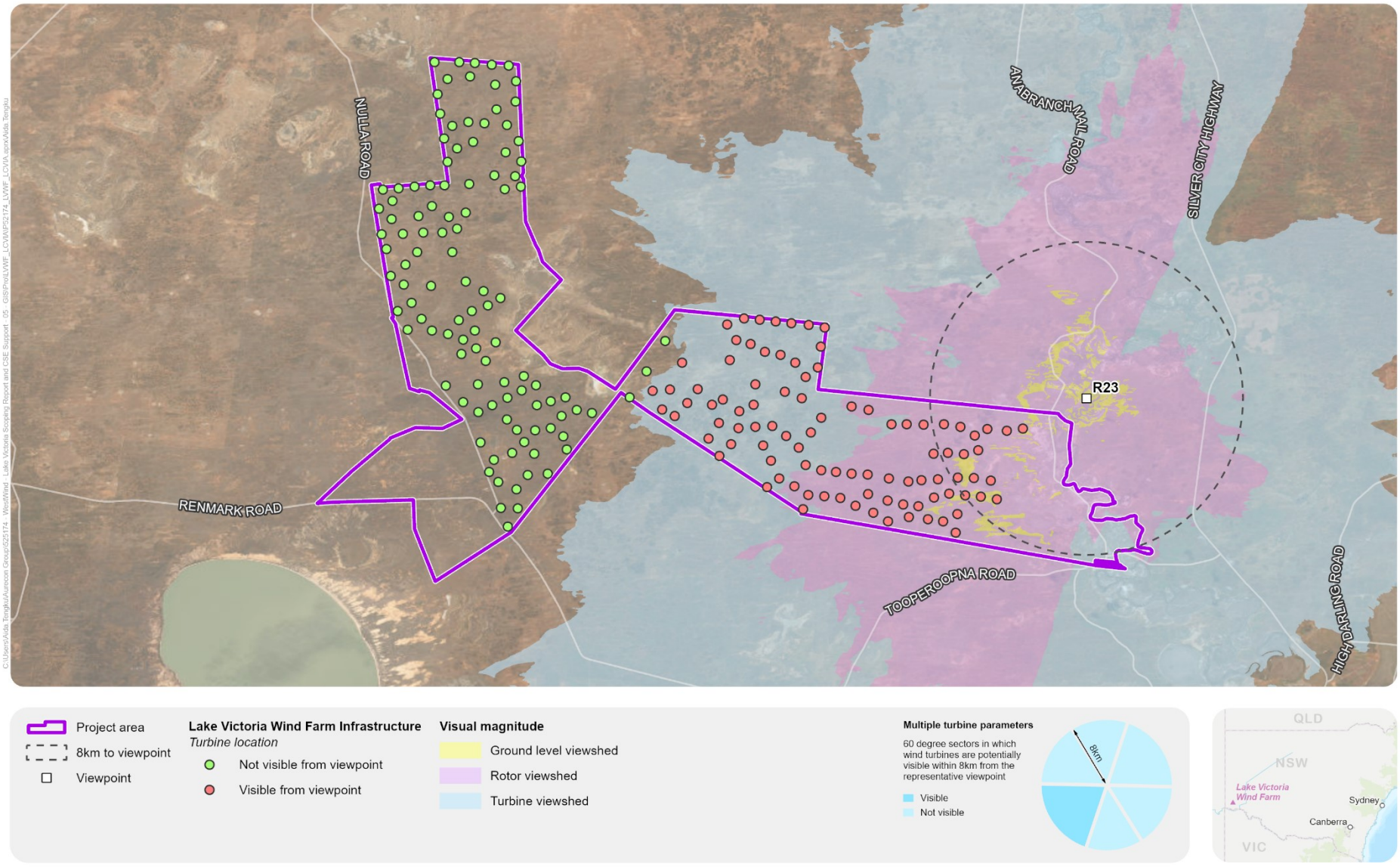


Figure A-6 Viewshed from dwelling R23

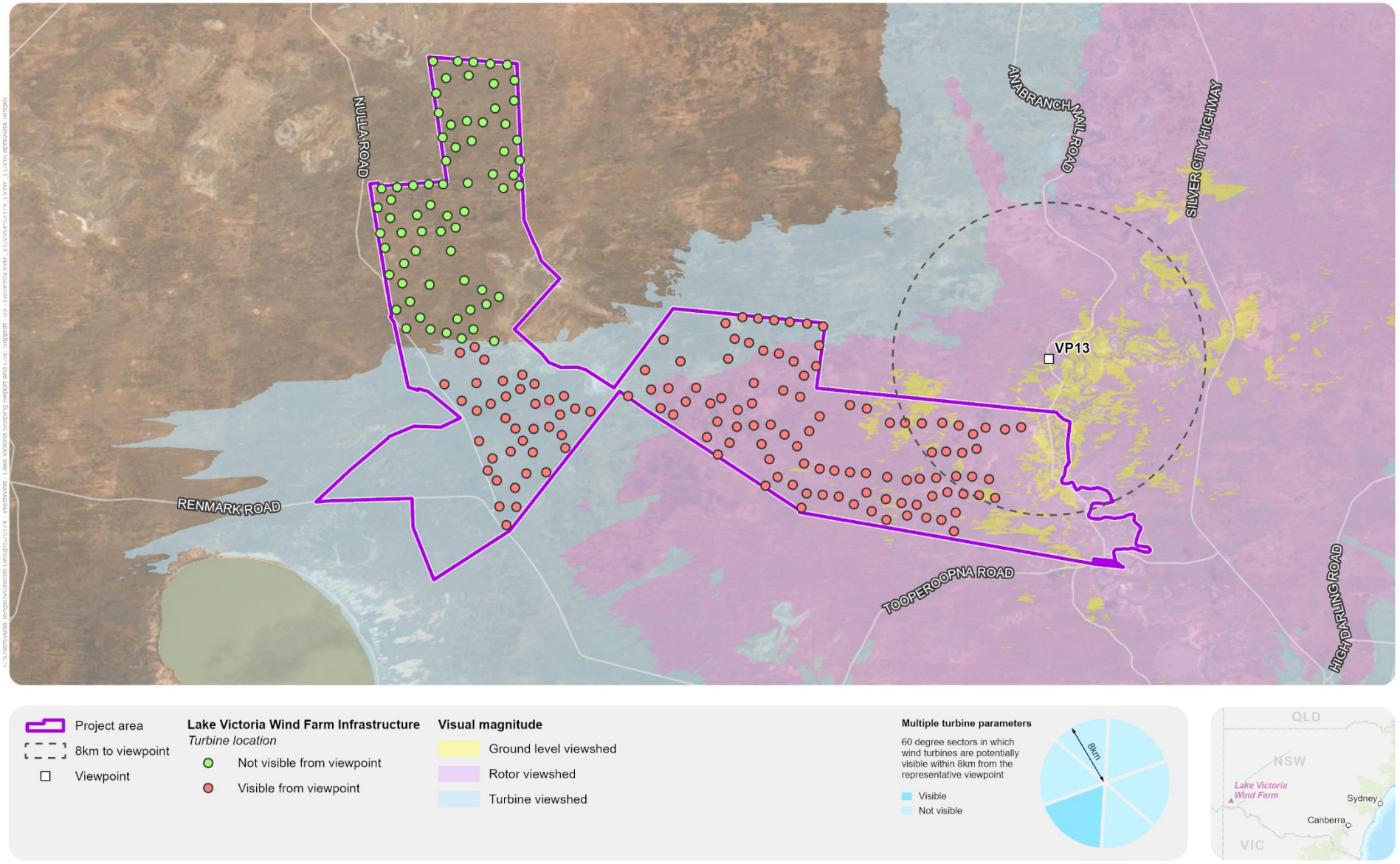


Figure A-7 Viewshed from VP13 – Anabranch Hall

Appendix B

Aerial imagery of residential dwellings

Note: The direction of the wind farm is indicative of the extent of the Project boundary.

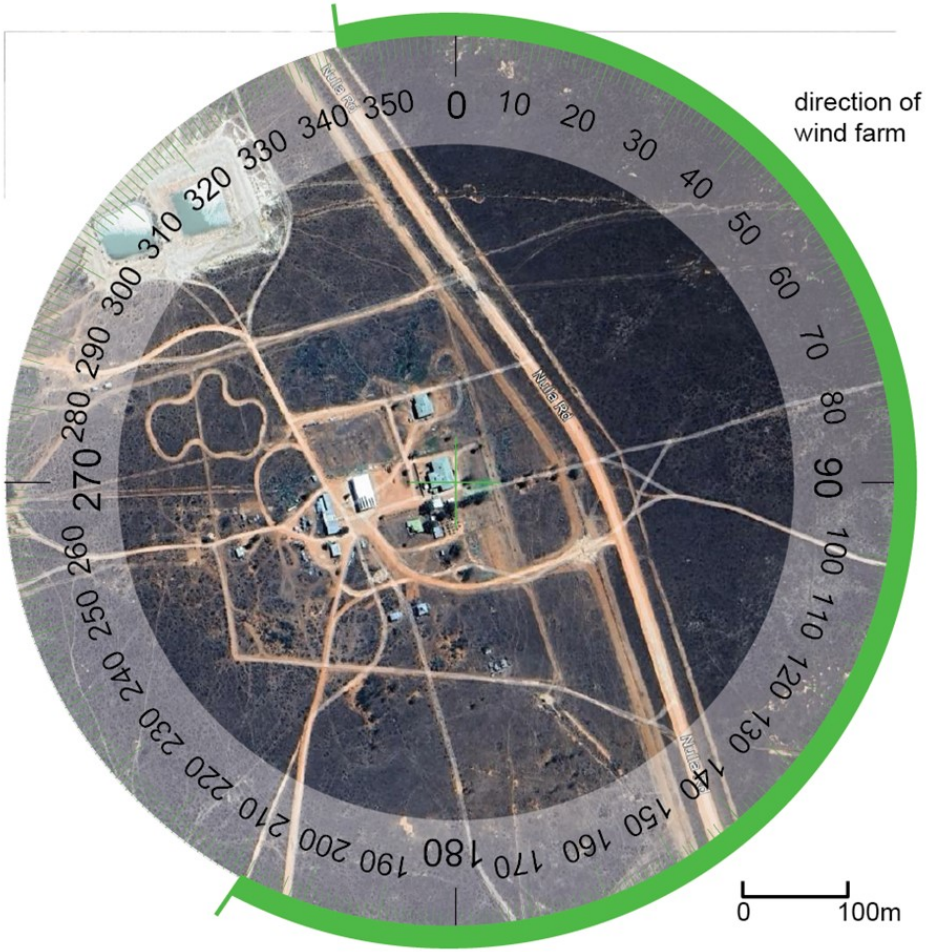


Figure B-1 Aerial of R01, R02. R03 and R04 – represented by VP5

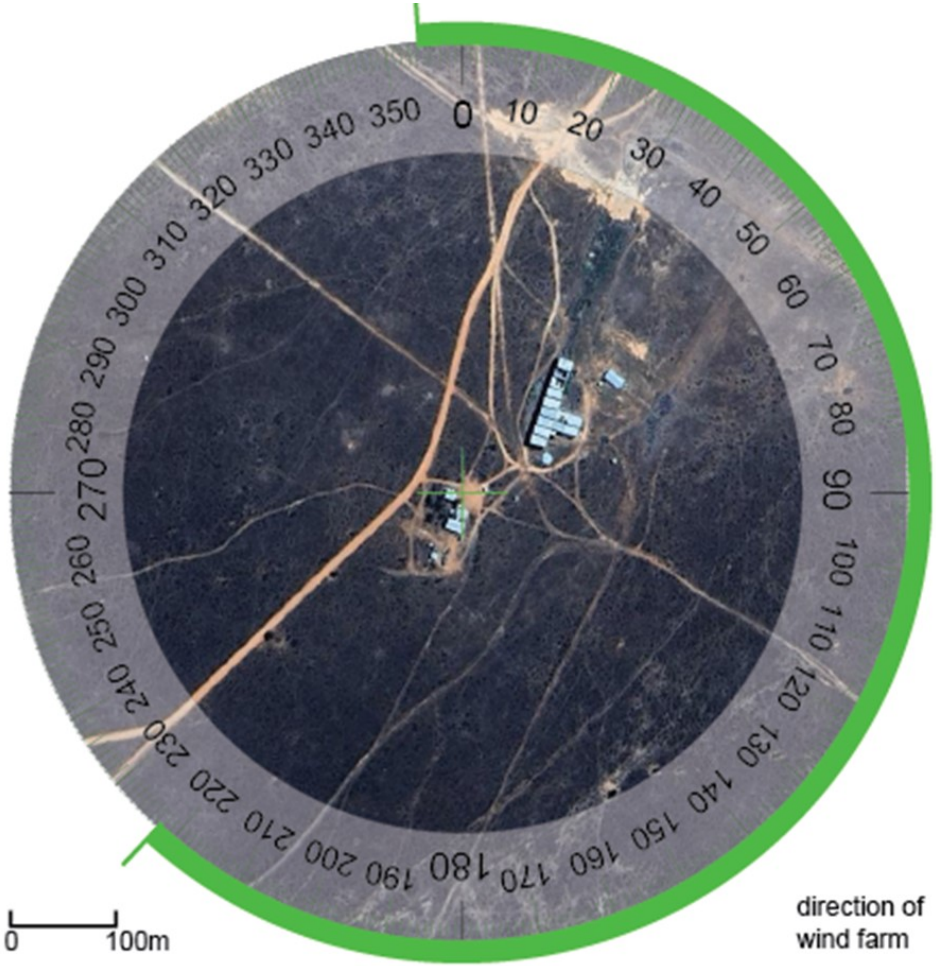


Figure B-2 Aerial of R05 – represented by VP5

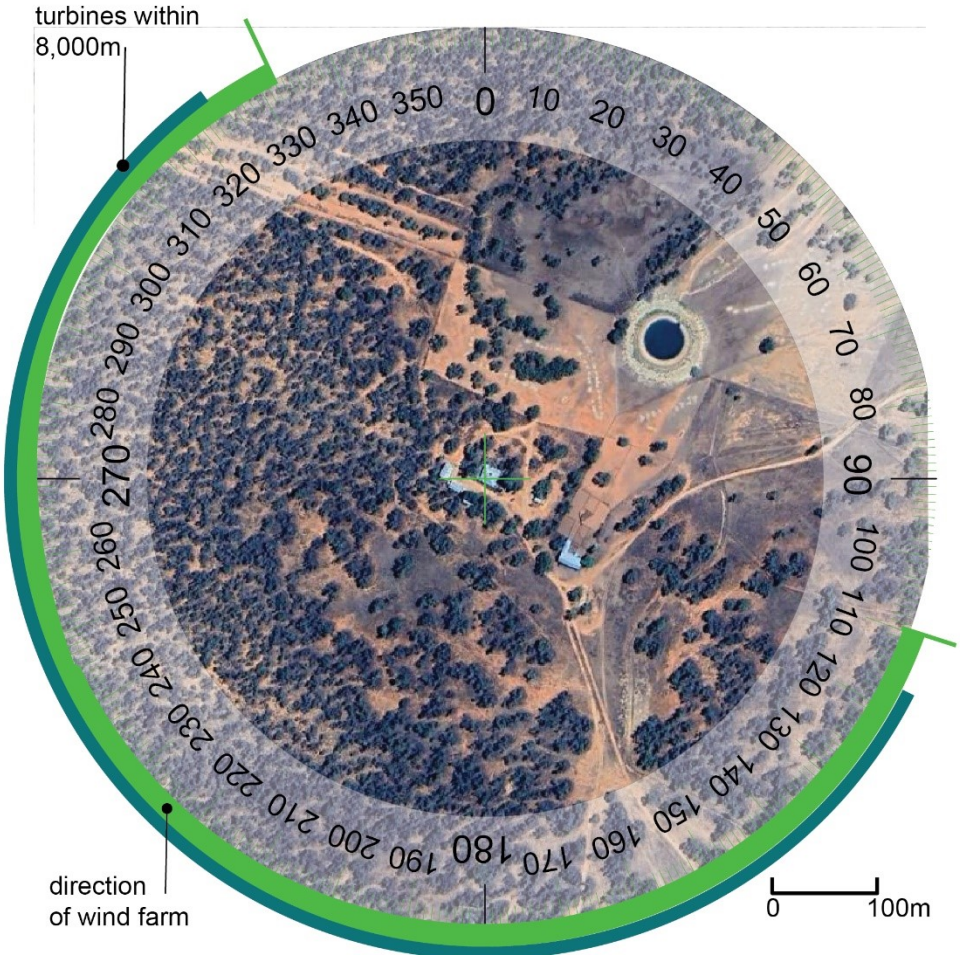


Figure B-3 Aerial of R06 - represented by VP7

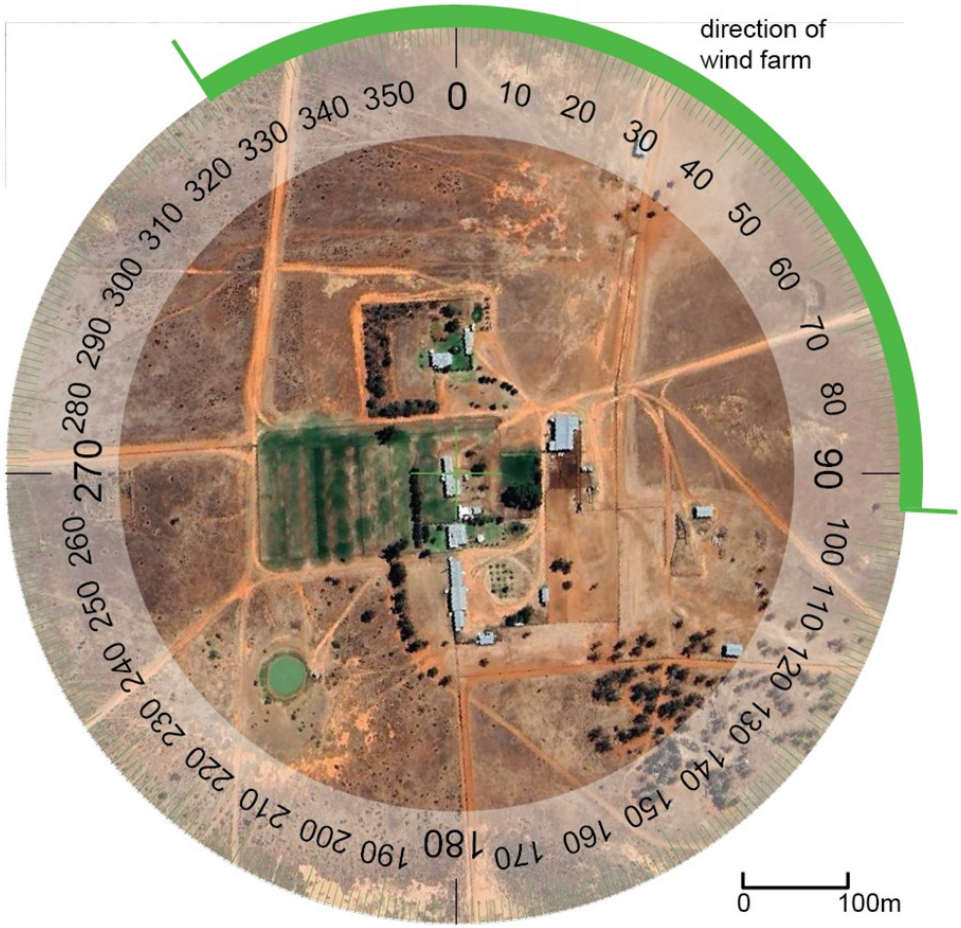


Figure B-4 Aerial of R07, R08 and R09 - represented by VP8

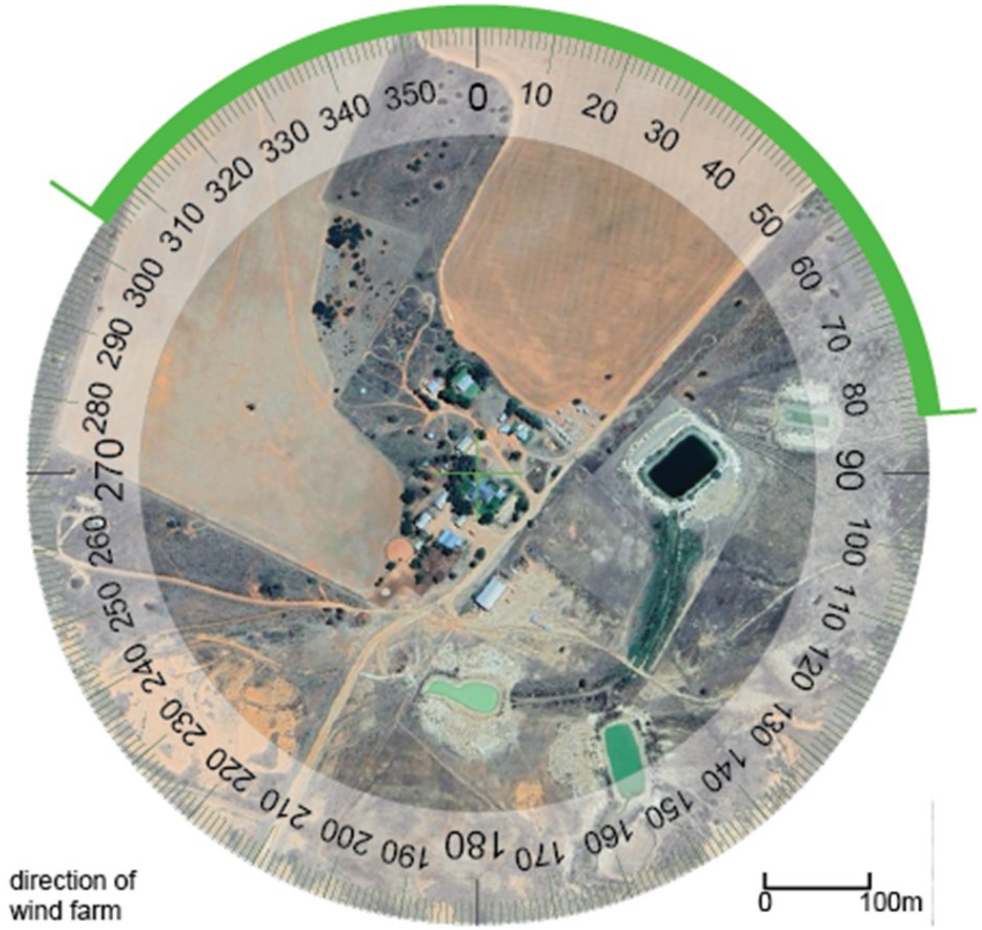


Figure B-5 Aerial of R10, R11 and R12 – represented by VP9

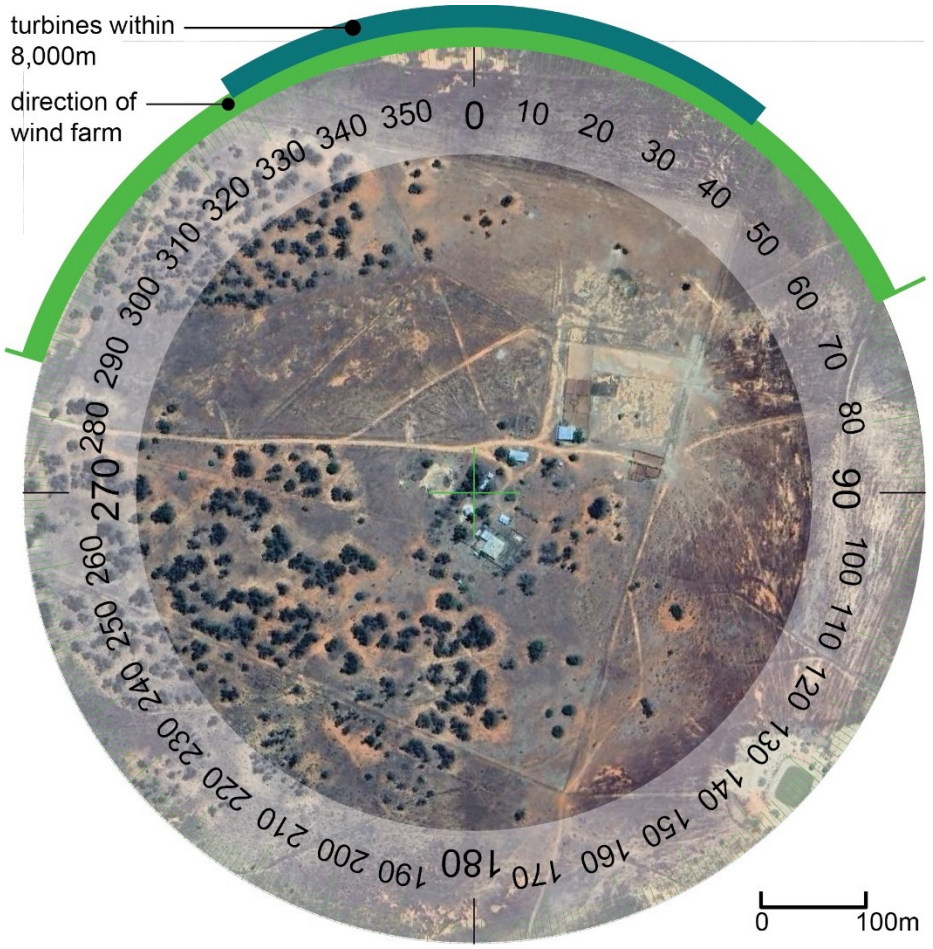


Figure B-6 Aerial of R13 and R14 - represented by VP9

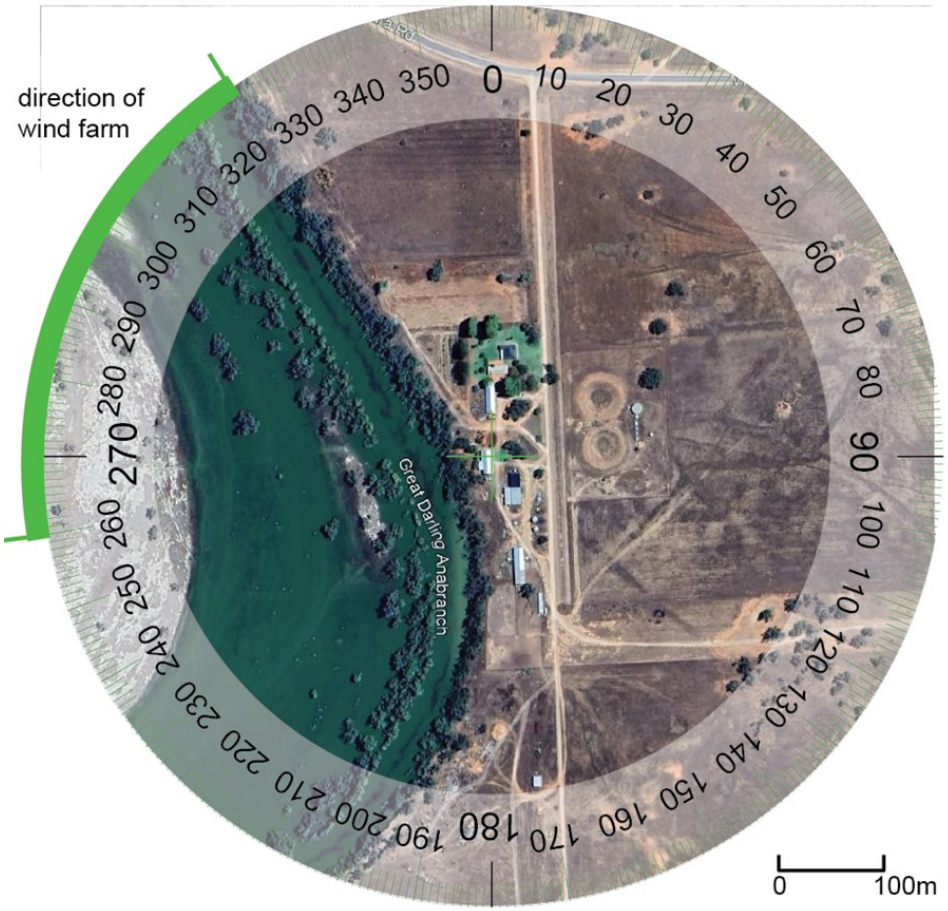


Figure B-7 Aerial of R15 and R16

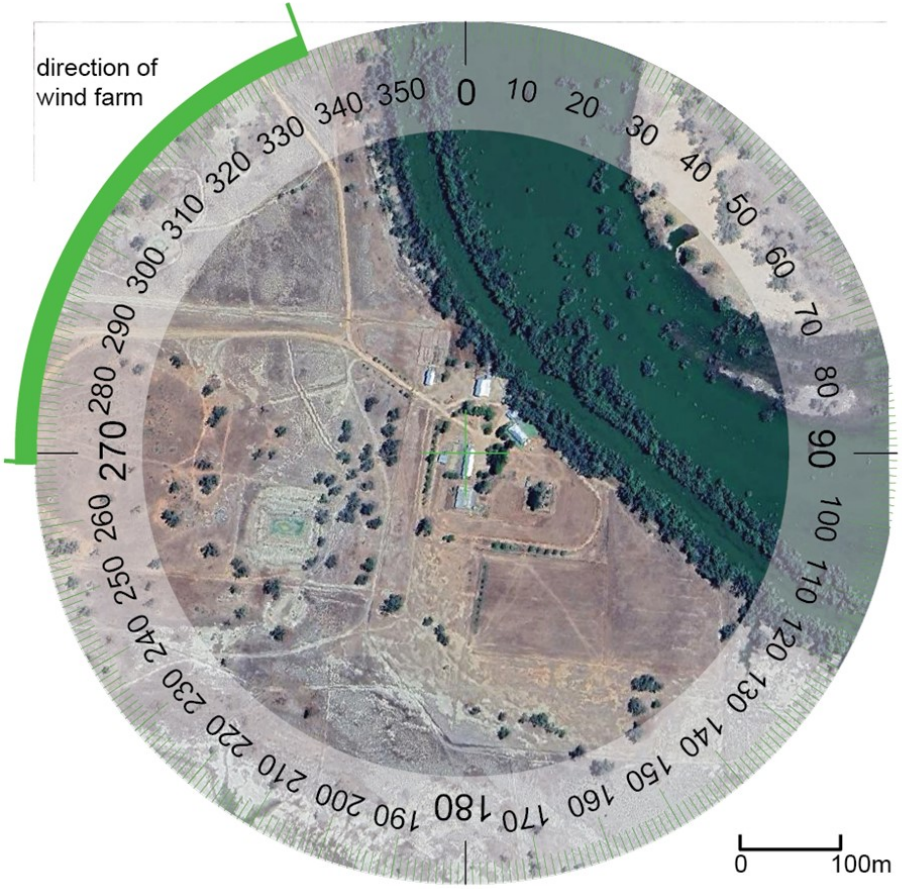


Figure B-8 Aerial of Tara Downs – represented by VP10

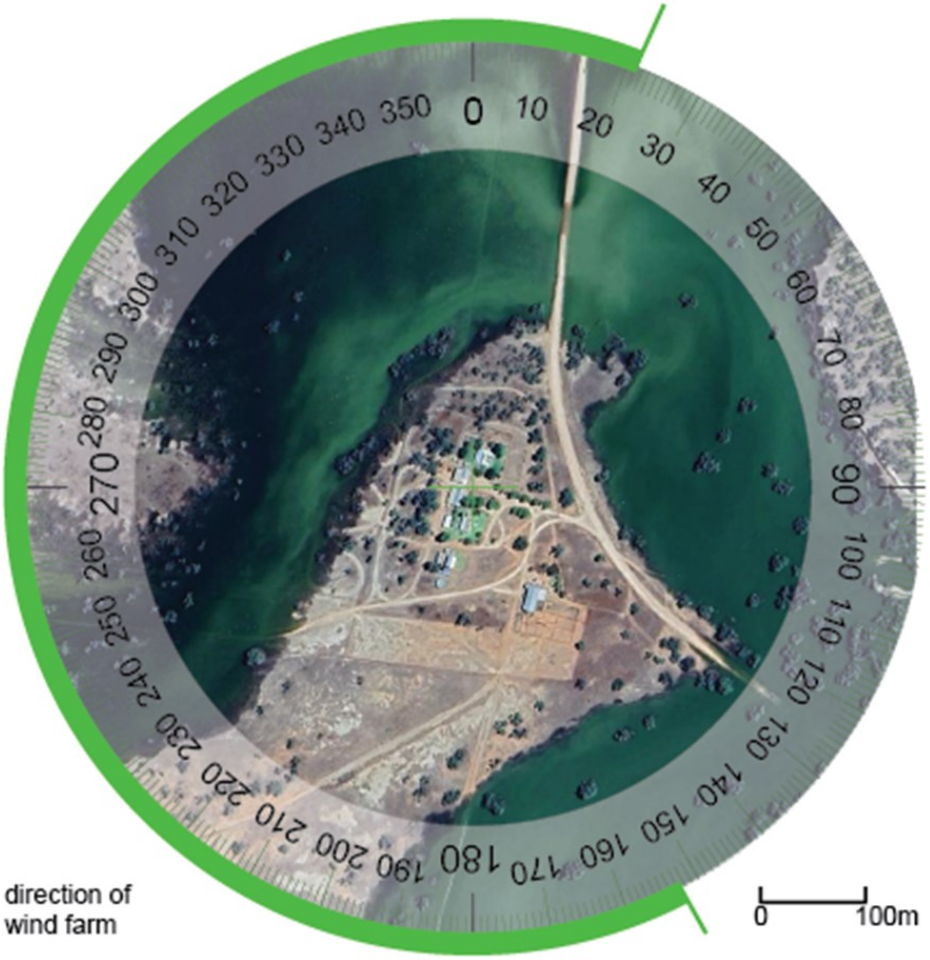


Figure B-9 Aerial of R19 and R20 - represented by VP11

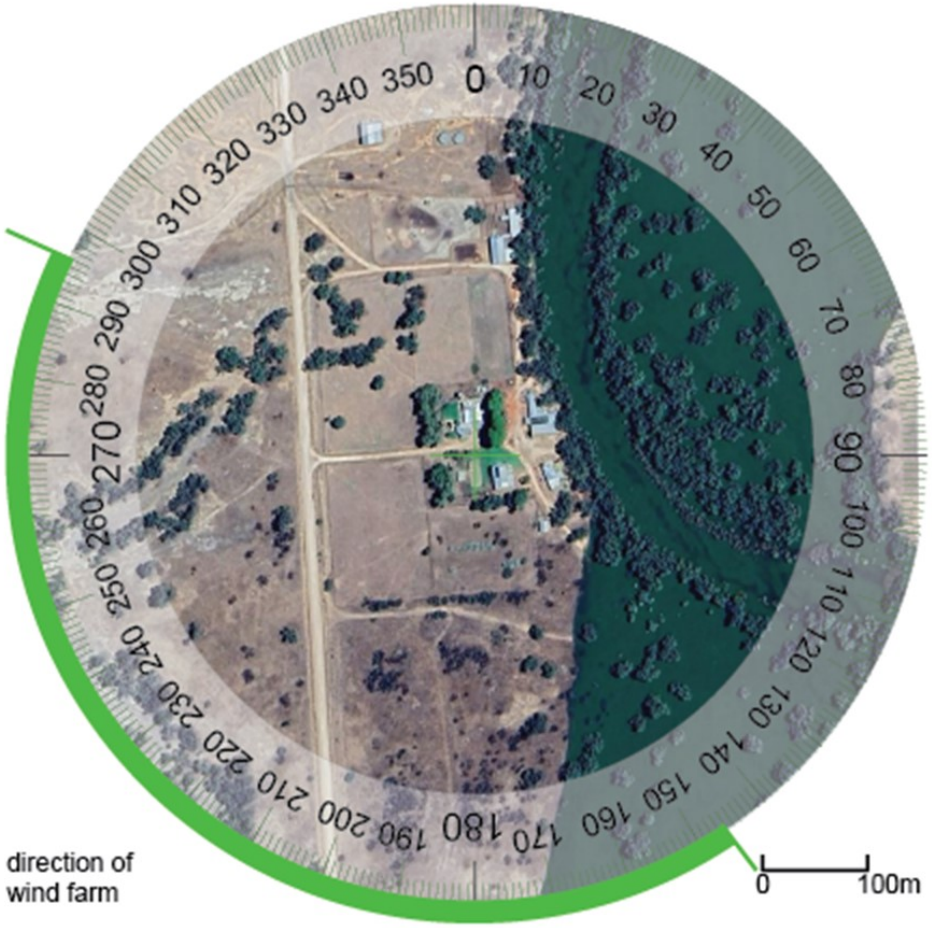


Figure B-10 Aerial of R21 and R22 - represented by VP12

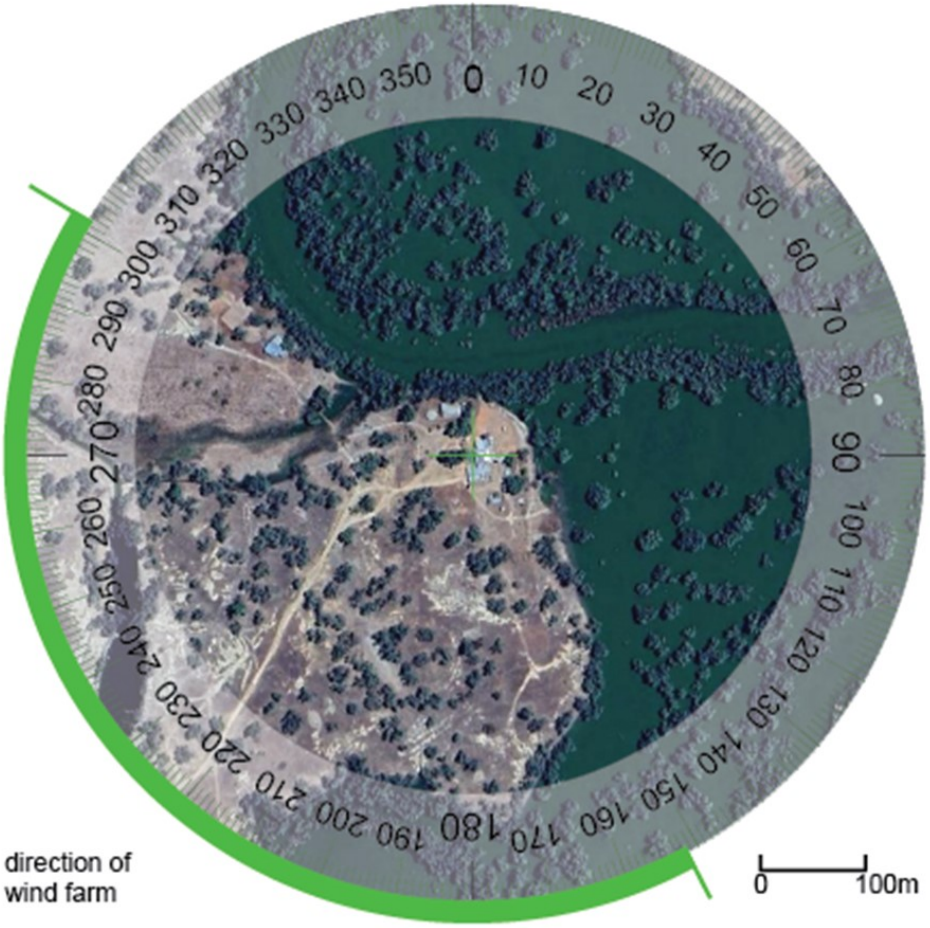


Figure B-11 Aerial of R23

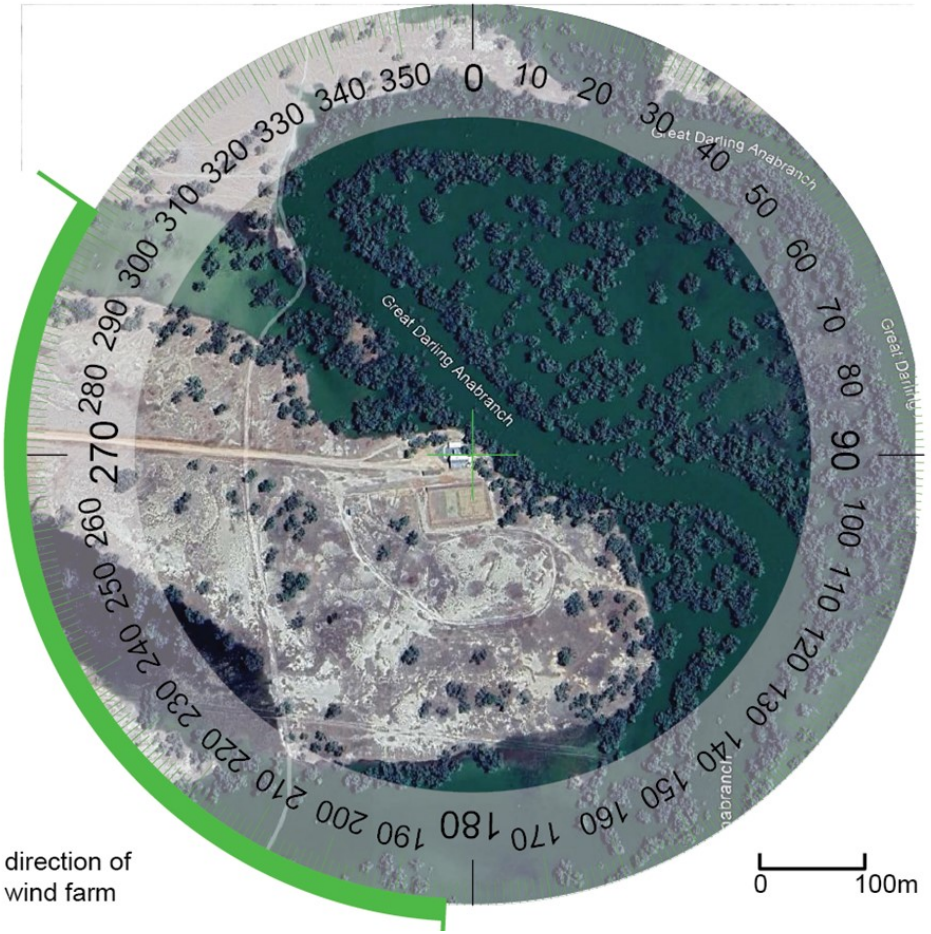


Figure B-12 Aerial of Anabranch Hall – represented by VP13

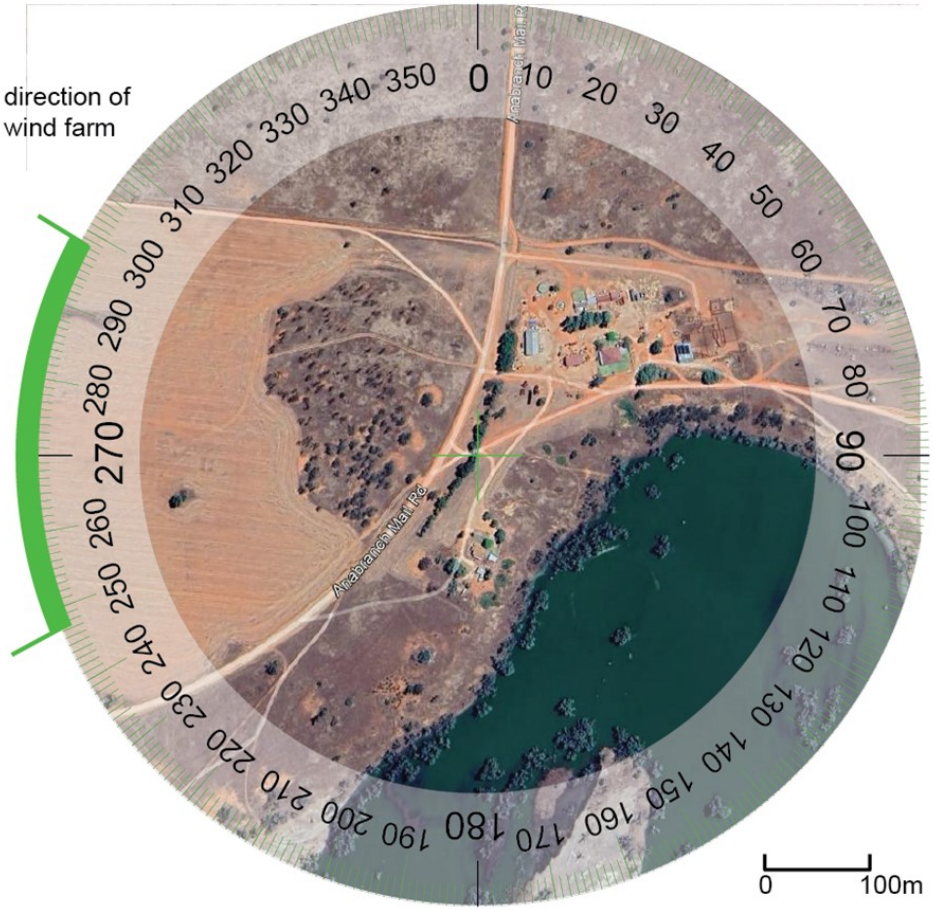


Figure B-13 Aerial of R24 and R25 – no representative viewpoint

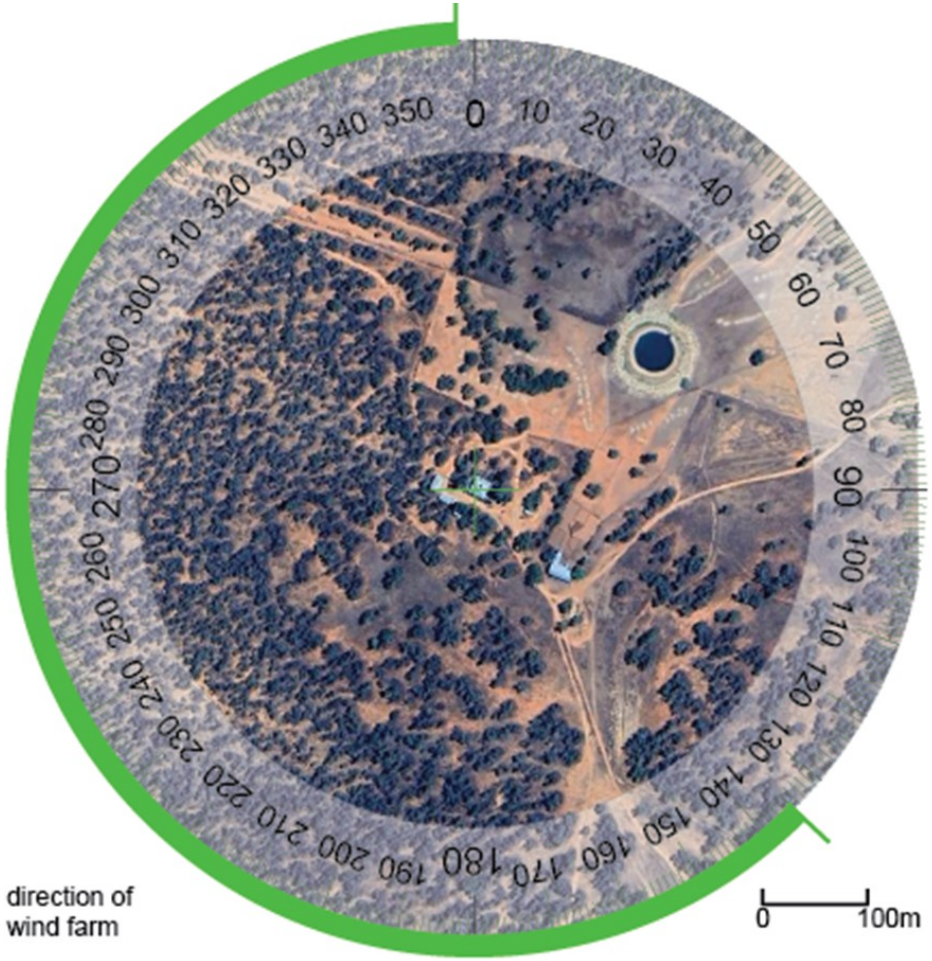


Figure B-14 Aerial of R31 – no representative viewpoint

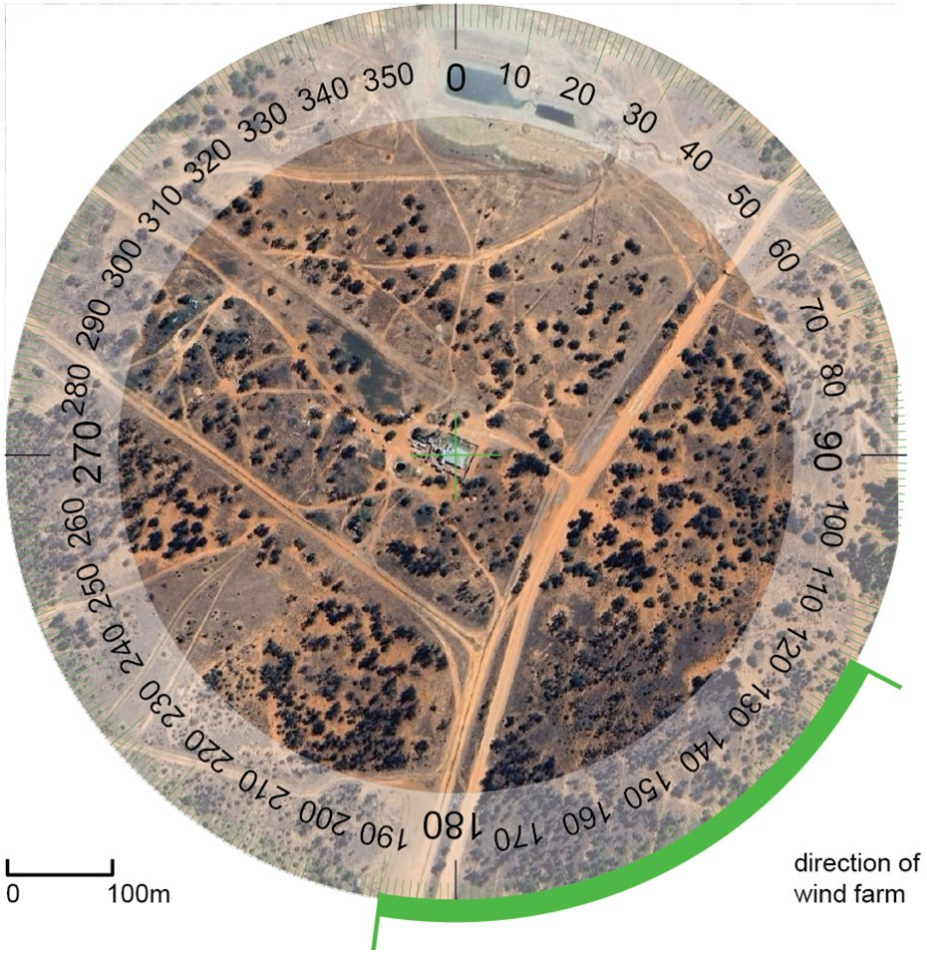


Figure B-15 Aerial of R18 – represented by VP6

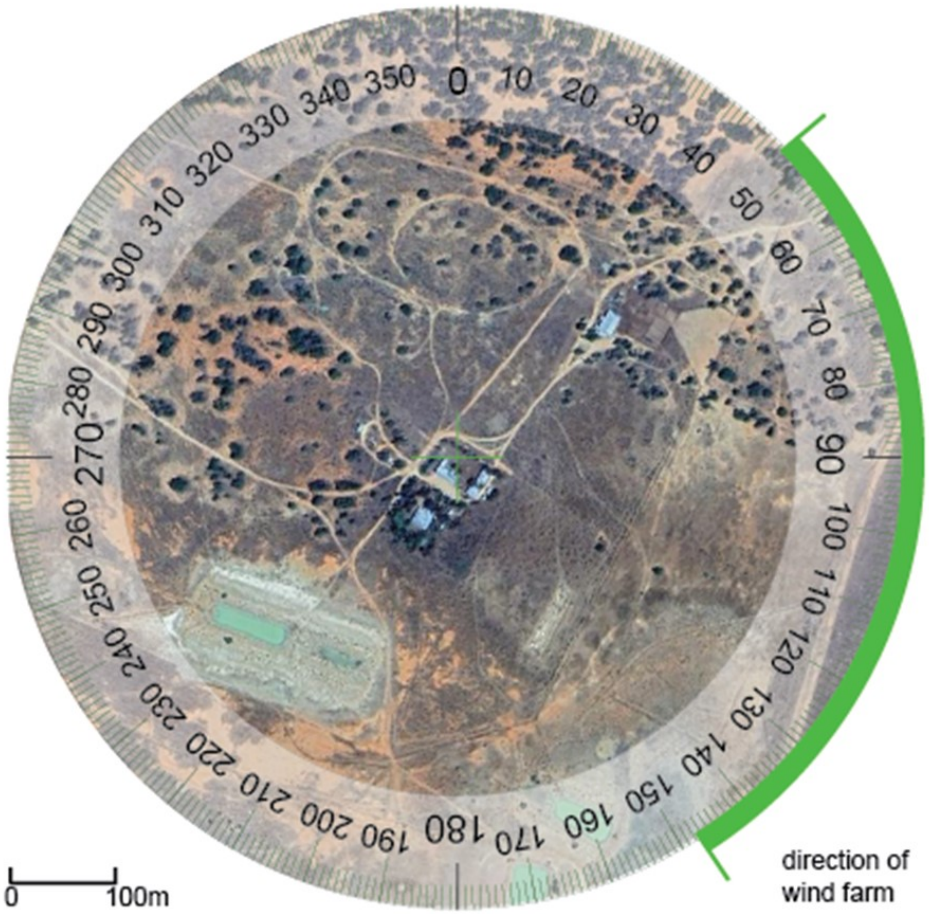


Figure B-16 Aerial of dwelling - represented by VP4

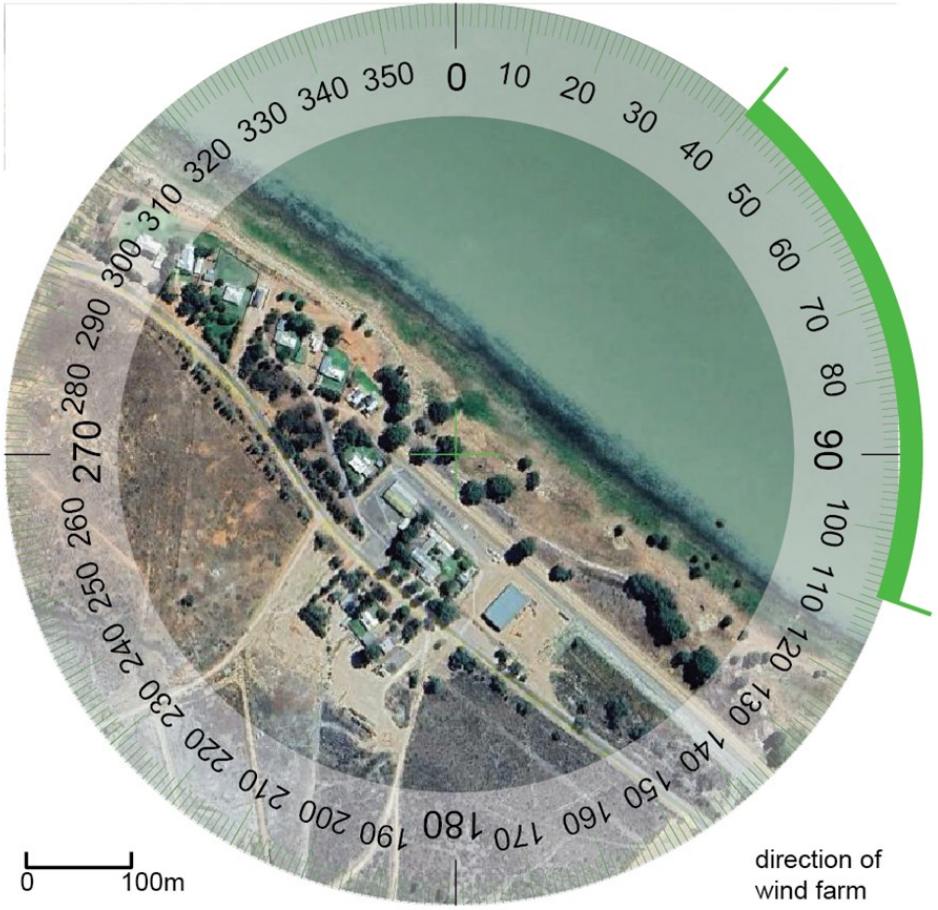


Figure B-17 Aerial of Lake Victoria conservation housing - represented by VP3

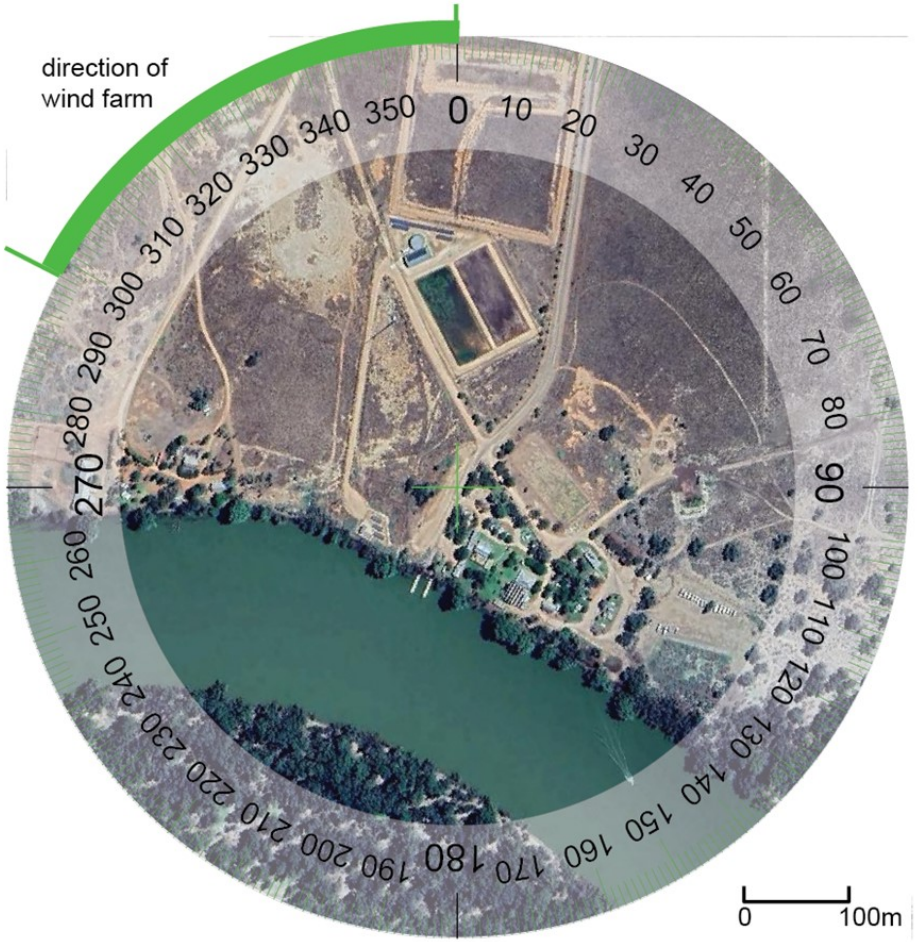


Figure B-18 Aerial of Fort Courage Caravan Park and Moorna woolshed (far left) – represented by VP2

Appendix C
Visual Prominence Rationale

The visual prominence of a development can be determined by understanding the extent to which an object is part of a viewer's static field of view.

The measurement of the field of view is based upon the parameters of human vision outlined below. These provide a basis for assessing and interpreting the visual prominence of a development by comparing the extent to which the development will intrude into the central field of vision (both horizontally and vertically).

These horizontal and vertical fields of view are also interlinked to the viewing distance from the development. The methodology is based on the reduction of the visibility of a development in the distance as the field of view reduces (i.e. the increase in distance between a given viewpoint and the development).

Horizontal line of sight

It is generally accepted that the central field of vision for the human eye covers a horizontal angle of approximately 50 degrees to 60 degrees. Within this angle, both eyes observe an object simultaneously creating a degree of overlap, which is the central field of view (refer to Figure A.1). Within the central field of vision, the viewed image is sharp, colours are separately defined and depth perception occurs.

The visual prominence of a development will vary according to the proportion a development occupies the central field of vision.

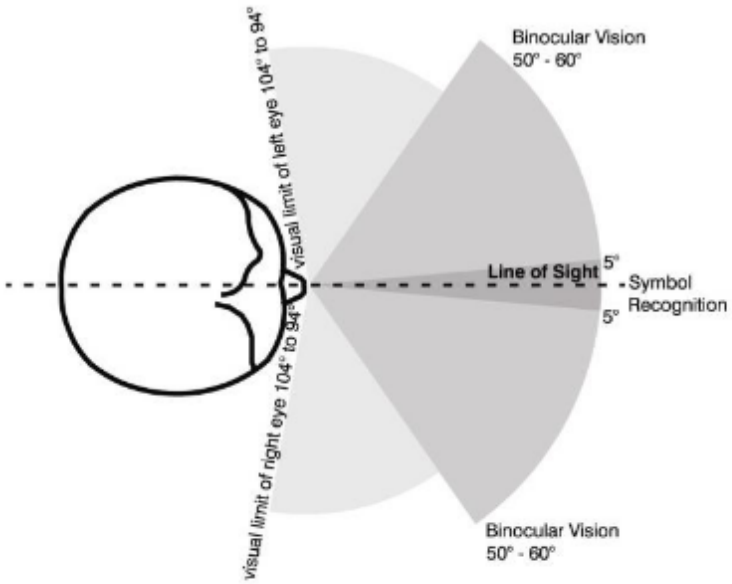


Figure A.1 Horizontal line of sight

Table A.1 outlines the potential visual prominence of a development, dependant upon on how much of the horizontal central field of vision that it occupies.

Degrees of Field of View occupied	Potential visual prominence – horizontal field of view
Less than 5°	**Insignificant - Low visual prominence** The development would not be highly visible in the view, unless it contrasts strongly with the background.
5° – 30°	**Potentially Noticeable – Moderate visual prominence** The development may be noticeable. The degree that it intrudes on the view would be dependent on how well it integrates with the landscape setting.
Greater than 30°	**Potentially Dominant - High visual prominence** The development would be highly noticeable.

Table A.1 Potential visual prominence based on degrees of horizontal field of view occupied

Vertical line of sight

As for the horizontal line of sight, there is also a vertical central field of view. If we assume that the horizon is 0° then the eye clearly defines colour, field of view and has image sharpness for an angle of approximately 25° upwards and 30° downwards. However, in reality, the typical line of sight for a standing person at ground level is approximately 10° below the horizon line (Refer to Figure A.2).

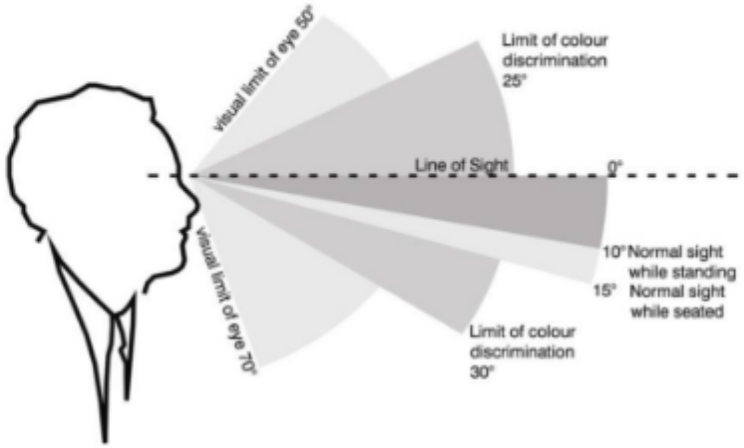


Figure A.2 Vertical line of sight

Objects that occupy a small proportion of the vertical field of view (less than 5^0) are visible but not dominant, particularly when they occur within landscapes that have been modified by human activity.

Table A.2 demonstrates the potential visual prominence of a development, dependant upon on how much of the vertical central field of vision that it occupies.

Degrees of Field of View occupied	Potential visual prominence – vertical field of view
Less than 0.5°	**Insignificant - Low visual prominence** A small thin line in the landscape and is no longer an easily recognisable element.
0.5° – 2.5°	**Potentially Noticeable - Moderate visual prominence** The development may be noticeable. The degree that it intrudes on the view would increase as distance reduces and be dependent on how well it integrates with the landscape setting.
Greater than 2.5°	**Potentially Dominant - High visual prominence** The development would be highly noticeable, although the degree of visual intrusion would depend on the landscape setting and the width / thickness of the object.

Table A.2 Potential visual prominence based on degrees of vertical field of view occupied

Visual prominence in relation to distance and field of view

These horizontal and vertical fields of view are also interlinked to the viewing distance from the development. The viewing distances, foreground, middleground and background, (refer to Table A.3) have been established based on previous field studies undertaken by Aurecon. The distances also relate to the distances for the land use types in the viewer sensitivity assessment methodology.

Distance from a viewer	Potential visual prominence
> 2.0km (background)	**Insignificant** The visibility of the development would progressively diminish over greater distances of 2km with no visibility beyond 5km due to atmospheric conditions.
Between 0.5km & 2.0km (middleground)	**Potentially Noticeable** The development would be noticeable, reducing with distance. The degree that it intrudes on the view would be dependent on topography and the vegetation within the landscape setting and how well it integrates with the surrounding land-uses.
< 0.5km (foreground)	**Potentially Dominant** The development would be highly noticeable, although the degree of visual intrusion would depend on the landscape setting (where not screened by vegetation or buildings) and the width / thickness of the object.

Table A.3 Potential visual prominence based on distance from a viewer

Figure A.3 illustratively demonstrates how the viewshed of a horizontal object is determined by its height and not so much by its width based on the viewing distance from a development. As a viewer moves further away from a horizontal object the width may still be apparent, however the vertical dimension reduces to insignificance.

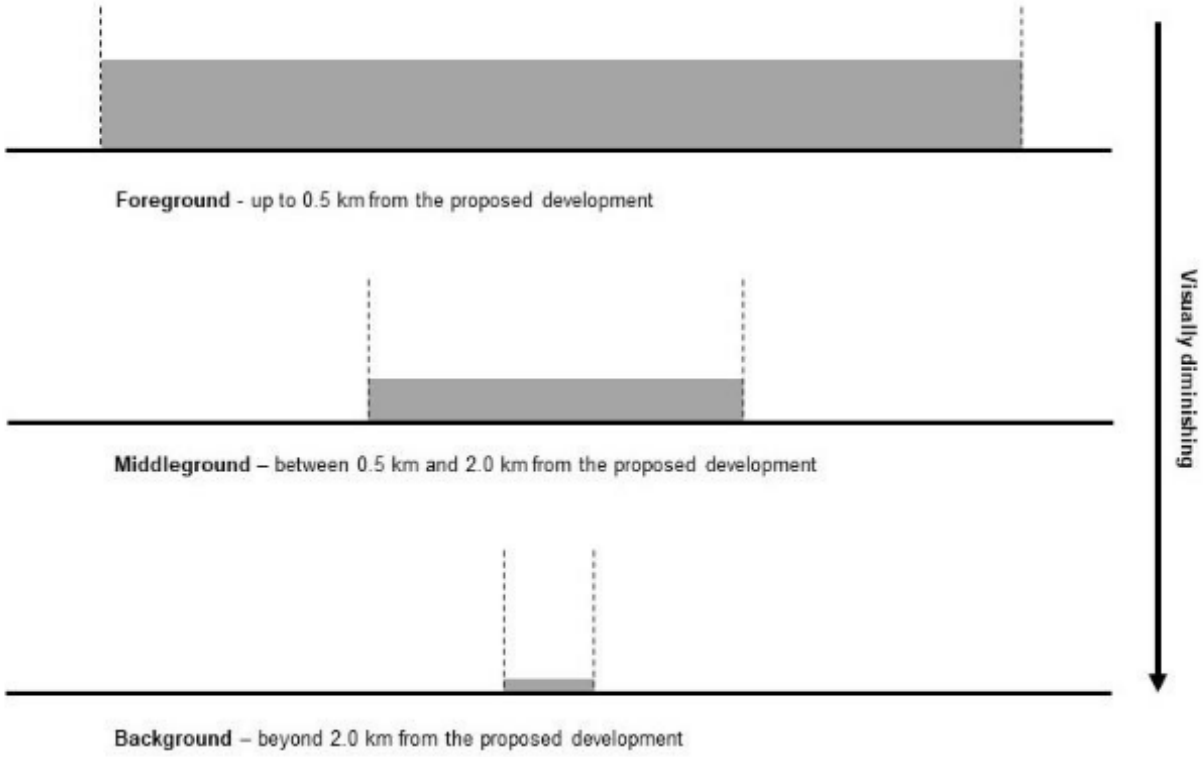


Figure A.3 The reduction in visibility of the horizontal line of sight based on increase in distance from a viewpoint

The same approach can be applied to the vertical field of view. As a viewer moves further away from a vertical object the height may still be apparent, however the vertical dimension reduces to insignificance (refer to Figure A.4).

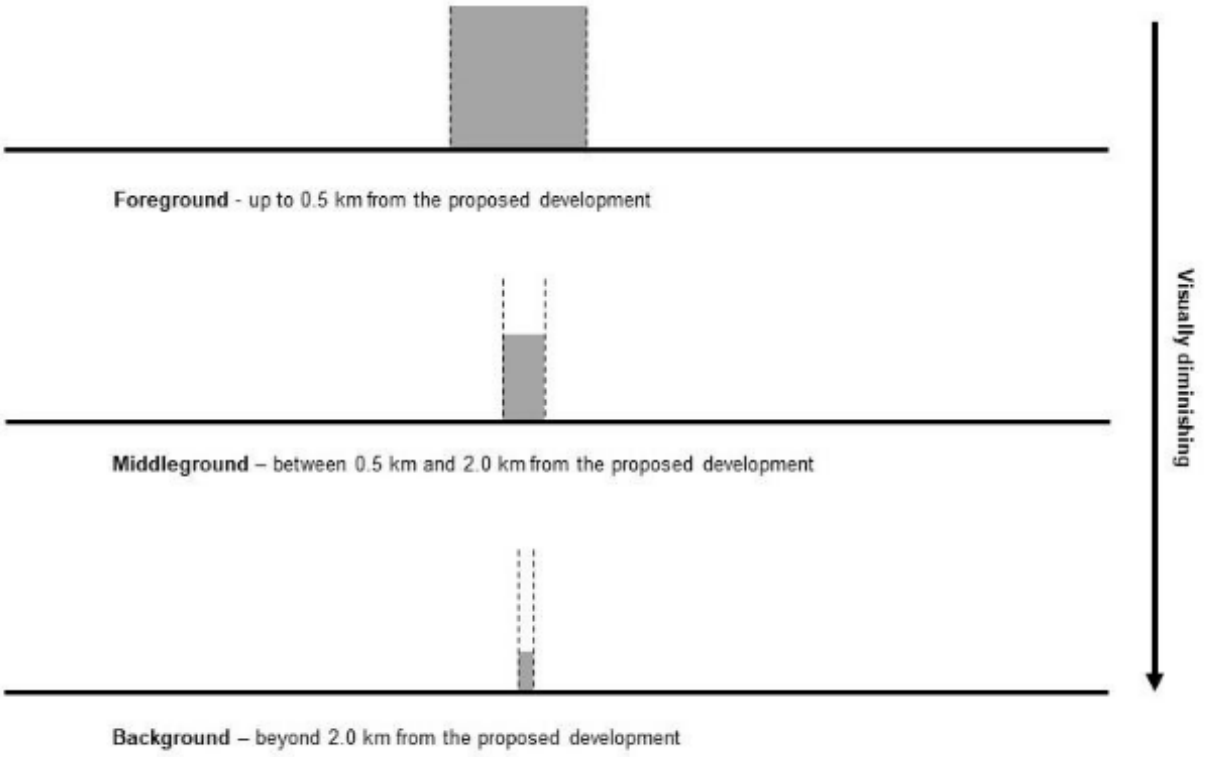


Figure A.4 The reduction in visibility of the vertical line of sight based on increase in distance from a viewpoint

Appendix D

Project Area Plant Community Types

PCT ID	Description (Bionet Vegetation Classification)	Height range (stratum) (Ground stratum <2 m, mid-stratum 2-10 m, upper stratum >10 m)
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) – within Murray-Darling Anabranch.	Upper stratum (10-30 m)
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)	Ground to upper stratum (0-30 m)
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). Mainly located around the Murray-Darling Anabranch.	Mid-stratum (3-10 m)
23	Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones.	Ground & mid-stratum (0-10 m)
24	Cane grass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains	Mid-stratum (3-10 m)
28	White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone	Ground to upper stratum (0-30 m)
43	Mitchell Grass grassland - chenopod low open shrubland on floodplains in the semi-arid (hot) and arid zones	Upper & mid-stratum
58	Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion	Mid-stratum (3-10 m)
61	Mitchell Grass - saltbush grassland/shrubland of the gibber downs of the arid climate zone	Ground & mid-stratum (0-10 m)
63	Spiny Lignum - Slender Glasswort open forbland saline wetland on lake edges in the semi-arid and arid climate zones	Ground stratum (0.5 -1 m)
64	Samphire - Water Weed - Sea-Heath shrubland saline wetland of depressions of the arid and semi-arid (warm) zones	Ground stratum (0.5 -1 m)
65	Halosarcia lylei low, open shrubland saline wetland of arid and semi-arid regions	Ground stratum (0.5 -1 m)
104	Gum Coolabah woodland on sedimentary substrates mainly in the Cobar Peneplain Bioregion	Ground to upper stratum (0-30 m)
128	Nelia tall open shrubland of semi-arid sandplains	Ground to upper stratum (0-30 m)
139	Prickly Wattle tall open shrubland of dunes and sandplains of semi-arid and arid regions	Ground to upper stratum (0-30 m)
143	Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.	Ground stratum (1-2 m)
152	Lunette chenopod shrubland mainly of the Murray Darling Depression Bioregion	Ground to upper stratum (0-30 m)
153	Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones	Ground stratum (0.5 -1 m)
154	Pearl Bluebush low open shrubland of the arid and semi-arid plains. Varies from shrubby to grassy depending on grazing history and perhaps soil changes. Widest spread in the Project area/ majority to the west.	Ground stratum (1-2 m)
156	Bladder Saltbush shrubland on stony plains and downs of the arid zone	Ground & mid-stratum (0-10 m)
157	Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion.	Ground stratum

PCT ID	Description (Bionet Vegetation Classification)	Height range (stratum) (Ground stratum <2 m, mid-stratum 2-10 m, upper stratum >10 m)
158	Old Man Saltbush - mixed chenopod shrubland of the semi-arid hot (persistently dry) and arid climate zones	Ground to upper stratum (0-30 m)
160	Nitre Goosefoot shrubland wetland on clays of the inland floodplains	Ground & mid-stratum (0-10 m)
166	Disturbed annual saltbush forb-land on clay plains and inundation zones mainly of south-western NSW	Ground stratum
170	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	Ground to upper stratum (0-30 m)
171	Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion. Dispersed across the centre to east of the Project area.	Ground stratum
191	Snap and Rattle Mallee - Moonah open mallee shrubland in the Murray Darling Depression Bioregion	Mid to upper stratum (2-30 m)
215	Woollybutt Grass open grassland on red earths of the inland plains	Ground & mid-stratum (0-10 m)
221	Black Oak - Pearl Bluebush open woodland of the sandplains of the semi-arid warm and arid climate zones	Ground to upper stratum (0-30 m)
236	Derived Giant Redburr low shrubland on alluvial plains of the semi-arid (warm) climate zone	Ground & mid-stratum (0-10 m)
238	Permanent and semi-permanent freshwater lakes wetland of the inland slopes and plains	Ground stratum
247	Lignum shrubland wetland on regularly flooded alluvial depressions in the Brigalow Belt South Bioregion and Darling Riverine Plains Bioregion	Ground to upper stratum (0-30 m)
252	Sugarwood open woodland of the inland plains mainly Murray Darling Depression Bioregion	Ground to upper stratum (0-30 m)
253	Gypseous shrubland on rises in the semi-arid and arid plains	Ground & mid-stratum (0-10 m)
254	Black Oak - Bladder Saltbush on light clays in the arid zone	Ground to upper stratum (0-30 m)
630	Black Box - Silver Saltbush chenopod open woodland on terrace rises on alluvial plains in the lower Darling River and lower Murray River region of the Murray Darling Depression Bioregion	Mid-stratum (3-10 m)

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Bringing ideas to life

Appendix D
Preliminary Biodiversity Assessment

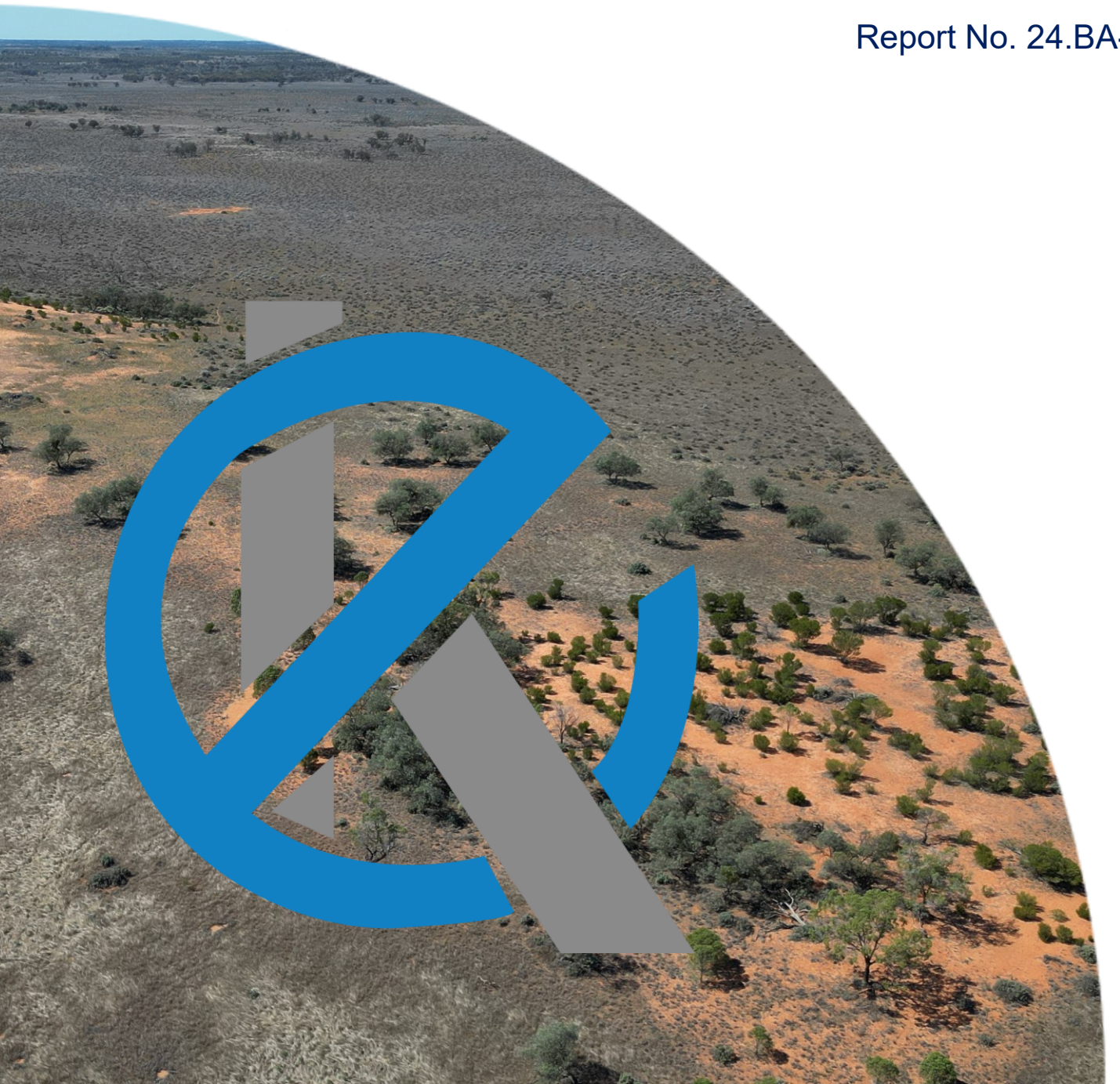


Preliminary Biodiversity Assessment

Lake Victoria Wind Farm

A report for WestWind | April 2024

Report No. 24.BA-007



Citation

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Cover Photo

The cover photo was captured using an Unmanned Aerial Vehicle (UAV) registered to EnviroKey Pty Ltd (ARN 1097801) by remotely piloted aircraft (RPA) accredited operator (Steven Sass ARN 1097112) under the standard operating rules and conditions for the registered drone (DJI Mavic Air 2) determined by the Civil Aviation Safety Authority.

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Definitions & Acronyms used within this report

BA	Biodiversity Assessment
BAM	*Biodiversity Assessment Method* (Department of Planning, Industry and Environment, 2020)
BAM-C	Biodiversity Assessment Method Calculator
BDAR	Biodiversity Development Assessment Report
EEC	Endangered Ecological Community
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
FM Act	NSW Fisheries Management Act 1994
LGA	Local Government Area
Likely	Taken to be a real chance or possibility
Locality	The area within a 50 km radius of the proposed activity
Local population (migratory or nomadic fauna)	The population comprises those individuals that are likely to occur in the study area from time to time.
Local population (resident fauna)	The population comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to use habitats in the study area.
Local population (threatened flora)	The population comprises those individuals occurring in the study area or the cluster of individuals that extend into habitat adjoining and contiguous with the study area that could reasonably be expected to be cross-pollinating with those in the study area.
MNES	Matters of National Environmental Significance
Migratory species	A species specified in the schedules of the EPBC Act
PCT	Plant Community Type
Region	A biogeographical region that has been recognised and documented such as the Interim Biogeographical Regions of Australia (IBRA) (Thackway and Creswell, 1995).
SAII	Serious and irreversible impact
SEARs	Secretary's environmental assessment requirements
Subject site	The area to be directly affected by the proposal; that is, the development footprint or Subject land.
SSD	State significant development

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Study area	The Study Area for this PBA includes the land allocated to the Project, which is spread within an area of about 42,000 hectares across nine land parcels and five landholders.
SVTM	NSW State Vegetation Type Mapping
TEC	Threatened ecological community (includes those communities listed as vulnerable, endangered, or critically endangered).
Threatened biota	Those threatened species, endangered populations or endangered ecological communities considered known or likely to occur in the study area.
Threatened species	A species specified in the schedules of the BC Act, FM Act or the EPBC Act.

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Table of Contents

1 INTRODUCTION 1

2 METHODOLOGY 3

2.1 DESKTOP ANALYSIS 3

2.2 THREATENED AND MIGRATORY BIOTA LIKELIHOOD OF OCCURRENCE 3

2.3 LIMITATIONS 4

3 EXISTING ENVIRONMENT 5

3.1 VEGETATION COMMUNITIES 5

3.2 HABITAT CONNECTIVITY 27

3.3 AQUATIC HABITATS 27

3.4 GROUNDWATER DEPENDENT ECOSYSTEMS 27

3.5 THREATENED ECOLOGICAL COMMUNITIES 27

3.6 THREATENED AND MIGRATORY SPECIES OCCURRENCE 28

3.7 PRELIMINARY IDENTIFICATION OF CANDIDATE SPECIES 40

4 OTHER MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE 42

5 PRELIMINARY IMPACT ASSESSMENT 43

6 RECOMMENDATIONS FOR DETAILED ASSESSMENT 45

7 REFERENCES 46

8 APPENDICES 47

APPENDIX 1 – QUALIFICATIONS AND EXPERIENCE OF PERSONNEL 48

APPENDIX 2 –THREATENED AND MIGRATORY BIOTA EVALUATION 50

APPENDIX 3 – PROTECTED MATTERS SEARCH TOOL RESULTS 75

APPENDIX 4 – GROUNDWATER DEPENDENT ECOSYSTEM SEARCH RESULTS 76

1 INTRODUCTION

EnviroKey were engaged by Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Unit Trust (WestWind) to prepare a Preliminary Biodiversity Assessment (PBA) for the proposed Lake Victoria Wind Farm, located 24 kilometres north-west of Wentworth in southwestern New South Wales and will consist of up to 203 wind turbines (the Project). The study area for this PBA includes the land allocated to the Project, which is spread within an area of about 42,000 hectares across nine landholdings and five landholders.

The Project occurs within land zoned as RU1 Primary Production under the Wentworth Local Environmental Plan, 2011 (LEP). This area has been subject to agricultural disturbance and modification over many decades and is regularly subject to periods of drought. Despite this, NSW State Vegetation Type (SVTM) mapping indicates 37 native plant community types (PCTs) located within the study area for the Project. The study area typically receives between 200 – 300mm of rain annually (BOM, 2024) and is located in a semi-arid environment with a "hot dry summer, [and a] cold winter" (BOM).

The study area occurs within:

- Murray Darling Depression, Darling Riverine Plains, and Riverina Interim Biogeographic Regionalisation of Australia (IBRA) Bioregions
- South Olary Plain, Great Darling Anabranch, and Murray Scroll Belt IBRA Sub-regions (Thackway and Creswell, 1995).

Six Mitchell Landscape Systems (Mitchell, 2002) occur within the study area, as follows:

- Lower Darling Alluvial Plains
- Lower Darling Channels and Floodplains
- Murray Lakes, Swamps and Lunettes
- Scotia Groundwater Basins
- Scotia Linear Dunes
- Scotia Sandplains

The objectives of the PBA are to identify the potential biodiversity values of the study area, assess the likelihood of threatened and migratory biota occurring within the study area and provide recommendations for further assessment to inform a future Environmental Impact Statement (EIS) for the Project.

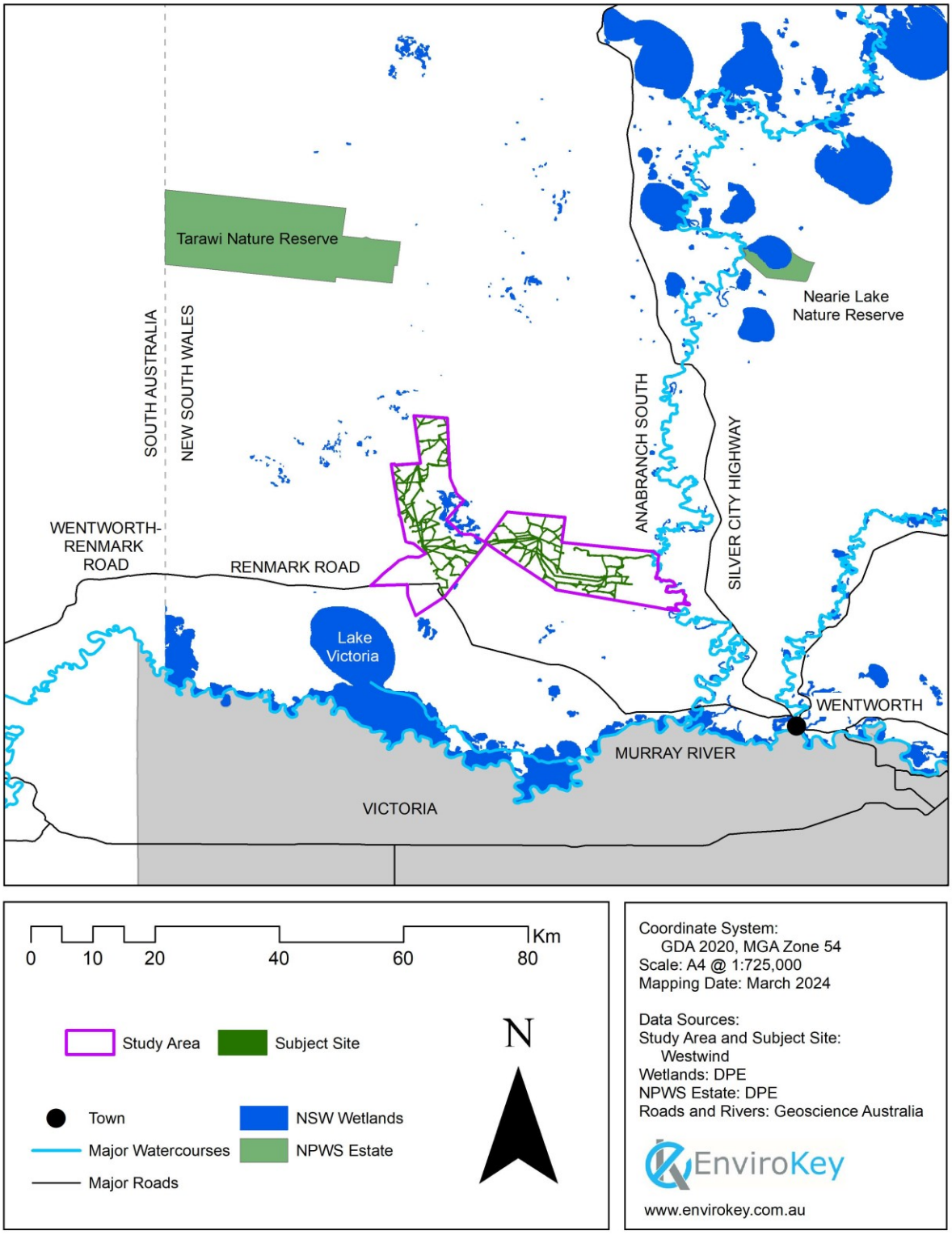


Figure 1-1: The study area and subject site for this PBA

2 METHODOLOGY

2.1 DESKTOP ANALYSIS

A review of relevant literature and database searches were carried out on 19 January 2024 to identify vegetation communities and threatened species or species habitat with potential to occur within the study area.

Database searches:

- NSW BioNET Atlas for spatial records of threatened flora and fauna listed under the BC Act (DPE/BCS, 2024) using a 50 kilometre search butter
- NSW State Vegetation Type Mapping (DPE, 2024a)
- BAM credit calculator (BAMCC)
- Protected Matters Search Tool for federally listed species and ecological communities identified as Matters of National Environmental Significance (MNES) under the EPBC Act (DoCCEE&W, 2024) using a 50 kilometre search buffer.

Literature:

- Lake Victoria Energy Park Preliminary Biodiversity Report, prepared for WestWind by ENSPEC on 23 November, 2023. ENSPEC completed four days of field survey within the Project site boundary and identified four threatened biota and two threatened ecological communities (listed as “recorded” in Appendix 2).
- Energy Connect (NSW – Western Section) Biodiversity Development Assessment Report prepared by WSP (2020) that traverses the study area.
- Biodiversity Assessment Methodology (BAM) (DPE, 2020).

2.2 THREATENED AND MIGRATORY BIOTA LIKELIHOOD OF OCCURRENCE

A likelihood of occurrence analysis was undertaken for threatened flora, fauna and ecological communities based on habitat information and previous surveys. The analysis considers the following factors:

- The occurrence of suitable habitat
- PCT association in the subject site
- Condition and extent of potential habitat
- Species records within the Project footprint and wider locality
- Knowledge and experience of the Principal Ecologist

The following criteria were then applied to each species or ecological community to determine the likelihood of occurrence within the subject site (**Table 2-1**).

Table 2-1: Threatened and migratory biota evaluation.

Likelihood	Criteria
Recorded	Recorded during ENSPEC field surveys (May, 2023)
Likely (pending detailed field survey)	Species habitat present based on SVTM and recorded in the locality (based on existing data)
Unlikely	No suitable habitat is present (based on existing data), species has limited dispersal capability but previously recorded within the locality /OR, Suitable habitat is present, but not previously recorded in locality.
None	Suitable habitat is absent from the study area. Not previously recorded in locality. Listed as extinct in NSW.

2.3 LIMITATIONS

Desktop analysis for previously recorded or predicted to occur threatened species and species habitat is restricted by available literature and datasets, particularly in regional locations such as the study area. Due to the varying seasonal changes and periods of drought, high rainfall and the 'boom and bust' life-cycles of arid and semi-arid species, long-term survey methods are required to survey for transient species such as avifauna or periodically active species such as orchids.

3 EXISTING ENVIRONMENT

3.1 VEGETATION COMMUNITIES

Native vegetation cover within the study area was evaluated using the NSW State Vegetation Type mapping (SVTM) (DPE, 2024a). A total of 34 Plant Community Types (PCT) were identified within the study area (**Figure 3-1**) (**Table 3-1**). Further interrogation of the SVTM revealed 19 PCT were mapped within the proposed subject site (**Figure 3-2** to **Figure 3-6)**.

Native vegetation occupies 98.26% of the subject site, with Non-native Vegetation/Highly Disturbed/Cleared Land accounting for the remaining 1.74% (26.76ha). PCT 154 - Pearl Bluebush low open shrubland is mapped as the most prominent PCT, occupying 70.41% of the subject site.

Table 3-1: Plant community types within the study area and their extent based on the NSW State Vegetation Type Mapping.

PCT name	Extent within the study area (hectares)
Non-native Vegetation/Highly Disturbed/Cleared Land	83.39
PCT 11 - River Red Gum - Lignum very tall open forest or woodland wetland	107.02
PCT 13 - Black Box - Lignum woodland wetland	195.59
PCT 15 - Black Box open woodland wetland	1738
PCT 23 - Yarran tall open shrubland	6.26
PCT 24 - Canegrass swamp tall grassland wetland	10.97
PCT 28 - White Cypress Pine open woodland	1347.06
PCT 43 - Mitchell Grass grassland - chenopod low open shrubland	193.15
PCT 58 - Black Oak - Western Rosewood open woodland	1089.44
PCT 63 - Spiny Lignum - Slender Glasswort open forbland sailine wetland	1.47
PCT 64 - Samphire - Water Weed - Sea-Heath shrubland saline wetland	1115.22
PCT 65 - Halosarcia lylei low, open shrubland saline wetland	0.99
PCT 104 - Gum Coolabah woodland	28.55
PCT 128 - Nelia tall open shrubland	1
PCT 139 - Prickly Wattle tall open shrubland	421.55
PCT 143 - Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland	9.06
PCT 152 - Lunette chenopod shrubland	4.02
PCT 153 - Black Bluebush low open shrubland	643.3
PCT 154 - Pearl Bluebush low open shrubland	8053.86
PCT 156 - Bladder Saltbush shrubland	1.07
PCT 157 - Bladder Saltbush shrubland	448.11
PCT 158 - Old Man Saltbush - mixed chenopod shrubland	3.69
PCT 160 - Nitre Goosefoot shrubland wetland	64.26

PCT name	Extent within the study area (hectares)
PCT 166 - Disturbed annual saltbush forbland	24.18
PCT 170 - Chenopod sandplain mallee woodland/shrubland	177.9
PCT 171 - Spinifex linear dune mallee	2185.53
PCT 191 - Snap and Rattle Mallee - Moonah open mallee shrubland	38.6
PCT 221 - Black Oak - Pearl Bluebush open woodland	16.97
PCT 238 - Permanent and semi-permanent freshwater lakes wetland	0.37
PCT 247 - Lignum shrubland wetland	0.09
PCT 252 - Sugarwood open woodland	0.29
PCT 253 - Gypseous shrubland	21.04
PCT 254 - Black Oak - Bladder Saltbush	7.29
PCT 630 - Black Box - Silver Saltbush chenopod open woodland	12.22
	18051.51

A summary of each the 19 PCT within the subject site based on data from the NSW Vegetation Information System (VIS) (DPE, 2024b) is listed below. It is important to remember, that the information provided within this section of the PBA is based on desktop analysis only, and not detailed field survey.

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)

Vegetation formation: Semi-arid Woodlands (Grassy Sub-formation)

Vegetation class: Inland Floodplains Woodlands

PCT ID: 15

Conservation status: Not listed

Estimate of percent cleared in NSW: 50%

Current extent in NSW: 250,000 ha

Current extent in Study area: 1,738 ha

Area in subject site: 2.82 ha

This PCT is a woodland or open woodland dominated by Black Box (*Eucalyptus largiflorens*) with an understorey of chenopod shrubs such as Black Bluebush (*Maireana pyramidata*), Black Cotton-bush (*Maireana decalvans*) and Nitre Goosefoot (*Chenopodium nitrariaceum*). Small shrubs include Bladder Saltbush (*Atriplex vesicaria*) and Cotton Bush (*Maireana aphylla)* with a ground cover of annual or perennial saltbushes, copperburrs, grasses and forbs. Lignum (*Muehlenbeckia florulenta*) may be absent but can be very sparse. Weed species include Black Nightshade (*Solanum nigrum*) and Paddy Melon (*Cucumis myriocarpus*

subsp. leptodermis). PCT 15 occurs on alkaline brown or grey clay soil on alluvial plains or sandy-loam soils on the flood plain of river systems. It has also been observed on sandy lunettes of some dry lakes in the semi-arid (warm) and arid climate zones of far south western NSW. In many places the understorey may have once been dominated by Old Man Saltbush (*Atriplex nummularia*) but this has been reduced due to grazing.

Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones

Vegetation formation: Semi-arid Woodlands (Shrubby sub-formation)

Vegetation class: Riverine Sandhill Woodlands

PCT ID: 23

Conservation status: Listed BC Act Endangered - Acacia melvillei Shrublands in the Riverina and Murray-Darling Depression bioregions

Estimate of percent cleared in NSW: 71%

Current extent in NSW: 3,500 ha

Current extent in Study area: 7.51 ha

Area in subject site: 1.25 ha

Dominated by Yarran (Acacia melvillei), PCT 23 is a tall open shrubland. Other shrub species include Rhagodia spinescens, Eremophila sturtii, Maireana decalvans, Maireana microphylla, Nitraria billardierei, Atriplex nummularia and Sclerolaena diacantha. Small trees such as Black Oak (Casuarina pauper) may be present. Grass species include Austrostipa nodosa and Austrodanthonia caespitosa. Forb species include Pycnosorus pleiocephalus, Leiocarpa brevicompta, Leiocarpa tomentosa, Sida corrugata, Goodenia fascicularis, Tetragonia eremaea, Brachyscome lineariloba, Leiocarpa leptolepis, Vittadinia cuneata, Sida intricata, Rhodanthe corymbiflora and Atriplex stipitata. The ground cover is most often depleted through grazing by stock and rabbits. This grazing pressure is also affecting recruitment of new plants into populations as young suckers and seedlings that are required for regeneration are often grazed. Lichen crust is present in untrampled locations. This PCT occurs as localised stands on red-brown, sandy-loam soils on undulating sandplains in far western NSW from Bourke in the north to Mildura in the south.

White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone

Vegetation formation: Semi-arid Woodlands (Shrubby sub-formation)

Vegetation class: Riverine Sandhill Woodlands

PCT ID: 28

Conservation status: Listed BC Act Endangered - Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions (Part)

Listed BC Act Endangered - Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions (Part)

Estimate of percent cleared in NSW: 73%

Current extent in NSW: 80,000 ha

Current extent in Study area: 1,458.07 ha

Area in subject site: 111.01 ha

PCT 28 is an open woodland or a derived grassland with scattered trees up to 15 m high dominated by White Cypress Pine (*Callitris glaucophylla*). Other small trees or tall shrubs include Buloke (*Allocasuarina luehmannii*), Needlewood (*Hakea leucoptera*), Hooked Needlewood (*Hakea tephrosperma*), Sugarwood *(Myoporum platycarpum*), *Pittosporum angustifolium*, Western Rosewood (*Alectryon oleifolius subsp. canescens*), Emu Bush (*Eremophila longifolia*) and Wilga (*Geijera parviflora*). Common chenopod shrub species include Black Bluebush (*Maireana pyramidata*), *Maireana enchylaenoides* and Thorny Saltbush (*Rhagodia spinescens*). Copperburr low shrubs include *Sclerolaena diacantha* and *Sclerolaena obliquicuspis*. Forb species include *Tetragonia tetragonioides, Calandrinia eremaea, Calotis hispidula, Tribulus terrestris and Zygophyllum ammophilum*. Many areas of this PCT have a very sparse shrub understorey that has been overgrazed, leaving native and exotic grasses and forbs. Native grass species include *Austrostipa scabra subsp. scabra, Austrodanthonia caespitosa, Aristida behriana, Enneapogon nigricans* and *Paspalidium constrictum*. Exotic species include *Schismus barbatus*, *Brassica tournefortii* and *Medicago polymorpha*. This community occurs on sandy loam soils on prior streams, source bordering sand dunes and sand plains in south-western NSW. Very few sites are in good condition due to grazing and clearing, with many sites being highly degraded and eroded with a few trees remaining, little regeneration and a depleted understorey.

Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion

Vegetation formation: Semi-arid Woodlands (Shrubby sub-formation)

Vegetation class: Semi-arid Sand Plain Woodlands

PCT ID: 58

Conservation status: Listed BC Act Endangered - Acacia loderi shrublands (Part only)

Listed BC Act Endangered - Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions (Part only)

Estimate of percent cleared in NSW: 50%

Current extent in NSW: 500,000 ha

Current extent in Study area: 1,263.43 ha

Area in subject site: 173.99 ha

This PCT occurs as a low open woodland or isolated clumps of trees dominated by Black Oak (*Casuarina pauper*) and Western Rosewood (*Alectryon oleifolius subsp. canescens*) with either a shrubby or grassy understorey. These two tree species often form clumps and may or may not mix. Other low trees include Sugarwood (*Myoporum platycarpum subsp. platycarpum*) and *Pittosporum angustifolium*. The shrub layer is sparse or very sparse and includes species such as Wilga *(Geijera parviflora), Senna artemisioides sens lat*., Leafless Ballart (*Exocarpos aphyllus*), Thorny Saltbush (*Rhagodia spinescens*), Black Bluebush (*Maireana pyramidata*), *Olearia muelleri, Eremophila deserti, Eremophila sturtii, Eremophila glabra, Acacia oswaldii, Acacia colletioides, Dodonaea viscosa subsp. angustissima, Chenopodium curvispicatum and Zygophyllum aurantiacum.* The ground cover is generally very sparse and includes low shrubs such as *Sclerolaena diacantha, Dissocarpus paradoxus, Sclerolaena patenticuspis, Sclerolaena obliquicuspis, Salsola tragus subsp. tragus and Atriplex stipitata*. Spear grass (*Austrostipa nitida, Austrostipa scabra* or *Austrostipa elegantissima*) are common along with a range of forbs such as *Zygophyllum apiculatum, Polycalymma stuartii, Tetragonia moorei, Chenopodium desertorum subsp. desertorum* and *Vittadinia dissecta var. hirta*. It occurs on level to undulating sandplains, sandy rises and interdune swales composed of calcarious earths (pH >7) of red to red-brown loam, sand and texture contrast soils. It is widely distributed in the far south-western NSW mainly in the Murray Darling Depression Bioregion, generally subject to less than 400 mm of annual rainfall. There appears to be significant variation in the community. It grades into Black Oak/Belah communities in the east (ID 57) and Black Oak - Western Rosewood communities in the north (ID 59 and 60).

Samphire - Water Weed - Sea-Heath shrubland saline wetland of depressions of the arid and semi-arid (warm) zones

Vegetation formation: Saline Wetlands

Vegetation class: Inland Saline Lakes

PCT ID: 64

Conservation status: Not listed

Estimate of percent cleared in NSW: unknown

Current extent in NSW: 10,000 ha

Current extent in Study area: 1,122.12 ha

Area in subject site: 6.9 ha

This PCT occurs as a low sparse chenopod shrubland dominated by succulent shrubs in the *Halosarcia* genus (Samphires) with sea-heaths (*Frankenia angustipetala* and *Frankenia foliosa*) and Water Weed (*Osteocarpum acropterum var. deminuta*). Other species found in this community include Rounded Noon-plant (*Disphyma crassifolium*), Bladder Saltbush (*Atriplex vesicaria*), other saltbushes such as *Atriplex papillata* and *Atriplex lindleyi, Sclerolaena tricuspis* and the grass *Eragrostis dielsii*. This community occurs on grey clay soils often crusted with salt on the bed and fringes of salt lakes or salt clay pans in the arid and semi-arid (warm) zones of far south-western NSW. In NSW, this PCT generally occurs

south of Broken Hill including in the salt lakes of the Scotia mallee and along the Murray River. Generally restricted to the saline discharge basins within sandplains and dunefields.

Prickly Wattle tall open shrubland of dunes and sandplains of semi-arid and arid regions

Vegetation formation: Arid Shrublands (Acacia sub-formation)

Vegetation class: Sand Plain Mulga Shrublands

PCT ID: 139

Conservation status: Listed BC Act E Acacia loderi shrublands (Part)

Estimate of percent cleared in NSW: 50%

Current extent in NSW: 15,000 ha

Current extent in Study area: 506.18 ha

Area in subject site: 84.63 ha

Dominated by Prickly Wattle (*Acacia victoriae*), Narrow-leaved Hopbush (*Dodonaea viscosa subsp. angustissima*, this tall open shrubland has an understorey sparse with Ruby Saltbush (*Enchylaena tomentosa*), *Maireana spp*., *Sclerolaena diacantha*, *Sclerolaena bicornis var. bicornis, Dissocarpus paradoxus* and annual daisies such as *Polycalymma stuartii, Rhodanthe* corymbiflora and *Brachyscome lineariloba*. It occurs on sandy loams and sands on dunes in the semi-arid zone of far south western plains of NSW mainly in the Murray-Darling Depression Bioregion. It may be derived from a previous Callitris or Mulga woodland where the Callitris have been cut out in the past.

Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.

Vegetation formation: Arid Shrublands (Acacia sub-formation)

Vegetation class: Sand Plain Mulga Shrublands

PCT ID: 143

Conservation status: Listed BC Act E Acacia loderi shrublands (Part)

Estimate of percent cleared in NSW: 30%

Current extent in NSW: 250,000 ha

Current extent in Study area: 26.87 ha

Area in subject site: 17.81 ha

This Community consists of a tall open shrubland up to 4 m high, dominated by Narrow-leaved Hopbush (*Dodonaea viscosa subsp. angustissima*), Turpentine (*Eremophila sturtii*) and various sub-species of *Senna artemisioides* often with Mulga (*Acacia aneura*), *Olearia pimeleoides*, Black Bluebush (*Maireana pyramidata*), Thorny Saltbush (*Rhagodia spinescens*)

and a number of other *Eremophila* species. The ground cover includes small shrubs such as the copperburrs *Sclerolaena obliquicuspis*, *Sclerolaena diacantha* and *Sclerolaena decurrens, Salsola tragus,* Cannonball Burr *(Dissocarpus paradoxus*), Ruby Saltbush (*Enchylaena tomentosa), Atriplex limbata*, Mallee Saltbush (*Atriplex stipitata)* and *Maireana pentatropis*. Common grass species include Kerosene Grass (*Aristida contorta*), Bottlewashers (*Enneapogon avenaceus*), *Austrostipa nitida, Austrostipa scabra*, Button Grass (*Dactyloctenium radulans*) and Woollybutt (*Eragrostis eriopoda*). Common forbs include *Rhodanthe floribunda, Rutidosis helichrysoides, Tetragonia eremaea* and *Portulaca oleracea*. Weeds may be abundant including Wild Sage (*Salvia verbenaca*), Onion Weed *(Asphodelus fistulosus*) and Paddy Melon (*Cucumis myriocarpus subsp. leptodermis*). The ground species vary over the range of the community and with different management regimes. Occurring on red-brown, sandy loamy soils on sandplains and low sandy rises of dunefields in the semi-arid and arid zones. This PCT can be found in places that have been highly disturbed by grazing or localised clearing such as around artesian water bores. Parts of this community may be derived from original communities such as Black Oak - Western Rosewood, Callitris woodland, Mallee shrubland/woodland or Acacia-dominated shrublands that have been cleared or over-grazed and where previous dominant species have become locally extinct.

Bottlewasher - Copperburr grassland of the arid zone

Vegetation formation: Arid Shrublands (Chenopod Sub-formation)

Vegetation class: Gibber Chenopod Shrublands

PCT ID: 150

Conservation status: Not listed

Estimate of percent cleared in NSW: 5%

Current extent in NSW: 130,000 ha

Current extent in Study area: 4.18 ha

Area in subject site: 1.02 ha

This community consists of a low tussock open grassland up to 30 cm high, dominated by a number of species of Bottlewasher grasses including *Enneapogon cylindricus, Enneapogon avenaceus* and *Enneapogon polyphullus* with several species of copperburr including Limesotne Copperburr (*Sclerolaena obliquicuspis*), Pearly Copperburr *Sclerolaena limbata, Sclerolaena brachyptera* along with Cannonball (*Dissocarpus paradoxus*). Scattered shrubs may include bluebushes (*Maireana spp*.), Bladder Saltbush (*Atriplex vesicaria*) or Rock Sida (*Sida petrophila*). The tall shrubs Mulga (*Acacia aneura*) or Dead Finish (*Acacia tetragonophylla*) may also be present. It occurs on moderately saline, deep, calcareous sandy brown, loam soils with quartz gravel sometimes present on the surface. The soils are often derived from limestone or calcarious sedimentary rocks. Restricted to undulating downs or stony flats in the arid zone.

Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones

Vegetation formation: Arid Shrublands (Chenopod sub-formation)

Vegetation class: Aeolian Chenopod Shrublands

PCT ID: 153

Conservation status: Listed BC Act E Acacia loderi shrublands (Part)

Estimate of percent cleared in NSW: 40%

Current extent in NSW: 900,000 ha

Current extent in Study area: 78.45 ha

Area in subject site: 4.71 ha

PCT 153 is a mid-high open shrubland generally less than one metre high dominated by Black Bluebush (*Maireana pyramidata*) with scattered low trees of Black Oak (*Casuarina pauper*) or Western Rosewood (*Alectryon oleifolius subsp. canescens*) may be present. Tall shrubs are rare or absent. Chenopod shrub species include Thorny Saltbush (*Rhagodia spinescens*), bluebushes such as *Maireana georgei*, *Maireana sedifolia* and *Maireana appressa*, Bladder Saltbush (*Atriplex vesicaria sens lat), Atriplex lindleyi* and *Atriplex pumillio*, Cannonball (*Dissocarpus paradoxus*), Ruby Saltbush (*Enchylaena tomentosa*) and a high diversity of copperburrs such as *Sclerolaena obliquicuspis*, *Sclerolaena patenticuspis, Sclerolaena brachyptera, Sclerolaena lanicuspis, Sclerolaena divaricata, Sclerolaena tricuspis and Sclerolaena diacantha*. Grass species include the cork screw grasses *Austrostipa nitida, Austrostipa scabra* and *Austrostipa nodosa* and wallaby grass *Austrodanthonia caespitosa*. Forbs include Calotis *hispidula, Tetragonia tetragonioides, Goodenia pinnatifida, Plantago varia, Minuria integerrima, Senecio runcinifolius, Brachyscome lineariloba, Brachyscome ciliaris var. ciliaris, Calandrinia eremaea*. Weeds include *Hordeum spp., Heliotropium europaeum, Salvia verbenaca, Medicago spp.* and *Salvia verbenacea*. This community is found on red-brown duplex soils with textures of clay loam, sandy-loam or light clay on low sandy rises, undulating sandplains, drainage depressions and prior stream levees in the semi-arid and arid zones of far western. While this community has been heavily grazed and degraded in places some large areas remain.

Pearl Bluebush low open shrubland of the arid and semi-arid plains

Vegetation formation: Arid Shrublands (Chenopod sub-formation)

Vegetation class: Aeolian Chenopod Shrublands

PCT ID: 154

Conservation status: Listed BC Act E Acacia loderi shrublands (Part)

Estimate of percent cleared in NSW: 30%

Current extent in NSW: 250,000 ha

Current extent in Study area: 16,519.35 ha

Area in subject site: 1,081.37 ha

This community is a mid-high (1-2m) open chenopod shrubland dominated by Pearl Bluebush (*Maireana sedifolia*) often with other bluebushes including Black Bluebush *(Maireana pyramidata), Maireana sclerolaenoides, Maireana erioclada, Maireana georgei* and *Maireana ciliata*. Bladder Saltbush (*Atriplex vesicaria*) and Thorny Saltbush (*Rhagodia spinescens*) are usually present. Inland Rosewood (*Alectryon oleifolius subsp. canescens*), Black Oak (*Casuarina pauper*) and Sugarwood (*Myoporum platycarpum*) may occur as scattered small trees. Tall shrubs are rare but may include various forms of *Senna artemisioides*. This PCT is also dominated by shrubs such as *Enchylaena tomentosa, Sclerolaena obliquicuspis, Sclerolaena patenticuspis, Sclerolaena bicornis var. bicornis, Sclerolaena brachyptera, Sclerolaena diacantha, Atriplex stipitata, Atriplex eardleyae* and *Atriplex lindleyi*. Grass species include *Austrostipa nitida, Austrodanthonia caespitosa* and *Chloris truncata*. After rain, daisty species such as *Rhodanthe corymbifolia, Brachyscome lineariloba, Pogonolepis muelleriana* and *Minuria cunninghamii* can occur. This community occurs on lime-rich red-brown loam or duplex sand/clay soils sometimes derived from limestone on rises on the plains in the semi-arid and arid zones of far western NSW. it is most common in the Murray Darling Depression Bioregion with smaller stands elsewhere including to the north. Wards weed (*Carrichtera annua*) is a common weed.

Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion

Vegetation formation: Arid Shrublands (Chenopod sub-formation)

Vegetation class: Riverine Chenopod Shrublands

PCT ID: 157

Conservation status: Not listed

Estimate of percent cleared in NSW: 60%

Current extent in NSW: 600,000 ha

Current extent in Study area: 490.89 ha

Area in subject site: 17.13 ha

PCT 157 is a low to mid-high (90cm), open to sparse chenopod shrubland dominated by Bladder Saltbush (*Atriplex vesicaria*) also occurring with Desert Glasswort (*Pachycornia triandra*), Three-spined Copperburr (*Sclerolaena tricuspis*), *Sclerolaena intricata* and Pigface (*Disphyma crassifolium subsp. clavellatum*). Other commonly occurring small shrubs include Slender Glasswort (*Sclerostegia tenuis*), *Sclerolaena brachyptera, Sclerolaena tenuis, Maireana decalvans, Maireana aphylla, Malacocera tricornis, Dissocarpus biflorus var. biflorus, Atriplex lindleyi* and *Atriplex pseudocampanulata*. Grasses include *Chloris truncata, Austrodanthonia setacea* and *Sporobolus caroli*. Ephemeral daisies occur after rains including *Minuria cunninghamii, Brachyscome smithwhitei and Rhodanthe corymbiflora*. The succulent forb *Calandrinia volubilis* is often present. Myall (*Acacia pendula*) or Black Oak (*Casuarina*

pauper) may occur as isolated trees. In areas that have been grazed Bladder Saltbush may be replaced by a disturbed shrubland complex composed of *Nitraria billardierei, Sclerolaena spp*. and Cotton Bush *(Maireana aphylla*) or Desert glasswort (*Pachycornia triandra*). This community occurs on grey and brown cracking clays and red-brown clay loam soils on alluvial plains including, in the Darling Anabranch region.

Old Man Saltbush - mixed chenopod shrubland of the semi-arid hot (persistently dry) and arid climate zones (north-western NSW)

Vegetation formation: Arid Shrublands (Chenopod sub-formation)

Vegetation class: Riverine Chenopod Shrublands

PCT ID: 158

Conservation status: Listed BC Act CE Artesian Springs Ecological Community in the Great Artesian Basin (Part)

Estimate of percent cleared in NSW: 88%

Current extent in NSW: 30,000 ha

Current extent in Study area: 9.1 ha

Area in subject site: 0.26 ha

This PCT is a tall shrubland up to two metres high, dominated by Old Man Saltbush (*Atriplex nummularia*) often with Nitre Goosefoot (*Chenopodium nitrariaceum*), Black Bluebush (*Maireana pyramidata*) with *Maireana astrotricha* in far western areas and Lignum (*Muehlenbeckia florulenta*) with a lower shrub layer composed of copperburrs (*Sclerolaena spp*.) and other Atriplex species. The ground layer is variable but typically is made up of forbs such as *Rhodanthe spp*., *Tetragonia eremaea, Bulbine alata, Centipeda minima var. minima, Goodenia pinnatifida and Plantago cunninghamii*. Grasses that occur include, *Chloris truncata and Sporobolus actinocladus*. In some areas the shrubland may be restricted in height and very sparse. Occurring in restricted patches on grey clay or texture contrast sandy clay soils on periodically inundated alluvial plains and rises on or adjacent to floodplains in the upper Darling, Paroo and Bulloo Rivers and other rivers in north western NSW. Also occurs along drainage lines in Bladder Saltbush communities. Old Man Saltbush has been planted in restoration projects over the last few decades and is also planted on properties for fodder and as a means of reducing rising saline water tables - including in parts east of its previous known range. In assessing its status, it is important to exclude these planted areas.

Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones

Vegetation formation: Semi-arid Woodlands (Shrubby sub-formation)

Vegetation class: Sand Plain Mallee Woodlands

PCT ID: 170

Conservation status: Listed BC Act Endangered - Acacia loderi shrublands (Part)

Listed BC Act Endangered - Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions (Part)

Listed EPBC Act Critically Endangered - Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plain Bioregions (Part)

Listed EPBC Act Endangered - Mallee Bird Community of the Murray Darling Depression Bioregion (Part)

Estimate of percent cleared in NSW: 41%

Current extent in NSW: 650,000 ha

Current extent in Study area: 242.92 ha

Area in subject site: 1.51 ha

This PCT is a mallee woodland or open mallee shrubland most usually about 8 m tall dominated by several mallee species including White Mallee *(Eucalyptus dumosa),* Red Mallee (*Eucalyptus socialis*), Glossy-leaved Red Mallee (*Eucalyptus oleosa*) and Snap and Rattle (*Eucalyptus gracilis*). White Cypress Pine (*Callitris glaucophylla*) or Slender Pine (*Callitris gracilis subsp. murrayensis*) may be present. The mallee species occur in different proportions across the distributional range. The structure can either be bull mallee woodland or whipstick mallee shrubland depending on time since the last fire, other disturbance, or the clay content of the soil. Chenopods shrubs form a major component of the understorey. Common shrubs include *Chenopodium curvispicatum, Enchylaena tomentosa, Atriplex stipitata, Dissocarpus paradoxus, Chenopodium desertorum subsp. desertorum, Maireana pentatropis, Maireana georgei, Maireana pyramidata, Maireana sedifolia, Sclerolaena obliquicuspis, Acacia microcarpa, Myoporum platycarpum, Senna form taxon 'filifolia'* and *Rhagodia spinescens.* Forbs include *Zygophyllum aurantiacum, Zygophyllum apiculatum, Ptilotus exaltatus var. exaltatus* and *Vittadinia cuneata*. Grasses include *Austrostipa* and *Austrodanthonia* species. A cryptogam soil crust composed of algae and lichens is commonly present in areas that are protected from trampling by stock or goats. Changes in grazing regimes and time after fire can alter the floristic composition of the ground flora seasonally. Heavily grazed areas contain fewer species and a simpler structure. In areas unburnt for decades large bull mallee trees may feature with large amounts of leaf litter on the ground. PCT 170 occurs on calcareous red-brown, sandy-loam or loamy clay soils, sometimes containing limestone nodules, on eolian sandplains or in inter-dune plains or swales. One of the largest occurrences of this community is north of Mildura on the Darling River plain and in the Scotia Mallee, and south-east of Menindee. It is mainly restricted to the Murray-Darling Depression Bioregion of NSW with small outliers to the north.

Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion

Vegetation formation: Semi-arid Woodlands (Shrubby sub-formation)

Vegetation class: Dune Mallee Woodlands

PCT ID: 171

Conservation status: Listed EPBC Act Endangered - Mallee Bird Community of the Murray Darling Depression Bioregion (Part)

Estimate of percent cleared in NSW: 19%

Current extent in NSW: 650,000 ha

Current extent in Study area: 1.056.69 ha

Area in subject site: 4.33 ha

PCT 171 is mallee shrubland or open shrubland mostly about five metres tall but can be up to eight metres, most often in a whipstick habit, dominated by a number of mallee species including White Mallee (*Eucalyptus dumosa*), Red Mallee (*Eucalyptus socialis*) and Snap and Rattle (*Eucalyptus gracilis*) and Ridge-fruited Mallee (*Eucalyptus costata*). Narrow-leaved Red Mallee (*Eucalyptus leptophylla*) is also often present along with Sand Dune Pine (*Callitris verrucosa*). This community contains a species-rich understorey that is dominated by Spinifex Grass (*Triodia scariosa*). A mid-dense to sparse shrub cover includes *Acacia colletioides, Dodonaea viscosa subsp. angustissima, Eremophila glabra, Olearia pimelioides, Maireana pentratropis,* and *Grevillea huegeilii*. Mulga (*Acacia aneura*) and Wilga (*Geijera parviflora*) may occur in northern and eastern areas. Besides Spinifex Grass, the ground cover includes fuzz-weed (*Vittadinia cuneata*), *Austrostipa nitida, Podolepis capillaris* and copperburrs such as *Sclerolaena diacantha* and *Sclerolaena obliquicusp*is. Many ephemeral species such as daisies and other forbs germinate in response to rain. Weeds are few in number but Onion Weed (*Asphodelus fistulosus*) can be a localised problem. This community occurs on calcareous brown-red sand or loamy sand sometimes overlying grey clay on east-west linear sand dunes mainly in the Murray Darling Depression Bioregion in south far western plain of NSW and is mainly restricted to the arid zone and semi-arid (warm) climatic zones in NSW.

Snap and Rattle Mallee - Moonah open mallee shrubland in the Murray Darling Depression Bioregion

Vegetation formation: Semi-arid Woodlands (Shrubby sub-formation)

Vegetation class: Dune Mallee Woodlands

PCT ID: 191

Conservation status: Listed EPBC Act Endangered - Mallee Bird Community of the Murray Darling Depression Bioregion (Part)

Estimate of percent cleared in NSW: 7%

Current extent in NSW: 6,500 ha

Current extent in Study area: 36.31 ha

Area in subject site: 0.23 ha

Dominated by Snap and Rattle (*Eucalyptus gracilis*) this plant community occurs as a tall open shrubland. Also occurring with Moonah (*Melaleuca lanceolata*) and often with stands of Mallee Pine (*Callitris verrucosa*). A mid-dense to sparse cover of tall shrubs is present including *Leptospermum coriaceum, Acacia rigens*, *Acacia burkittii, Dodonaea viscosa subsp. angustissima* and *Hakea leucoptera*. The ground cover is bare or very sparse and includes *Disphyma crassifolium subsp. clavellatum*. This PCT occurs on fine red sandy loam soil derived from Quaternary sediments in shallow channels running out of the dune mallee that adjoins. Restricted to the Scotia mallee south of Broken Hill and north of Wentworth in far south western NSW in the Murray Darling Depression Bioregion. Restricted in extent but very well represented in protected areas.

Woollybutt Grass open grassland on red earths of the inland plains

Vegetation formation: Arid Shrublands (Acacia sub-formation)

Vegetation class: Sand Plain Mulga Shrublands

PCT ID: 215

Conservation status: Not listed

Estimate of percent cleared in NSW: 20%

Current extent in NSW: 40,000 ha

Current extent in Study area: 2.82 ha

Area in subject site: 0.1 ha

This community occurs as a mid to high open tussock grassland or forbland dominated by Woollybutt (*Eragrostis eriopoda*) with Bottlewasher *(Enneapogon intermedius*), Curly Mitchell Grass (*Astrebla lappacea*), *Eriochloa australiensis* and speargrass (*Austrostipa nitida*). Scattered shrubs of Mulga (*Acacia aneura*), Prickly Wattle (*Acacia victoriae subsp. arida*) and Narrow-leaved Hopbush (*Dodonaea viscosa subsp. angustissima*) may be present. The ground cover is composed of small shrubs such as the copperburrs *Sclerolaena patenticuspis, Sclerolaena calcarata, Sclerolaena decurrens* and *Sclerolaena bicornis var. bicornis*, other chenopods such as *Salsola tragus subsp. tragus, Dissocarpus paradoxus, Chenopodium desertorum subsp. desertorum, Atriplex angulata* and *Maireana pentatropis* and forbs such as *Solanum esuriale, Sida cunninghamii, Sida ammophila, Hibiscus trionum, Einadia nutans subsp. nutans, Pimelea trichostachya, Vittadinia eremaea* and *Rhodanthe floribunda*. Other grass species include *Eragrostis laniflora, Dactyloctenium radulans, Astrebla* pectinata and *Aristida latifolia*. PCT 215 occurs on red-brown and red earth soils mainly on sandplains on low lying country on floodplains or on the margins of depressions or lakes. Patches may occur in more widespread Mulga shrublands (ID119). Occurs in the semi-arid (hot summer) climate zone of north western NSW across several bioregions.

Black Oak - Pearl Bluebush open woodland of the sandplains of the semi-arid warm and arid climate zones

Vegetation formation: Semi-arid Woodlands (Shrubby sub-formation)

Vegetation class: Semi-arid Sand Plain Woodlands

PCT ID: 221

Conservation status: Not listed

Estimate of percent cleared in NSW: 30%

Current extent in NSW: 14,000 ha

Current extent in Study area: 10.21 ha

Area in subject site: 0.06 ha

PCT 221 occurs as a mid to high open woodland with trees five to ten metres high dominated by Black Oak (*Casuarina pauper*) often with Western Rosewood (*Alectryon oleifolius subsp. canescens*) and mallee such as *Eucalyptus dumosa*. A sparse layer of tall shrubs may exist including *Senna form taxon 'coriacea', Senna form taxon 'petiolaris' or Exocarpos aphyllus*. The main understorey shrub is Pearl Bluebush *(Maireana sedifolia*) often with other species of bluebush including Black Bluebush (*Maireana pyramidata*) and *Maireana georgei*. Other shrubs include *Rhagodia spinescens* and *Lycium australe*. Depending on rainfall and grazing pressure, the ground cover can be very sparse or sparse and contains Ruby Saltbush (*Enchylaena tomentosa*), *Sclerolaena diacantha* and *Sclerolaena obliquicuspis*, (*Austrostipa spp*.), *Atriplex stipitata* and *Ptilotus obovatus*. This community occurs on calcareous sandy loam to light clay soils on the plains and sandplains of far south western NSW.

Derived Giant Redburr low shrubland on alluvial plains of the semi-arid (warm) climate zone

Vegetation formation: Arid Shrublands (Chenopod sub-formation)

Vegetation class: Riverine Chenopod Shrublands

PCT ID: 236

Conservation status: Not listed

Estimate of percent cleared in NSW: unknown

Current extent in NSW: 150,000 ha

Current extent in Study area: 0.14 ha

Area in subject site: 0.06 ha

Dominated by Giant Redburr (*Sclerolaena tricuspis*) this community is a low to mid-high chenopod open shrubland up to about 0.5 metre high. Also present is Roly Poly (*Maireana muricata*), saltbushes such as *Atriplex lindleyi* and *Atriplex pseudocampanulata* and Cannonball Burr (*Dissocarpus paradoxus*). Occurs on grey and brown cracking clays on plains

and slight depressions on alluvial plains landscapes. Mainly occurs on the Hay Plain in the western section of the Riverina Bioregion in the semi-arid (warm) climate zone. Weeds may be common including *Medicago spp., Cotula bipinnata, Hordeum leporinum* and *Lolium perenne.*

Gypseous shrubland on rises in the semi-arid and arid plains

Vegetation formation: Saline Wetlands

Vegetation class: Inland Saline Lakes

PCT ID: 253

Conservation status: Not listed

Estimate of percent cleared in NSW: 30%

Current extent in NSW: 1,400 ha

Current extent in Study area: 10.28 ha

Area in subject site: 0.01 ha

PCT 253 is an open or sparse low shrubland that often contains Fleshy Minuria (*Kippistia suaedifolia*). Other species that may be present include Black Bluebush (*Maireana pyramidata*), Narrow-leaved hopbush (*Dodonaea viscosa subsp. angustissima*) and Shrubby Twinleaf (*Zygophyllum aurantiacum*). Bladder Saltbush (*Atriplex vesicaria sens lat*) and *Polycalymma stuartii* may also be present. Nulla Nulla grass *Austrostipa nullanulla* tends to occur on the western side of these gypseous areas but with a very restricted distribution. Occurs on gypsum (calcium sulphate dehydrate) powdery lime soils on eolian rises adjacent to playas. The gypsum has been blown from the playas to form these rises mixing with acidic silica sands. In NSW it is mainly found in the Murray-Darling Depression Bioregion. Gypsum contains high levels of sulphur and plants that grow on it have adapted to cope with that toxicity. Fleshy Minuria (*Kippistia suaedifolia*) and the corkscrew grass *Austrostipa nullanulla* appear to be an obligate gypsophile species. Both species are considered rare and threatened in NSW. Other species growing on these gypseous rises are more common and widespread. This plant community in NSW is restricted to small areas on gypseous rises.

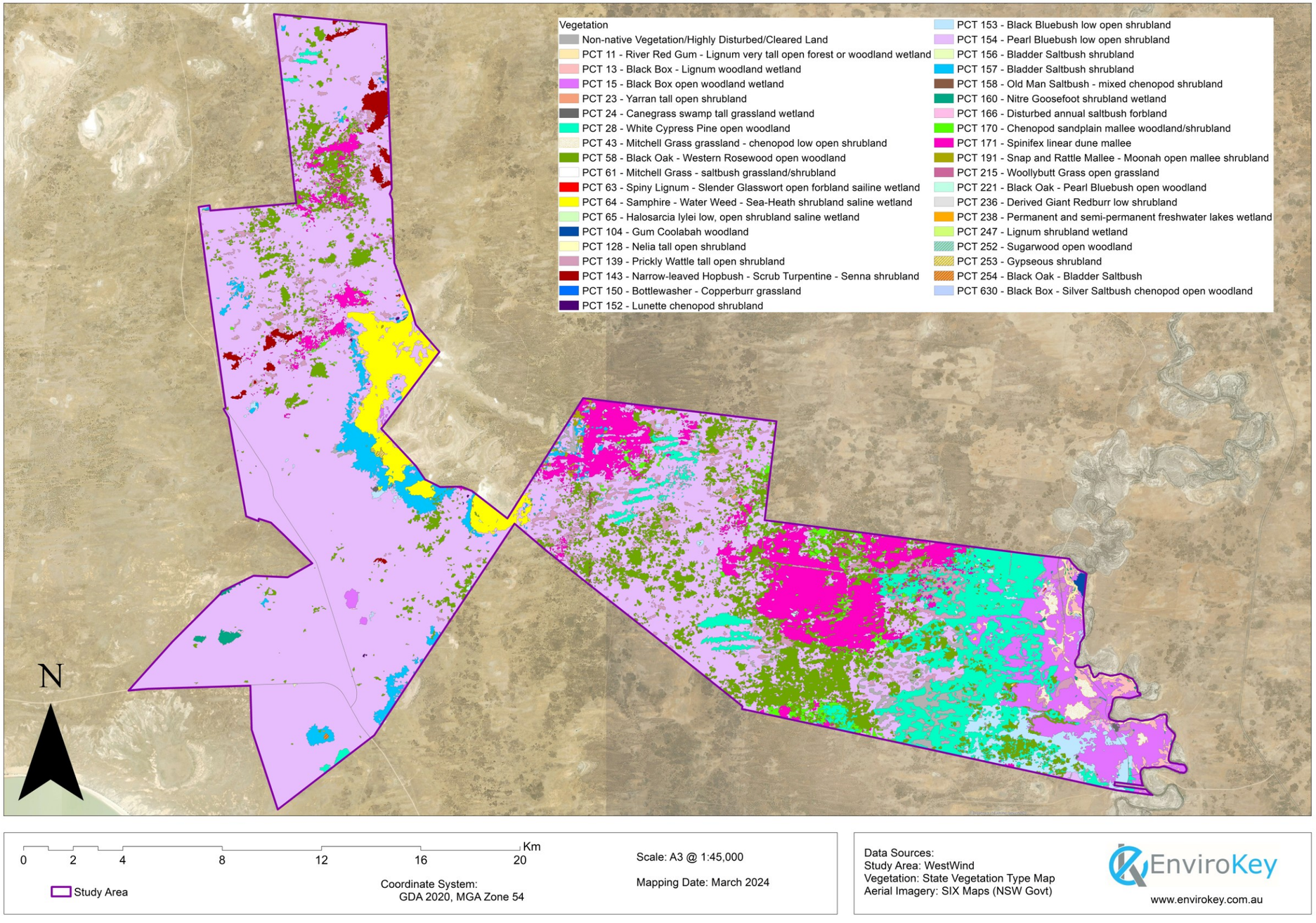


Figure 3-1: Plant Community Types located within the study area from the SVT.

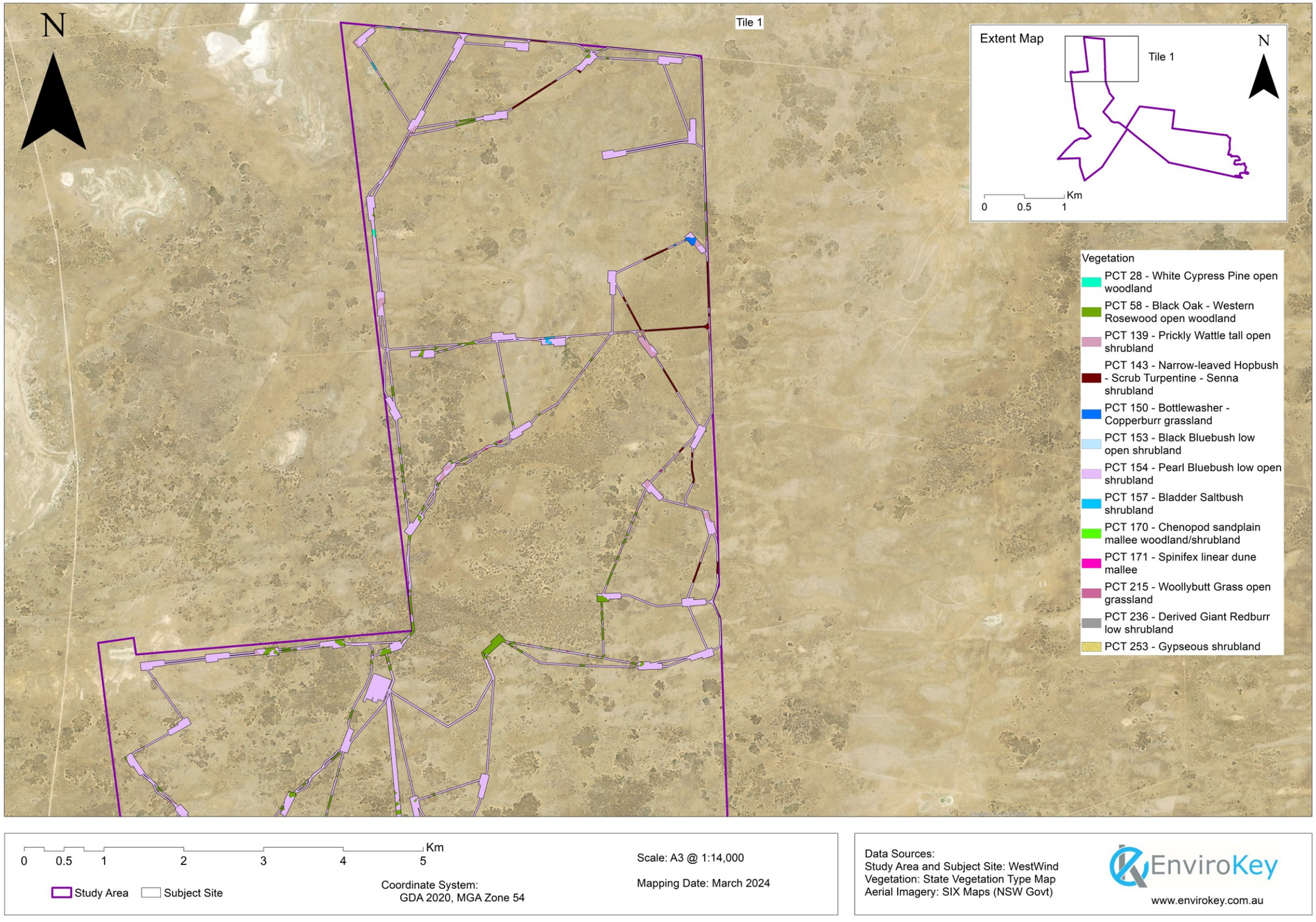


Figure 3-2: Plant Community Types from the SVT located within the subject site (Tile 1).

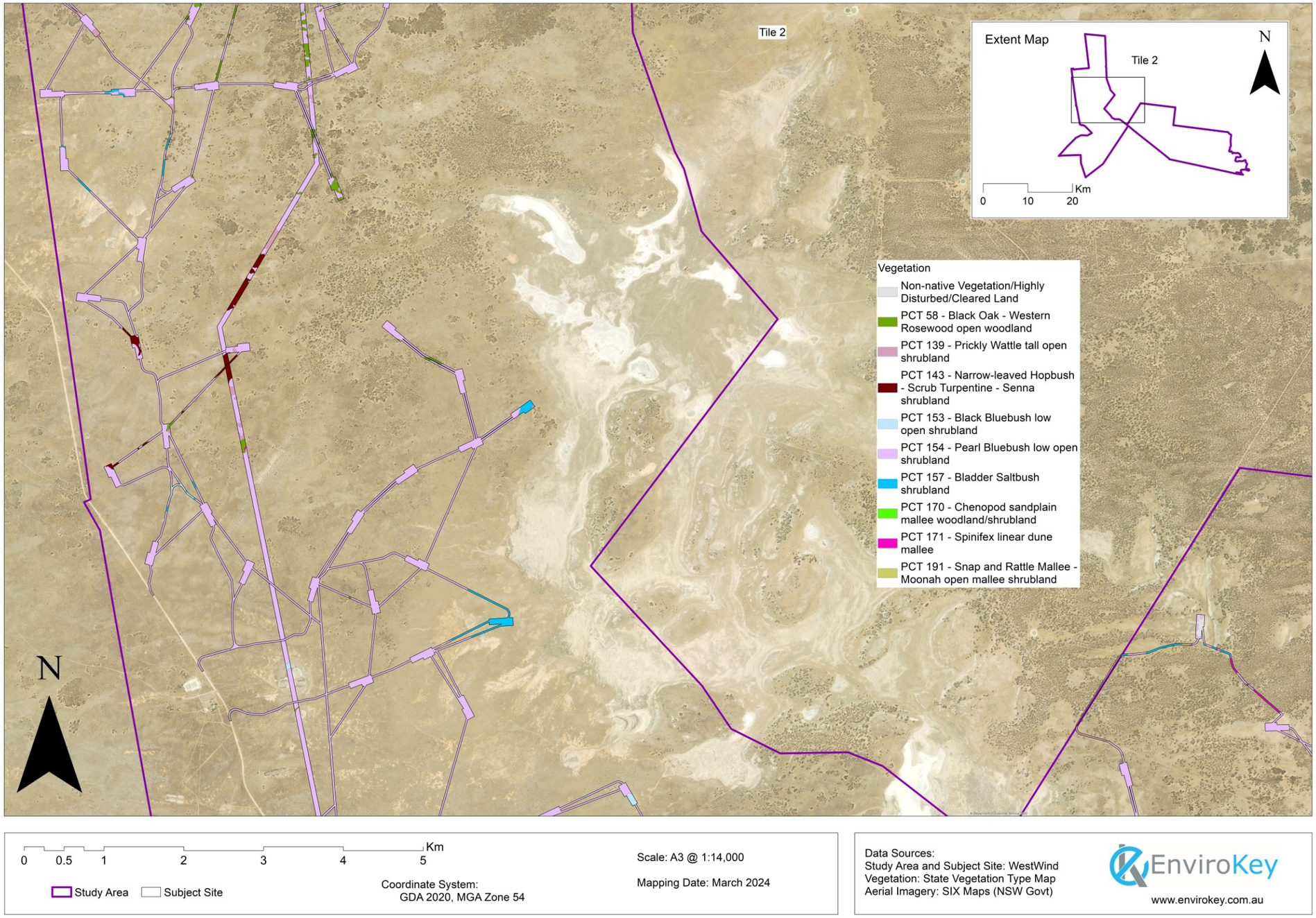


Figure 3-3: Plant Community Types from the SVT located within the subject site (Tile 2).

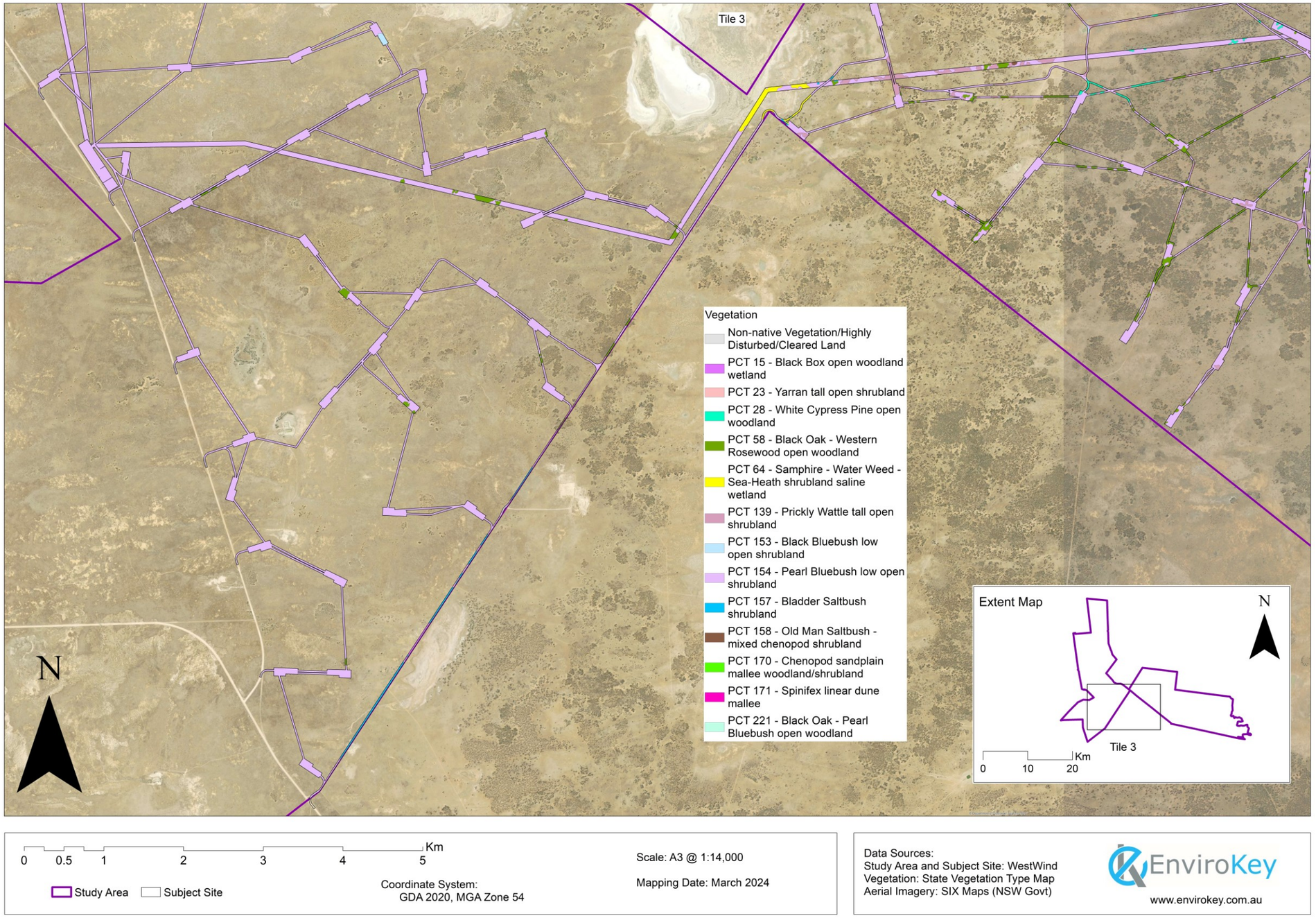


Figure 3-4: Plant Community Types from the SVT located within the subject site (Tile 3).

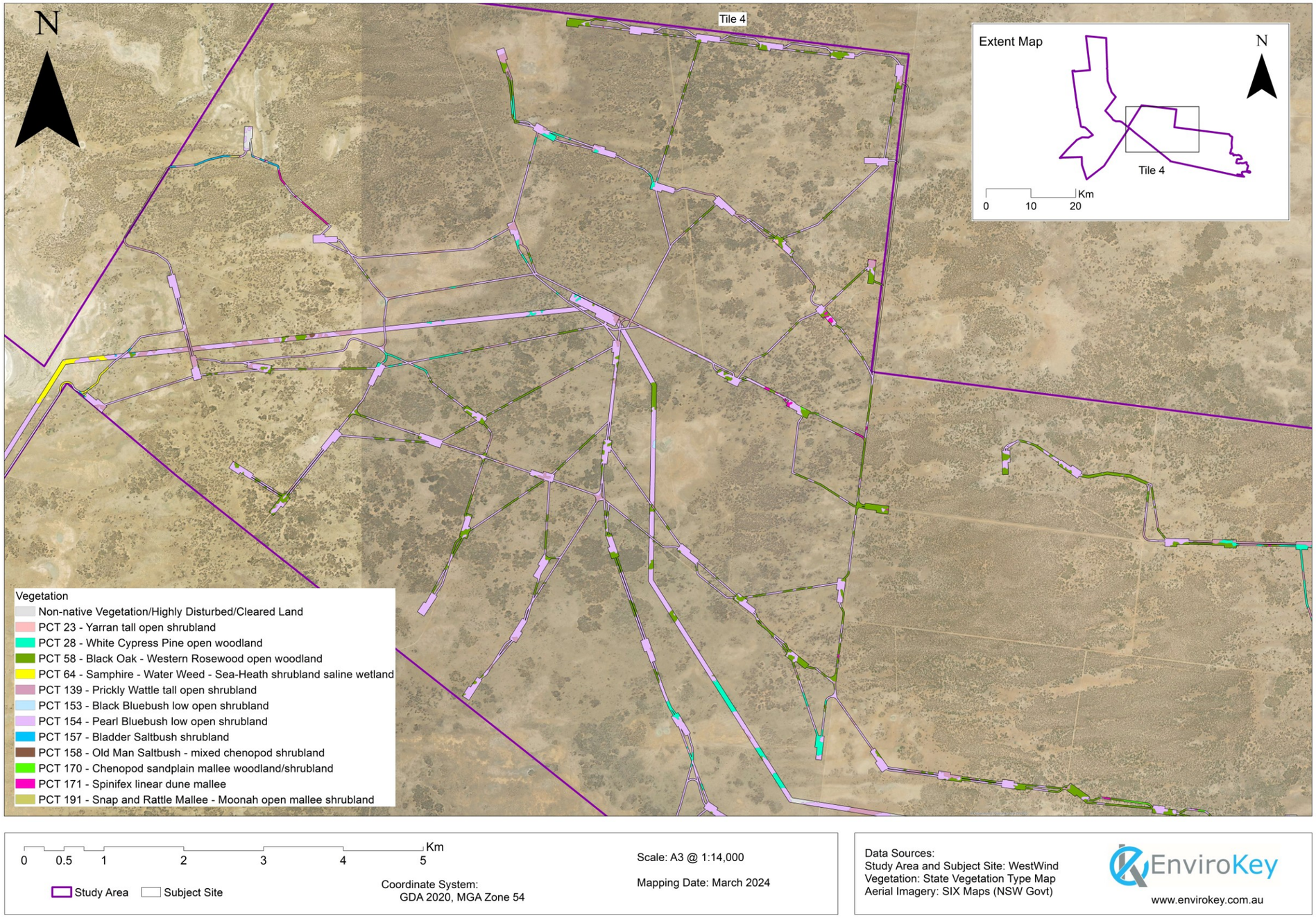


Figure 3-5: Plant Community Types from the SVT located within the subject site (Tile 4).

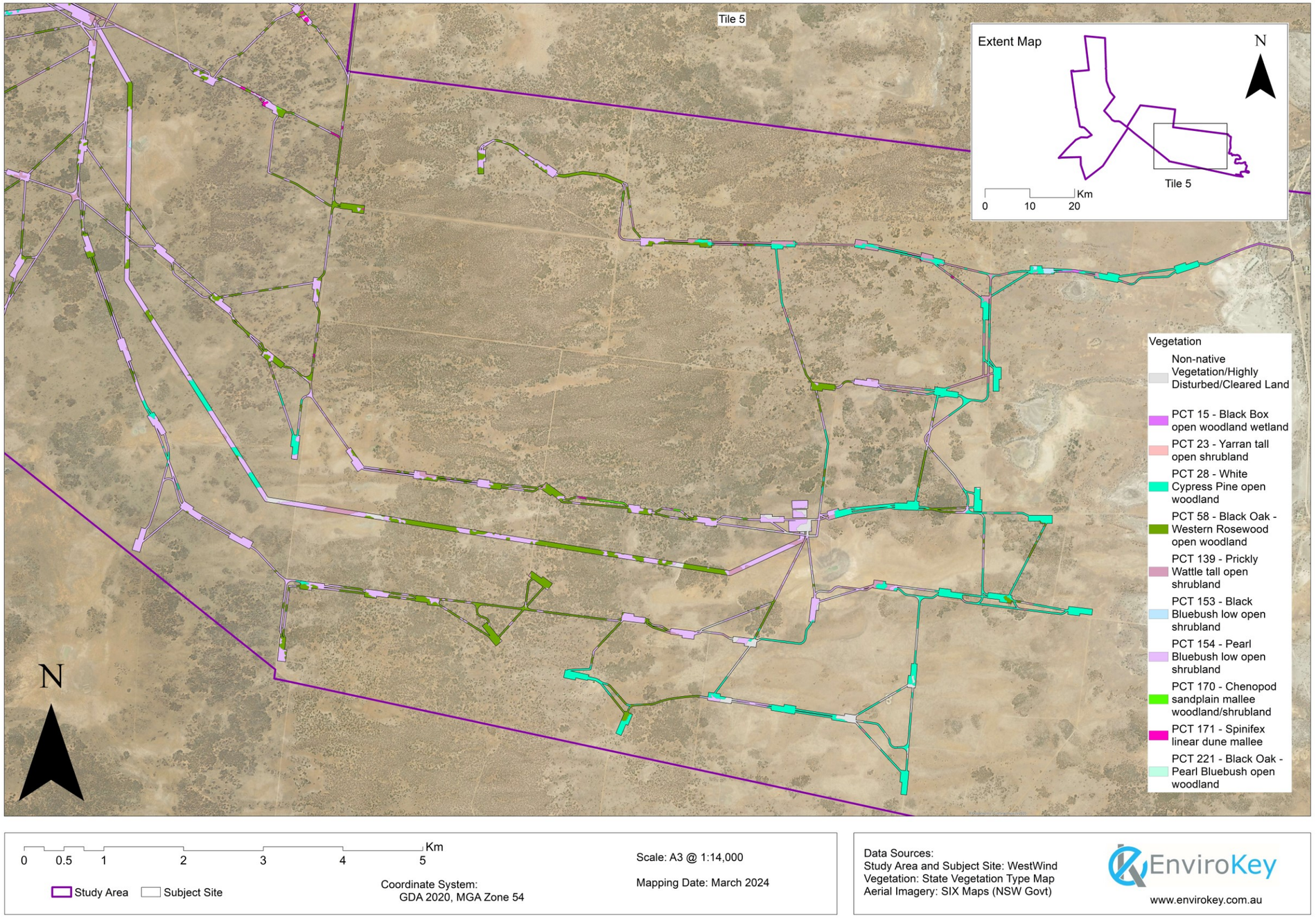


Figure 3-6: Plant Community Types from the SVT located within the subject site (Tile 5).

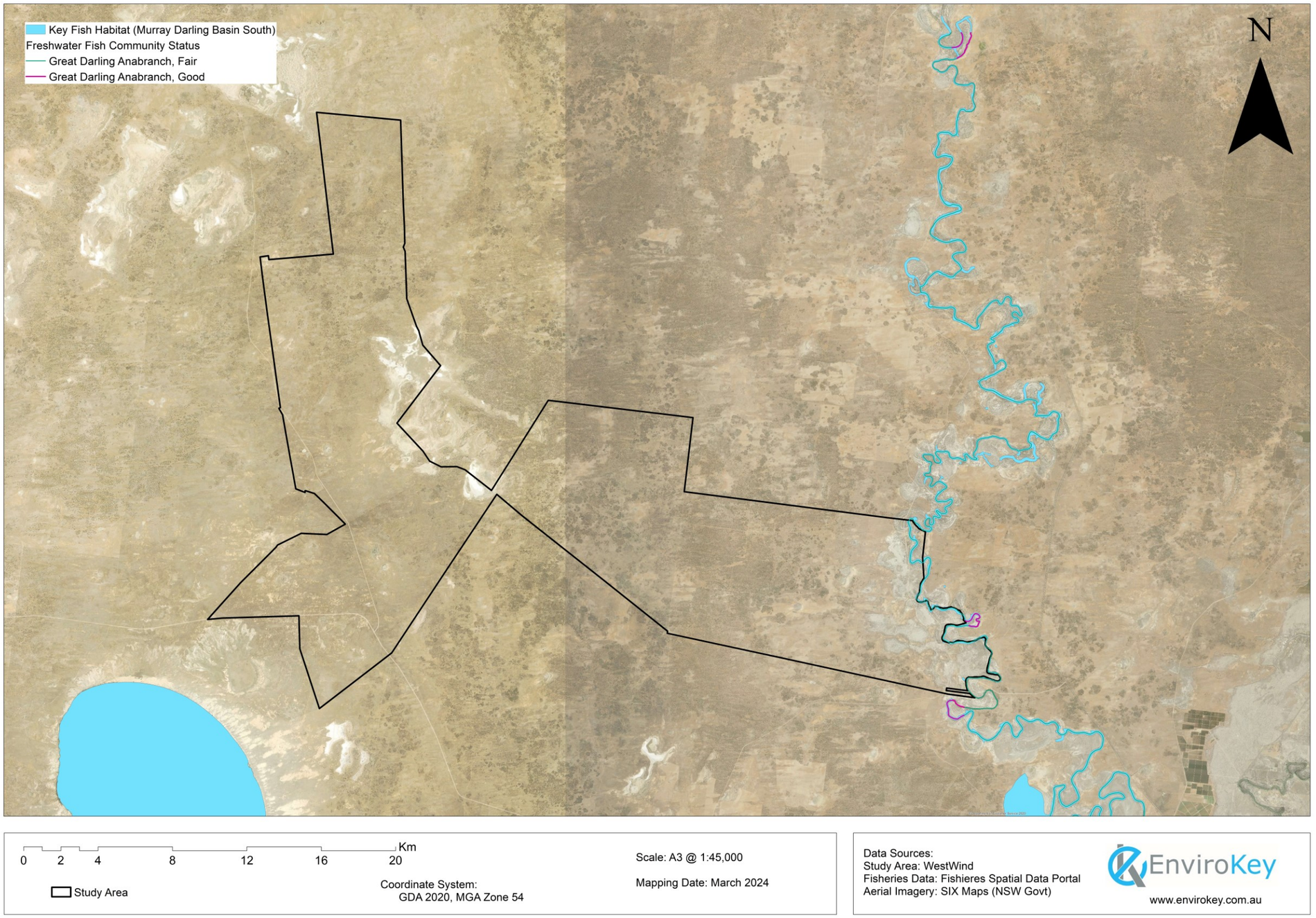


Figure 3-7: Key fish habitats (aquatic) within and close to the study area

3.2 HABITAT CONNECTIVITY

Native vegetation and therefore, potential habitat connectivity occupies the majority of the study area (**Figure 3-1**) and based on aerial imagery interpretation, this occurs across the wider landscape. Given this, the study area is likely to form part of a landscape scale corridor. However, does not occur in isolation given the extent of native vegetation beyond the boundaries of the study area. Potential habitat corridors are not confined to the study area, and the presence of the Great Darling Anabranch, Darling River and Murray River in the wider locality are likely to form more important landscape scale habitat corridors.

3.3 AQUATIC HABITATS

Key Fish Habitats are identified within the Great Darling Anabranch and Lake Victoria (**Figure 3-7**). The NSW Fisheries Portal does not identify any permanent waterways occur within the subject site. Some earth tanks (farm dams) are present across the study area given the long term agricultural activities that have occurred within the study area and the need to store water piped from the Great Anabranch of the Darling River Private Water Supply and Irrigation District. However, these are unlikely to be considered important aquatic habitat.

3.4 GROUNDWATER DEPENDENT ECOSYSTEMS

Groundwater plays an important role in aquatic and terrestrial ecosystems particularly in arid and semi-arid landscapes. A search of the Atlas of Groundwater Dependent Ecosystems (GDE) revealed that the study area has:

- A low potential for Terrestrial GDE
- The Great Darling Anabranch (Aquatic GDE) traverses a small proportion of the study area on the eastern flank
- And there has been no analysis for Subterranean GDE.

Nonetheless, GDE should be considered in part of a Groundwater assessment in the EIS.

Mapping from the Atlas is presented in Appendix 4**.**

3.5 THREATENED ECOLOGICAL COMMUNITIES

Threatened Ecological Communities (TEC) were identified using the Protected Matters Search Tool (PMST) (EPBC Act) (Appendix 3), NSW State Vegetation Type (SVT) mapping, and previous field surveys conducted by ENSPEC (May, 2023).

Two TEC were identified within the study area by ENSPEC (2023) (**Table 3-2**).

Table 3-2: TEC recorded during previous field surveys.

TEC Name	Listing status	
	BC Act	EPBC Act
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	EEC	-
Mallee Bird Community of the Murray Darling Depression Bioregion	-	E

A further three TEC were identified as having some likelihood of occurrence within the study area based on the SVT mapping and review of the VIS (**Table 3-3**).

Table 3-3: TEC identified as having a likelihood of occurrence within the study area

TEC Name	Listing status	
	BC Act	EPBC Act
Acacia loderi shrublands	EEC	-
Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions	EEC	-
Buloke Woodlands of the Riverina and Murray Darling Depression Bioregion	EEC	E

A comprehensive table of threatened and migratory biota and the likelihood of occurrence within the Project footprint can be found in Appendix 2**.**

3.6 THREATENED AND MIGRATORY SPECIES OCCURRENCE

The likelihood of occurrence analysis revealed the presence of 76 threatened and migratory biota that are known to or predicted to occur within the Study Area, and therefore, potentially in the Subject Site. The presence of the Great Darling Anabranch (directly adjacent to the Study Area) and nearby Lake Victoria to the west has the potential to increase the occurrence likelihood of threatened and migratory wetland birds.

During field surveys in May 2023, ENSPEC recorded four threatened biota (**Table 3-4**).

Table 3-4: Threatened species recorded during ENSPEC field surveys (May, 2023).

Common Name	Scientific name	Listing status	
		BC Act	EPBC Act
Pink Cockatoo	Lophochroa leadbeateri leadbeateri	V	E
Southern Whiteface	Aphelocephala leucopsis	V	V
White-fronted Chat	Epthianura albifrons	V	-
A spear-grass	Austrostipa nullanulla	E	-

Table 3-5 identifies the remaining species that have the potential to occur within the Subject Site based on the methodology detailed in section 2.2, pending detailed biodiversity surveys.

The existing records for threatened and migratory biota from the NSW BioNET database, is presented in **Figure 3-8** to **Figure 3-15.**

Table 3-5: Species assessed to have a 'Possible' occurrence in the Subject Site.

Common Name	Scientific name	Listing status	
		BC Act	EPBC Act
AVIFAUNA			
Australian Bustard	Ardeotis australis	E	
Australian Prantincole	Stiltia Isabella		M
Barking Owl	Ninox connivens	V	
Black Falcon	Falco subniger	V	
Black-breasted Buzzard	Hamirostra melanosternon	V	
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	V	
Black-eared Miner	Manorina melanotis	CE	E
Blue-winged Parrot	Neophema chrysostoma	V	V, M
Bush-stone Curlew	Burhinus grallarius	E	
Caspian Tern	Hydroprogne caspia		M
Chestnut Quail-thrush	Cinclosoma castanotum	V	
Curlew Sandpiper	Calidris ferruginea	E	CE, M
Dusky Woodswallow	Artamus cyanopterus	V	
Fork-tailed Swift	Apus pacificus		M
Freckled Duck	Stictonetta naevosa	V	
Gilbert's Whistler	Pachycephala inornata	V	

Common Name	Scientific name	Listing status	
		BC Act	EPBC Act
Grey Falcon	Falco hypoleucos	V	V
Gull-billed Tern	Gelochelidon nilotica		M
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	E	E
Little Eagle	Hieraaetus morphnoides	V	
Malleefowl	Leipoa ocellata	E	V
Painted Honeyeater	Grantiella picta		M
Pied Stilt	Himantopus leucocephalus		M
Plains-wanderer	Pedionomus torquatus	E	CE
Purple-crowned Lorikeet	Glossopsitta porphyrocephal	V	
Purple-gaped Honeyeater	Lichenostomus cratitus	V	
Rainbow Bee-eater	Merops ornatus		M
Red-lored Whistler	Pachycephala rufogularis	CE	V
Red-necked Avocet	Recurvirostra novaehollandiae		M
Red-necked Stint	Calidris ruficollis		M
Redthroat	Pyrrholaemus brunneus	V	
Regent Parrot (eastern subspecies)	Polytelis anthopeplus monarchoides	E	V
Scarlet-chested Parrot	Neophema splendida	V	
Shy Heathwren	Hylacola cautus	V	
Southern Scrub-robin	Drymodes brunneopygia	V	
Spotted Harrier	Circus assimilis	V	
Square-tailed Kite	Lophoictinia isura	V	
Varied Sittella	Daphoenositta chrysoptera	V	
White-bellied Sea-Eagle	Haliaeetus leucogaster	V	M
White-throated Needletail	Hirundapus caudacutus	V	M
AMPHIBIANS			
Southern Bell Frog	Litoria raniformis	E	V
REPTILES			
Jewelled Gecko	Strophurus elderi	V	
Mallee Slender Blue-tongue Lizard	Cyclodomorphus melanops elongates	E	
Mallee Worm-lizard	Aprasia inaurita	E	
Marble-faced Delma	Delma australis	E	
Ringed Brown Snake	Pseudonaja modesta	E	
Western Blue-tongued Lizard	*Tiliqua occipitalis*	V	

Common Name	Scientific name	Listing status	
		BC Act	EPBC Act
Yellow-tailed Plain Slider	Lerista xanthura	V	
MAMMALS			
Bolam's Mouse	Pseudomys bolami	E	
Sandy Inland Mouse	Pseudomys hermannsburgensis	V	
Southern Ningaui	Ningaui yvonneae	V	
Stripe-faced Dunnart	Sminthopsis macroura	V	
Western Pygmy Possum	Cercartetus concinnus	E	
Corben's Long-eared Bat	Nyctophilus corbeni	V	V
Inland Forest Bat	Vespadelus baverstocki	V	
Little Pied Bat	Chalinolobus picatus	V	
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	V	
FLORA			
Bitter Quandong	Santalum murrayanum	E	E
Bladder Senna	Swainsona colutoides	E	
Bluebush Daisy	Cratystylis conocephala	E	
Button Immortelle	Leptorhynchos waitzia	E	
Desert Hopbush	Dodonaea stenozyga		CE
Fleshy Minuria	Kippistia suaedifolia	E	
Harrow Wattle	Acacia acanthoclada	E	
Menindee Nightshade	Solanum karsense	V	V
Winged Pepper-cress	Lepidium monoplocoides	E	E

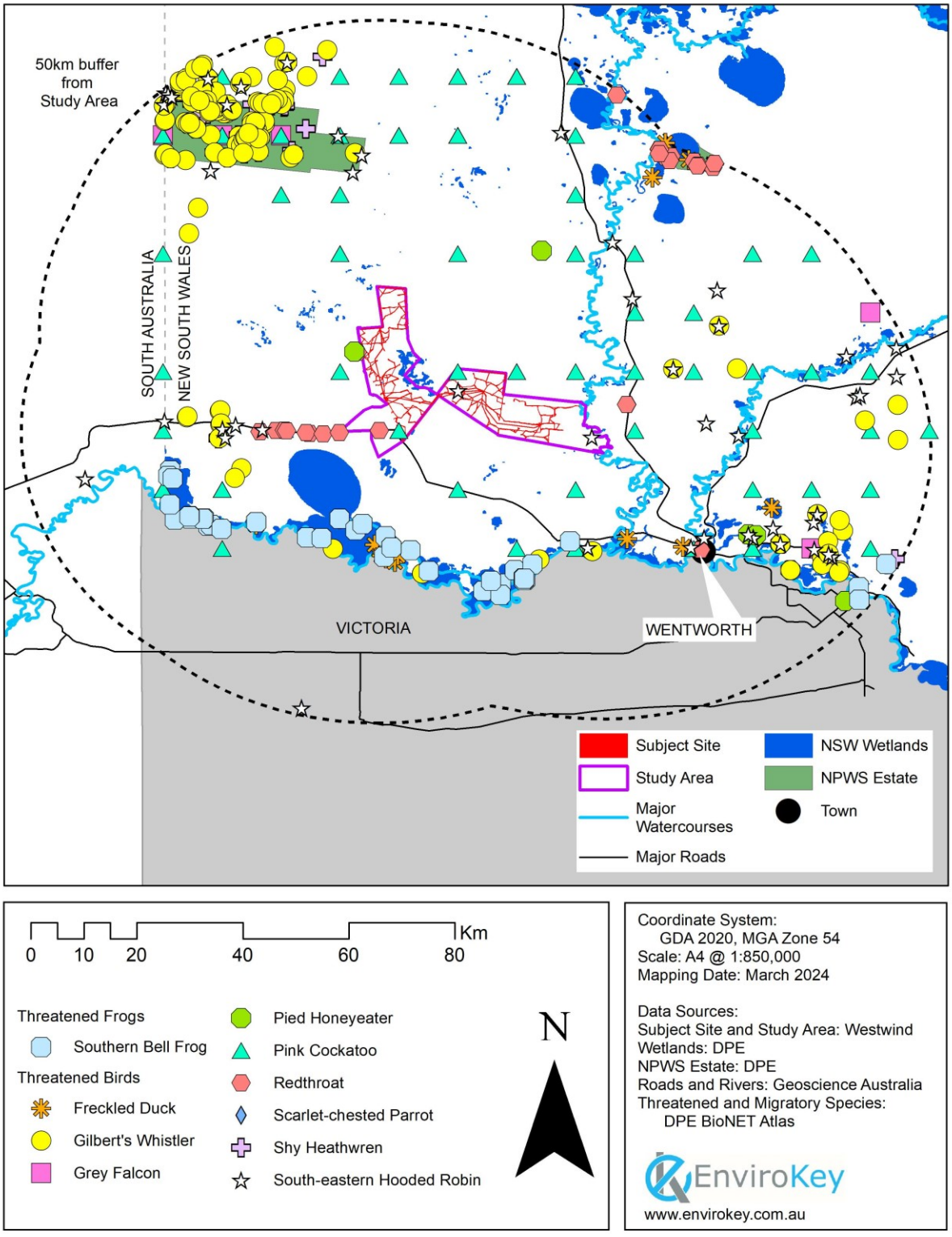


Figure 3-8: Threatened biota within 50km of the study area

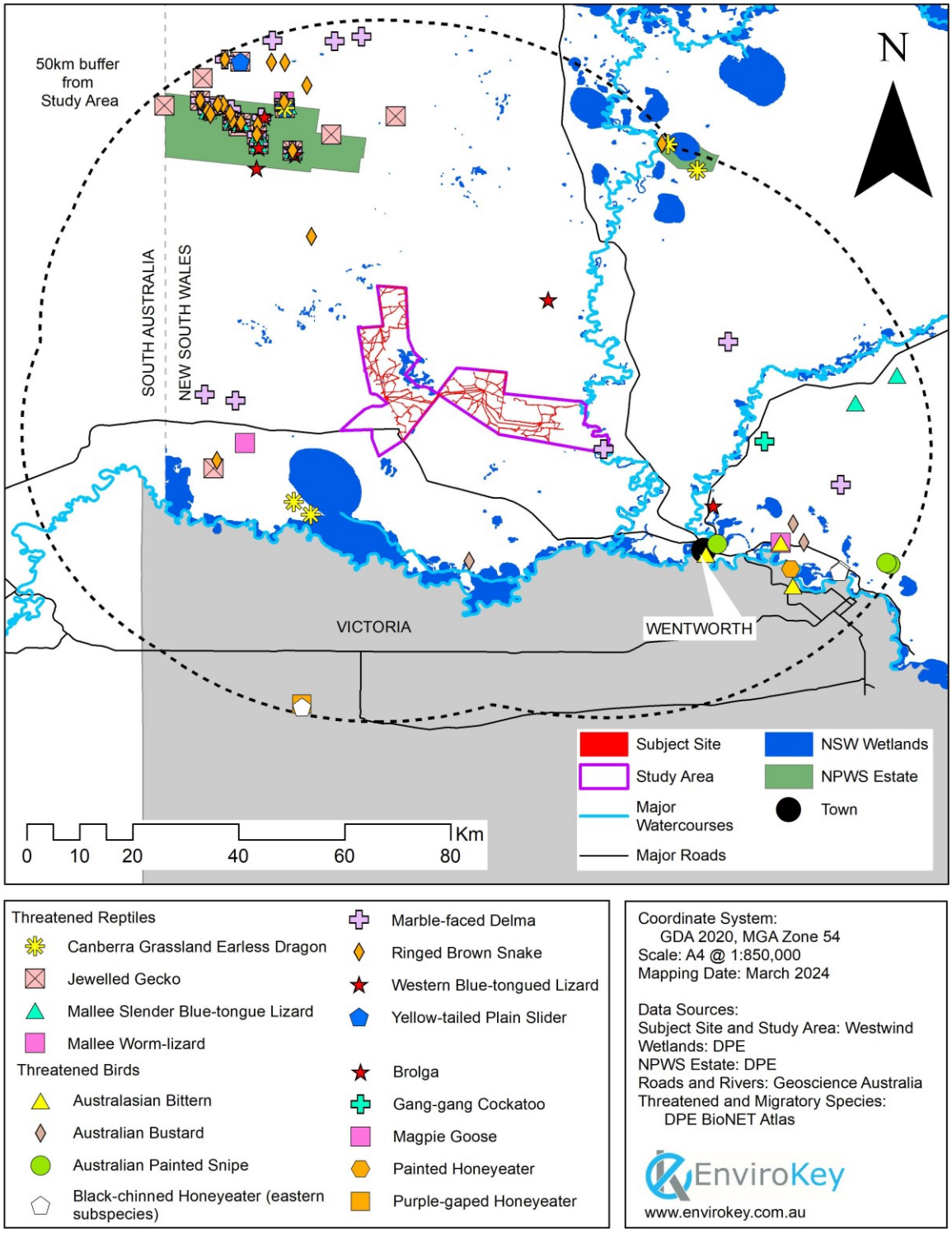


Figure 3-9: Threatened biota within 50km of the study area

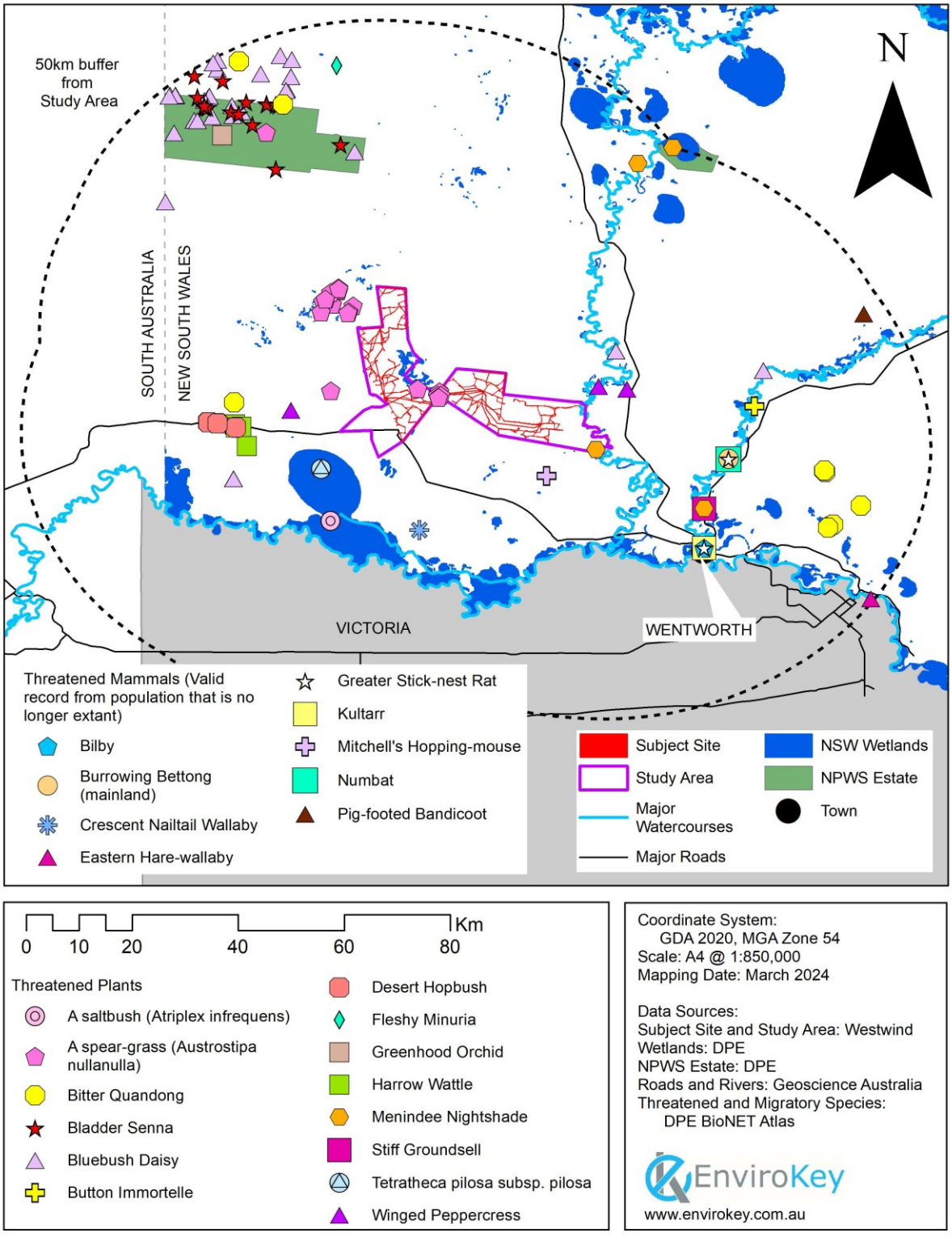


Figure 3-10: Threatened biota within 50km of the study area

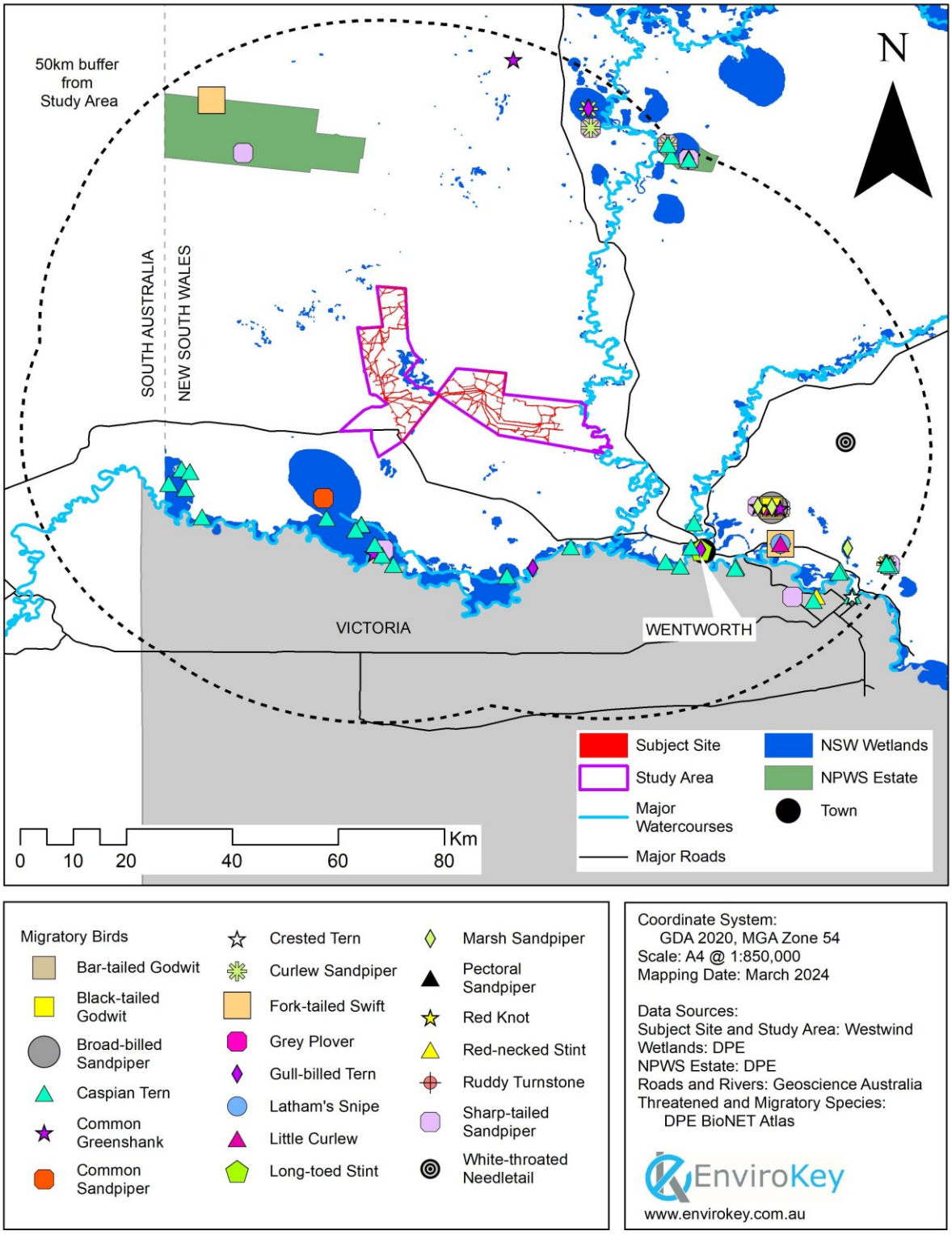


Figure 3-11: Threatened and Migratory biota within 50km of the study area

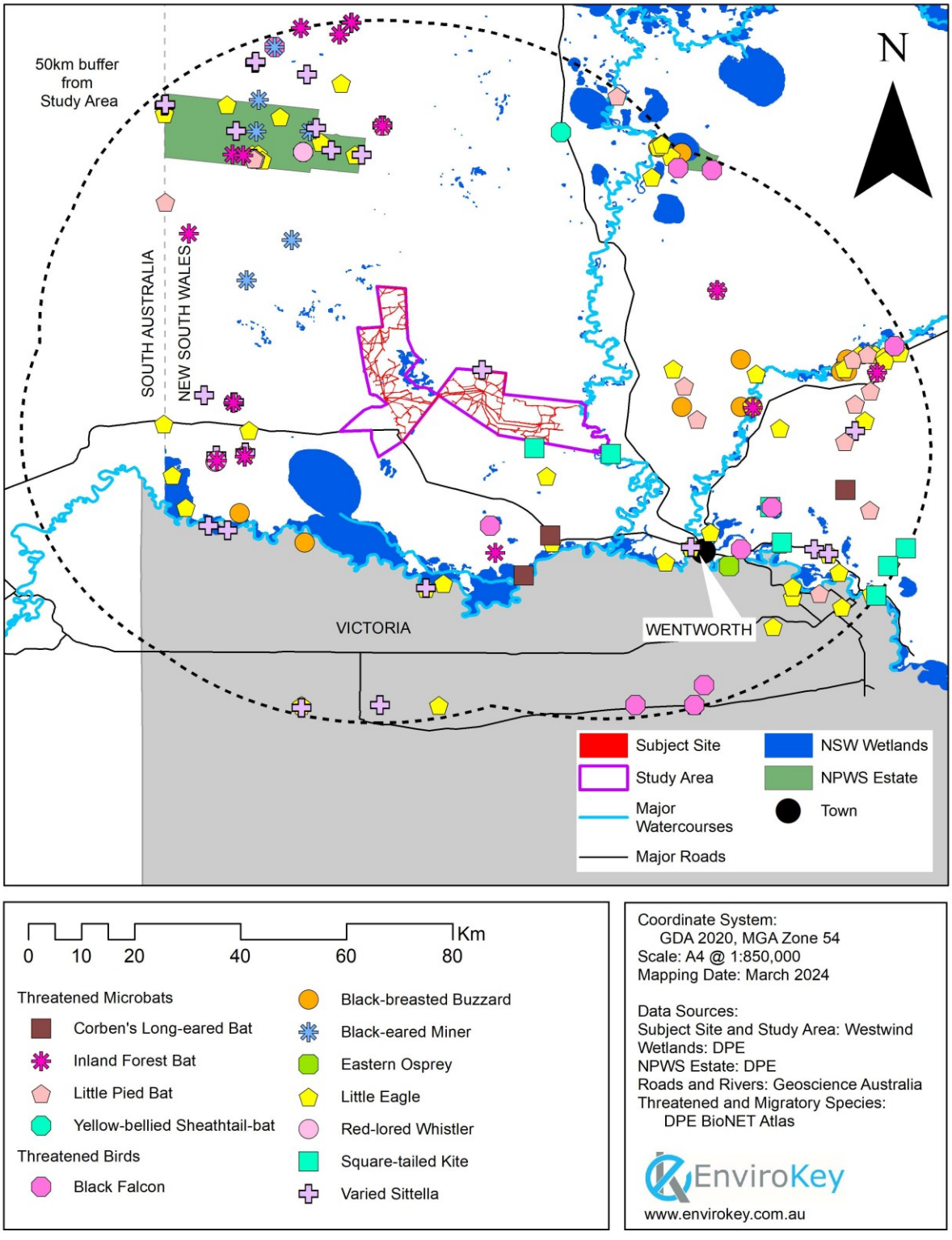


Figure 3-12: Threatened biota within 50km of the study area

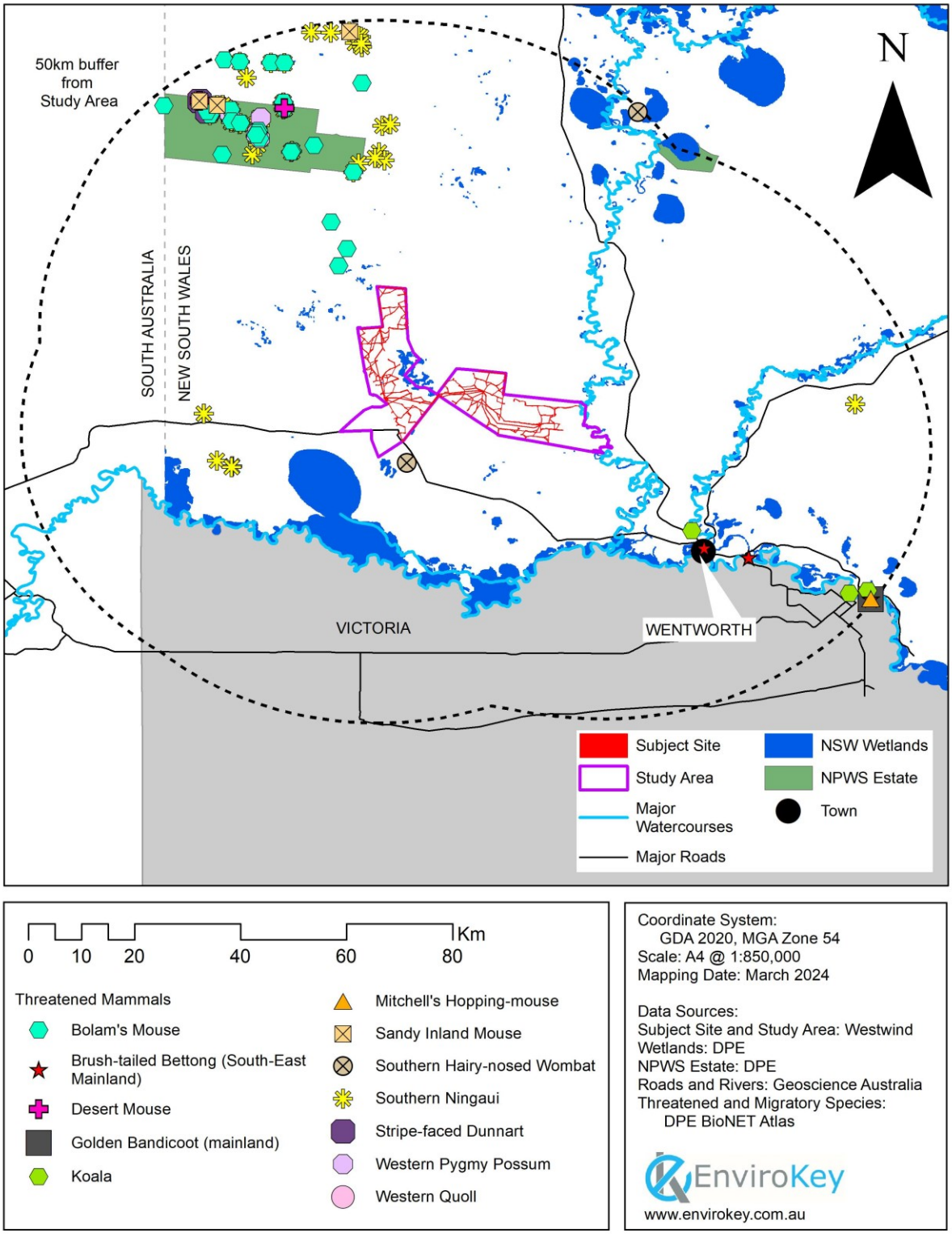


Figure 3-13: Threatened biota within 50km of the study area

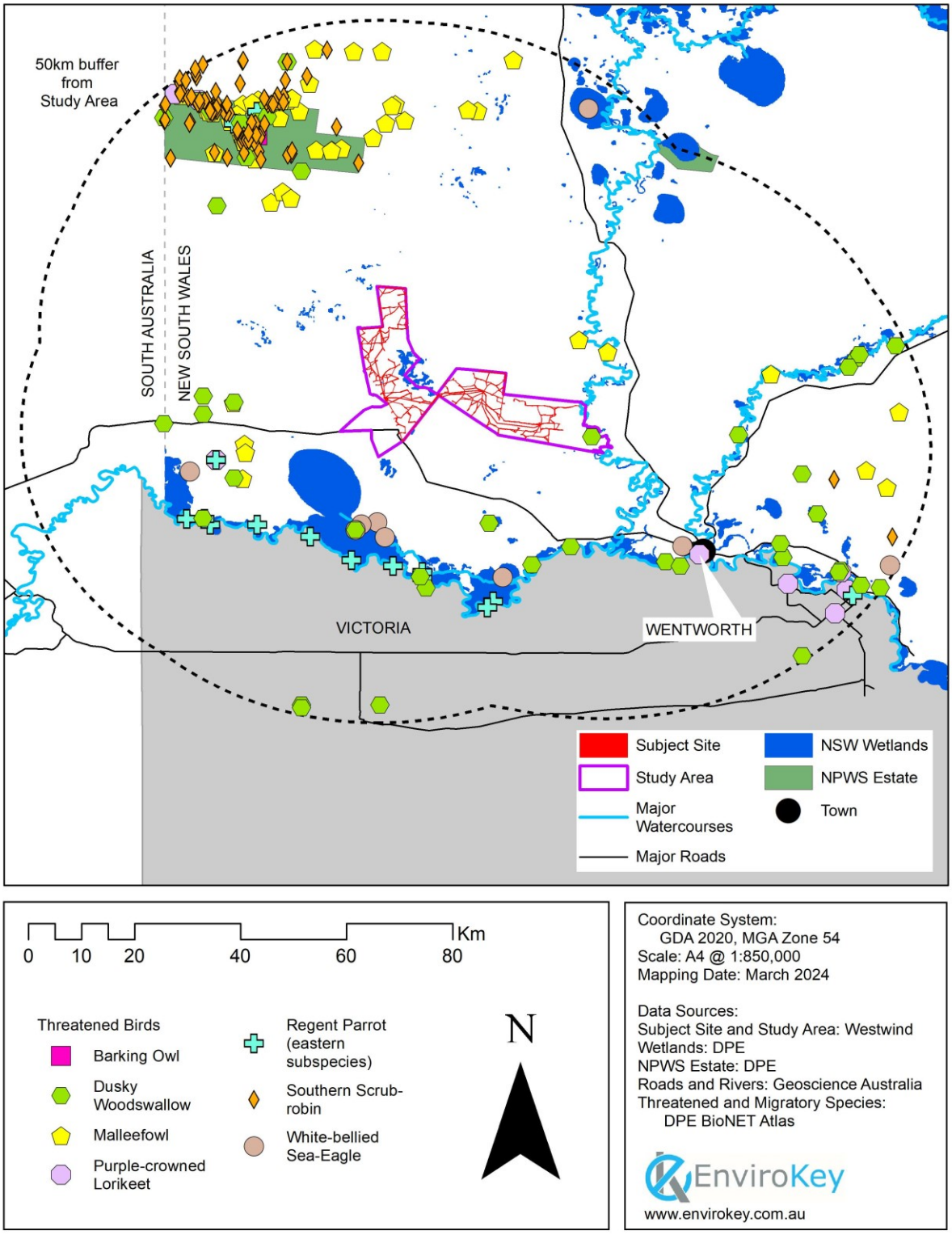


Figure 3-14: Threatened biota within 50km of the study area

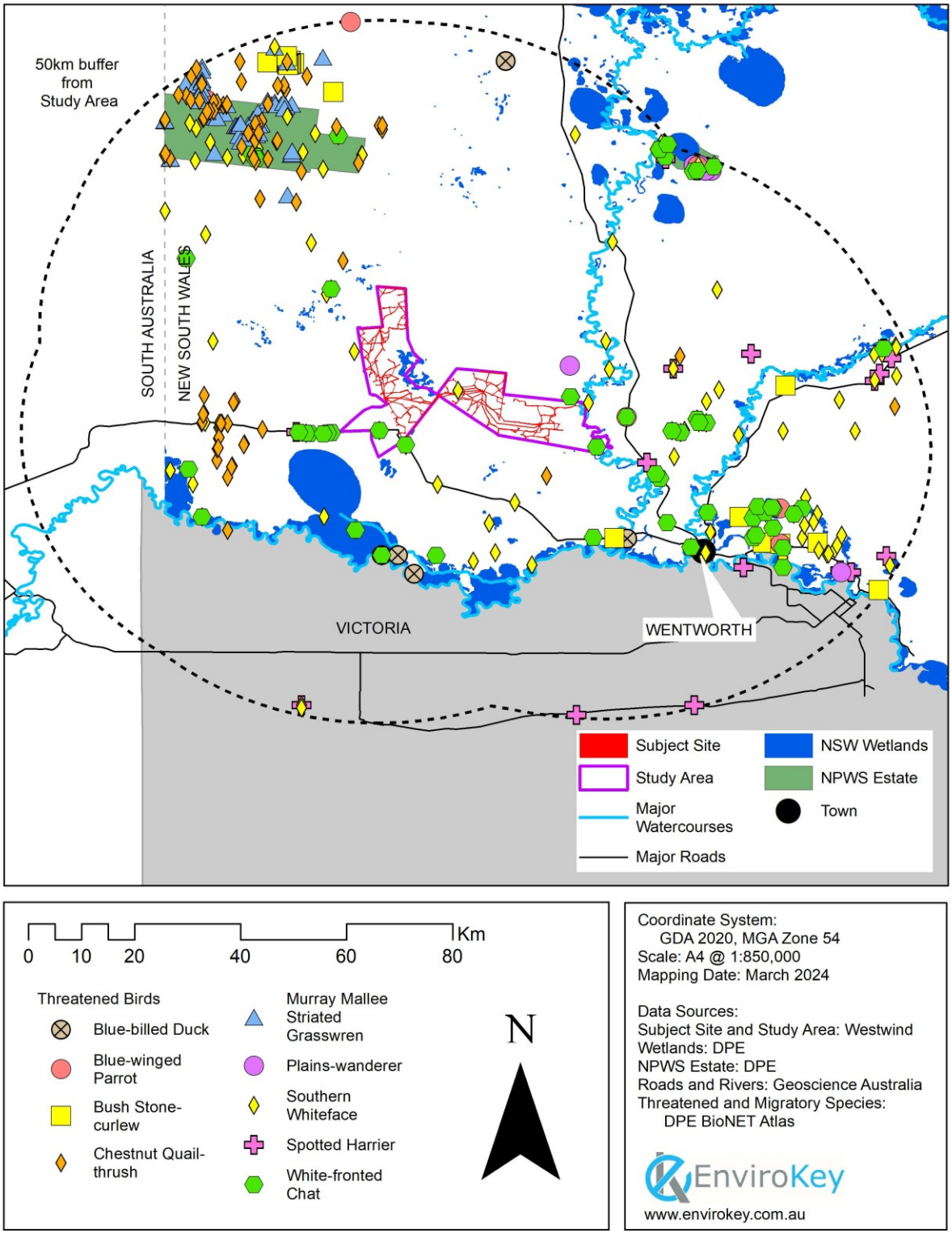


Figure 3-15: Threatened biota within 50km of the study area

3.7 PRELIMINARY IDENTIFICATION OF CANDIDATE SPECIES

Further to the analysis of threatened and migratory biota in section 3 and Appendix 2, the BAM provides species credit species (candidate species) that require special consideration within a BDAR. A review of the BAM-C reveals a number of preliminary candidate species of potential relevance to the Subject Site (**Table 3-6** and **Table 3-7**). Nulla Nulla Grass is also listed as an SAII species which would require additional assessment within an EIS.

Table 3-6: Preliminary flora species credit species and field survey timing

Common name	Scientific name	Listing status		Field survey timing
		BC Act	EPBC Act	
Harrow Wattle	Acacia acanthoclada	E	-	Aug-Nov
Purple-wood Wattle	Acacia carnerorum	V	V	All months
-	Atriplex infrequens	V	V	Nov-Feb
-	Austrostipa metatoris	V	V	Oct-Nov
Nulla Grass	Austrostipa nullanulla	E	-	Sep-Feb
Mossgiel Daisy	Brachyscome papillosa	V	V	Sep-Nov
A burr-daisy	Calotis moorei	E	E	Sep-Nov
Bluebush Daisy	Cratystylis conocephala	E	-	All months
Desert Hopbush	Dodonaea stenozyga	CE	-	All months
Fleshy Minuria	Kippistia suaedifolia	E	-	All months
Pink Velvet Bush	Lasiopetalum behrii	CE	-	All months
Button Immortelle	Leporhynchos waitza	E	-	Sep-Nov
Thyme Rice Flower	Pimelea serpyllifolia	E	-	Sep-Dec
Greenhood Orchid	Pterostylis cobarensis	V	-	Oct
Bitter Quandong	Santalum murrayanum	E	-	All months
Bladder Senna	Swainsona colutoides	E	-	All months
Yellow Swainson-pea	Swainsona pyrophila	V	-	Sep-Nov
Silky Swainson-pea	Swainsona sericea	V	-	Sep-Nov

Table 3-7: Preliminary fauna species credit species and field survey timing

Common name	Scientific name	Listing status		Survey timing
		BC Act	EPBC Act	
Striated Grasswren	Amytornis striatus	CE	-	All months
Australian Bustard	Ardeotis australis	E	-	All months
Bush Stone-curlew	Burhinus grallarius	E	-	All months
White-bellied Sea-eagle	Haliaeetus leucogaster	V	-	Sep-Nov
Black-breasted Buzzard	Hamirostra melanosternum	V	-	Sep-Nov
Little Eagle	Hieraaetus morphnoides	V	-	Aug-Oct
Southern Hairy-nosed Wombat	Lasiorhinus latiforns	E	-	All months
Pink Cockatoo	Lophochroa leadbeateri	V	-	Sep-Dec
Square-tailed Kite	Lophoictinia isura	V	-	Sep-Jan
Crowned Gecko	Lucasium stenodactylum	V	-	Oct-Mar
Black-eared Miner	Manorina melanotis	CE	E	Aug-Jan
Painted Burrowing Frog	Neobatrachus pictus	E	-	Spring-summer after rain
Red-lored Whistler	Pachycephala rufogularis	CE	V	All months
Regent Parrot	Polytelis anthopeplus	E	V	Aug-Nov
Desert Mouse	Pseudomys desertor	CE	-	Mar-Jun, Aug-Dec

4 OTHER MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

While threatened and migratory biota as listed by the EPBC Act are considered in section 3 of this PBA, other Matters of National Environmental Significance (MNES) are also of relevance. These being Wetlands of International Importance (Ramsar Wetlands) (**Table 4-1**).

Table 4-1: Ramsar sites identified by PMST.

Ramsar Site Name	Proximity	Buffer Status
Banrock Station wetland complex	40 – 50km upstream from Ramsar site	In feature area
Riverland	Within Ramsar site (Renmark to NSW border)	In feature area
The Coorong, and the lakes Alexandrina and Albert wetland	150 – 200km upstream from Ramsar site	In feature area

5 PRELIMINARY IMPACT ASSESSMENT

The current proposal for Lake Victoria Wind Farm would see the removal or disturbance of up to 1511.03 ha of native vegetation based on SVT mapping and the current configuration of the subject site (**Table 5-1**) as well as the potential for bird and bat collision risk. Detailed biodiversity surveys are needed to determine the existence and extent of associated TECs as well as bird and bat communities within the subject site and assessment area.

Table 5-1: Vegetation types within the subject site, potential impact and TEC status

Vegetation Type	Area (ha)	TEC
PCT 15 - Black Box open woodland wetland	2.82	-
PCT 23 - Yarran tall open shrubland	1.25	BC Act
PCT 28 - White Cypress Pine open woodland	111.01	BC Act
PCT 58 - Black Oak - Western Rosewood open woodland	173.99	Part BC Act, but unlikely based on PCT 58 in the locality. Further assessment required
PCT 64 - Samphire - Water Weed - Sea-Heath shrubland saline wetland	6.9	-
PCT 139 - Prickly Wattle tall open shrubland	84.63	Part BC Act, but unlikely based on PCT 139 in the locality. Further assessment required
PCT 143 - Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland	17.81	Part BC Act, but unlikely based on PCT 143 in the locality. Further assessment required
PCT 150 - Bottlewasher - Copperburr grassland	1.02	-
PCT 153 - Black Bluebush low open shrubland	4.71	Part BC Act, but unlikely based on PCT 153 in the locality. Further assessment required
PCT 154 - Pearl Bluebush low open shrubland	1083.5	Part BC Act, but unlikely based on PCT 154 in the locality. Further assessment required
PCT 157 - Bladder Saltbush shrubland	17.13	-
PCT 158 - Old Man Saltbush - mixed chenopod shrubland	0.26	Part BC Act. Further assessment required
PCT 170 - Chenopod sandplain mallee woodland/shrubland	1.51	Part BC Act & EPBC Act, Further assessment required
PCT 171 - Spinifex linear dune mallee	4.33	EPBC Act (Mallee Bird Community)
PCT 191 - Snap and Rattle Mallee - Moonah open mallee shrubland	0.23	Part BC Act & EPBC Act, Further assessment required
PCT 215 - Woollybutt Grass open grassland	0.1	-
PCT 221 - Black Oak - Pearl Bluebush open woodland	0.06	-
PCT 236 - Derived Giant Redburr low shrubland	0.06	-
PCT 253 - Gypseous shrubland	0.01	-
SUB-TOTAL	1511.33	

Vegetation Type	Area (ha)	TEC
Non-native Vegetation/Highly Disturbed/Cleared Land	26.76	-
TOTAL	1538.09	

Field surveys by ENSPEC (May, 2023) confirmed the presence of four threatened species within the study area:

- Pink Cockatoo — Lophochroa leadbeateri leadbeateri
- Southern Whiteface — Aphelocephala leucopsis
- White-fronted Chat — Epthianura albifrons
- Nulla Grass — Austrostipa nullanulla

Nulla Grass is listed as a SAII species, so any biodiversity assessment will need to address the SAII criteria outlined in the BAM.

Section 3.3 of this PBA identifies a total of 76 threatened or migratory biota that have been recorded, or have the potential to occur based on the evaluation completed in Appendix 2.

The main potential impacts to biodiversity from the Project relate to the removal of vegetation. 'Land Clearance' and 'Clearing of Native Vegetation' is listed as a Key Threatening Process under the BC Act and EPBC Act respectively and Bird and Bat Collision Risk.

Other impacts to biodiversity include the following:

- Removal or disturbance of breeding habitat
- Degradation of habitat as a result of erosion or changed hydrology
- Spreading or attracting weeds, pests and diseases species
- Barriers between populations with low dispersal ability.

Detailed biodiversity surveys are needed to quantify the existence of threatened species and species habitat across the assessment area as determined by the BAM (2020).

6 RECOMMENDATIONS FOR DETAILED ASSESSMENT

The SEARs (once issued by the Planning Secretary of the Department of Planning, Housing and Infrastructure) are likely to require a BDAR to be prepared in accordance with the BAM. The BDAR must:

- Demonstrate how impacts have been avoided, mitigated and offset as a last resort
- Consider Serious and Irreversible Impact (SAII) entities and how they could be impacted by the Project
- Consider prescribed impacts, which are impacts that cannot be quantified through the BAM-C. Of relevance to this Project is “Wind Farm Collision Impacts”.

In the absence of the SEARs, it is recommended that the BDAR would need to meet the Stage 1 and Stage 2 requirements of the BAM which include, but are not limited, to the following:

- Threatened species and TEC impact assessment including:
    - Biodiversity Values Mapping
    - Seasonal flora and fauna surveys for candidate species (once identified by the BDAR)
    - Targeted surveys for threatened species including raptors or waterbirds
    - Bird and bat collision risk assessment including water birds given that the site is between the Great Darling Anabranch and Lake Victoria
    - Recommendations for avoiding, limiting and mitigating impacts to threatened species and TECs
    - Credit calculations to determine the credit obligations of the Project
- Considerations for serious and irreversible impacts (SAII) of development on biodiversity including but not limited to;
    - Long term impacts from turbine strike
    - Loss of small population due to localised impacts
    - Loss of important breeding habitat

The BAM would need to be implemented and the BDAR prepared by an Accredited assessor.

It is expected that credit obligations will be generated from the above outputs, which can be met through several avenues such as contributing to the Biodiversity Conservation Fund (BCF), the establishment of a stewardship site or acquiring credits from the Biodiversity Credit Market. A combination of the above could also be implemented.

Further analysis of biodiversity values within the Project footprint is required to determine outcomes for credit and offset obligations.

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8 APPENDICES

APPENDIX 1 – QUALIFICATIONS AND EXPERIENCE OF PERSONNEL

Table 8-1: Qualifications and experience of personnel

Name and Qualifications	Experience
Steve Sass Director / Principal Ecologist B.App.Sci (Env.Sci) (Hons), GradCert.CaptVertMngt (CSU) Certified Environmental Practitioner (CEnvP) Biodiversity Accredited Assessor (BAAS17047)	Steve will be the project manager for this project. He is a highly experienced Consulting Ecologist having undertaken hundreds of terrestrial and aquatic ecological surveys and assessments across Australia since 1992. Steve was one of the very first Accredited Assessors under the NSW *Biodiversity Conservation Act 2016*, and he is a current Practicing Member of the Ecological Consultants Association of NSW (ECA) and held a position on the Executive Council for two consecutive years. Steve has an in-depth working knowledge of environmental and biodiversity legislation across all states and territories, which allows him to provide detailed and accurate assessments and formulate practical solutions to clients and specific projects on a case-by-case basis. His commitment to high professional standards in environmental assessment resulted in Steve being accepted as a Certified Environmental Practitioner by the Environment Institute of Australia and New Zealand in 2008. Steve has extensive experience in the region. Over the past 20 years, he has completed or provided specialist biodiversity advice to more than 1,600 environmental assessments for projects such as highway upgrades, residential and industrial developments, telecommunications, water, sewerage, energy, mining and electricity network infrastructure projects. Having completed hundreds of surveys and assessments in the region, Steve is highly conversant with the flora, vegetation communities, fauna and their habitats of the region.
Linda Sass Senior Ecologist Assoc.Deg. Gn.St (Science), B.A, Dip. Ed (Sec)	Linda is an experienced ecologist having conducted flora and fauna surveys across southern and western NSW for the past 13 years. She is a member of the Ecological Consultants Association of NSW and her experience with the flora and fauna of the Wentworth, Lake Victoria, Pine Camp and Nulla localities is extensive.
Harrison Warne Ecologist B. Sc (Zoology and Ecology)	Harrison is an experienced arid and semi-arid ecologist. He has extensive experience in western NSW including the Wentworth region as well as the Mutawintji and Broken Hill areas. He has completed field surveys for two SSD projects; the Copi Mineral Sands Project Cobalt Project as well as the Broken Hill Cobalt Project. Harrison has also been working on the Saving our Species monitoring program for the endangered Barrier Range Dragon within Mutawintji National Park.
Zoe Sass Project Officer (GIS) B.Sc (GIS), B.A, M.Sc (GIS Remote Sensing) (on-going)	Zoe joined **EnviroKey** as a permanent member of the team in 2021 as a Project Officer and has prepared a number of environmental assessments for infrastructure projects, including the HW1 Mort Avenue Safety Improvement Work and HW1 Herganhens Lane Safety Improvement Work for Transport for NSW. Zoe has also been responsible for GIS mapping and statistical analysis for SSD projects including the Copi Minerals Sands Project and the Broken Hill Cobalt Project. She also prepared all mapping within the environmental assessment for the Sturt Highway upgrade between Buronga and Wagga Wagga (a lineal project at 550kms long).

APPENDIX 2 –THREATENED AND MIGRATORY BIOTA EVALUATION

Table 8-2: Likelihood of occurrence criteria

Likelihood	Criteria
Recorded	Recorded during ENSPEC field surveys (May, 2023)
Possible	Species habitat present based on SVT and recorded in the locality
Unlikely	No suitable habitat is present (based on existing data), species has limited dispersal capability but previously recorded within the locality /OR, Suitable habitat is present, but not previously recorded in locality.
None	Suitable habitat is absent from the study area. Not previously recorded in locality. Listed as extinct in NSW.

Table 8-3: Threatened and migratory biota evaluation (V = vulnerable, E = Endangered, CE = critically endangered, PE = Presumed Extinct, M = migratory)

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
AVIFAUNA				
Australasian Bittern Botaurus poiciloptilus E BC E EPBC	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha* spp.) and spikerushes (*Eleocharis* spp.).	Yes	14	Unlikely
Australia Bustard Ardeotis australis E BC	Mainly inhabits tussock and hummock grasslands, though prefers tussock grasses to hummock grasses; also occurs in low shrublands and low open grassy woodlands; occasionally seen in pastoral and cropping country, golf courses and near dams (OEH 2014).	Yes	3	Possible
Australian Painted Snipe Rostratula australis E BC E EPBC M EPBC	Inhabits inland and coastal shallow freshwater wetlands, occurring in both ephemeral and permanent wetlands with grass. Generally only seen as a single bird. The breeding wetland areas are the most sensitive to this species.	Yes	5	Unlikely
Australian Pratincole Stiltia Isabella M EPBC	Found close to water, in open inland plains, sparsely wooded plains and tussock grasslands, usually in arid and semi-arid rainfall zones.	No	N/A	Possible
Bar-tailed Godwit	Found mainly on coastal habitats such as large intertidal sandflats, banks,	Yes	1	Unlikely

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
Limosa lapponica M EPBC	mudflats, estuaries, inlets, harbours, coastal lagoons and bays.			
Barking Owl Ninox connivens V BC	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. Requires very large permanent territories in most habitats due to sparse prey densities. Monogamous pairs hunt over as much as 6000 ha, with 2000 ha being more typical in NSW habitats. In western NSW, this species is largely confined to riparian areas where suitable habitat also occurs.	Yes	1	Possible
Black Falcon Falco subniger V BC	The Black Falcon is found along tree-lined watercourses and in isolated woodlands, mainly in arid and semi-arid areas. It roosts in trees at night and often on power poles by day.	Yes	17	Possible
Black-breasted Buzzard Hamirostra melanosternon V BC	This species inhabits a range of inland habitats, especially along timbered watercourses but also hunts over grasslands. It is sparsely distributed in areas that have less than 500mm of rainfall, but avoids areas of desert.	Yes	12	Possible
Black-chinned Honeyeater (eastern subspecies) Melithreptus gularis gularis V BC	Inhabits eucalypt woodlands with an approximate annual rainfall of 400-700mm. Usually associated with box-ironbark dominated woodland or River Red Gum. Also known to occupy dried coastal woodlands.	Yes	10	Possible
Black-eared Cuckoo Chrysococcyx osculans M EPBC	Found in open woodlands, usually dominated by Mallee or Mulga. Often found along creekside vegetation.	No	N/A	Unlikely
Black-eared Miner Manorina melanotis CE BC	Restricted to large unfragmented stands of mallee, in vegetation that has been unburnt for greater than 25 years.	Yes	6	Possible

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
E EPBC				
Black-tailed Godwit Limosa limosa V BC E EPBC M EPBC	Inland habitats include mudflats, and water less than 10cm deep around muddy lakes and swamps.	Yes	1	Unlikely
Blue-billed Duck Oxyura australis V BC	Prefers deep water in large permanent wetlands and swamps.	Yes	11	Unlikely
Blue-winged Parrot Neophema chrysostoma V BC V EPBC M EPBC	Found from coastal, sub-coastal and inland areas, right through to semi-arid zones including: grasslands, grassy woodlands and semi-arid chenopod shrubland.	Yes	6	Possible
Broad-billed Sandpiper Limicola falcinellus M EPBC	Overwinters in Australia, generally on the coastline, however has also been recorded inland in creeks, swamps and lakes.	Yes	1	Unlikely
Brolga Grus rubicunda V BC	The Brolga occurs in large open wetlands, grassy plains, coastal mudflats and irrigated croplands, with less frequent mangrove-studded creeks and estuaries.	Yes	1	Unlikely
Bush-stone Curlew Burhinus grallarius E BC	Inhabits open forests and woodlands with complex microhabitat structure.	Yes	37	Possible
Caspian Tern Hydroprogne caspia M EPBC	Found mostly in sheltered coastal bays including harbours, lagoons, inlets, bays, estuaries and river deltas. Also inhibits inland wetlands.	Yes	49	Possible
Cattle Egret Ardea ibis M EPBC	Found in grasslands, woodlands and wetlands, and is not common in arid areas. It also uses pastures and croplands, especially where drainage is poor. Will also forage at garbage dumps, and	No	N/A	Unlikely

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
	is often seen with cattle and other stock.			
Chestnut Quail-thrush Cinclosoma castanotum V BC	Preferring more arid – semi arid conditions, this species utilises low shrubs and undergrowth of mallee scrub, *Acacia* scrub, dry sclerophyll woodland, heath and native pine vegetation areas. In NSW it occurs in mallee habitats almost exclusively with an understorey dominated by spinifex and chenopods. This species nests on the ground. Fire histories are likely to impact the Chestnut Quali-thrush.	Yes	99	Possible
Common Greenshank Tringa nebularia E EPBC M EPBC	Found in a wide variety of habitats such as inland wetlands, coastal tide flats, bays, rivers, mangrove forests and sheltered bays.	Yes	10	Unlikely
Common Sandpiper Actitis hypoleucos M EPBC	The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties.	Yes	1	Unlikely
Curlew Sandpiper Calidris ferruginea E BC CE EPBC M EPBC	Occurs around the coasts and are also widespread inland, though erratic in their appearance across much of the interior.	Yes	11	Possible
Diamond Firetail Stagonopleura guttata V BC	Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands.	No	N/A	None

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
Double-banded Plover Charadrius bicinctus M EPBC	Found on coastal beaches, mudflats, sewage farms, riverbanks, fields, dunes, upland tussock grasses and shingle.	No	N/A	None
Dusky Woodswallow Artamus cyanopterus V BC	Found in a variety of habitats including shrubland and open farmland	Yes	84	Possible
Fork-tailed Swift Apus pacificus M EPBC	The Fork-tailed Swift mostly occurs over inlands plains, but can sometimes be found in coastal areas. The species is found over dry and open habitats, including riparian woodlands and tea tress swamps, low scrub, heathland or saltmarsh.	Yes	2	Possible
Freckled Duck Stictonetta naevosa V BC	Prefers permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	Yes	27	Possible
Gang-gang Cockatoo Callocephalon fimbriatum V BC E EPBC	Found across eastern Australia, usually occurs in tall mountain forests over spring and summer and moves to lower elevations over autumn and winter.	Yes	1 (likely an escapee or misidentification	None
Greater Crested Tern Thalasseus bergii M EPBC	Mainly occurs along coastlines and estuaries. Rarely recorded inland or utilising freshwater habitats.	Yes	1	Unlikely
Grey Wagtail Motacilla cinereal M EPBC	Over-winters in Australia. Breeds mostly in Eurasia.	No	N/A	Unlikely
Gilbert's Whistler Pachycephala inornata	This sparsely distributed species occurs over much of the arid and semi-arid zone of inland southern Australia, from the western slopes of NSW	Yes	167	Possible

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
V BC	across to the Western Australian wheatbelt. Widely recorded from areas of mallee woodland. In these habitat areas, spinifex and low shrubs (incl. wattles, hakeas, sennas and hop bushes) are common. This species is also known to frequent Box-Ironbark, Cypress Pine and Belah woodlands and Red Gum Forest. In woodland habitats, there are often thickets of regrowth *Callitris* spp and *Exocarpus* spp which are thought to be an important habitat component. Difficult to detect out of breeding season, this species is not thought to conduct large scale territory movements and may defend territories year round.			
Grey Falcon Falco hypoleucos V BC V EPBC	This species is usually restricted to areas of shrubland, grassland and wooded watercourses of regions that are arid to semi-arid. Occasionally it is found in open woodland areas near the coast. The Grey Falcon also occurs near wetlands where the surface water attracts prey. Old nests of prey and ravens that are high up in a living eucalypt are often used by this species for nesting.	Yes	5	Possible
Grey Plover Pluvialis squatarola M EPBC	Winter migrant to Australia. Almost entirely coastal, however has been recorded inhabiting terrestrial wetlands.	Yes	1	Unlikely
Gull-billed Tern Gelochelidon nilotica M EPBC	Found in both terrestrial wetlands such as swamps, rivers and lakes as well as coastal environments.	Yes	7	Possible
Hooded Robin (south-eastern form) Melanodryas cucullata cucullata E BC	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature	Yes	82	Possible

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E EPBC	eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.			
Latham's Snipe Gallinago hardwickii V EPBC M EPBC	Latham's Snipe are seen in small groups or singly in freshwater wetlands generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. They also use crops and pasture.	Yes	1	Unlikely
Little Curlew Numenius minutus M EPBC	Occupies dry grassland, sedgeland, floodplains and blacksoil plains with waterbodies. Forages in both grassland and wetland.	Yes	3	Unlikely
Little Eagle Hieraaetus morphnoides V BC	Occupies open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	Yes	74	Possible
Long-toed Stint Calidris subminuta M EPBC	Occurs in freshwater or brackish wetlands, foraging in mud or shallow water.	Yes	4	Unlikely
Magpie Goose Anseranas semipalmata V BC	Feeds on aquatic vegetation in freshwater habitats such as floodplains and grasslands.	Yes	1	Unlikely
Malleefowl Leipoa ocellata E BC V EPBC	Predominantly inhabit mallee communities, preferring the tall, dense and floristically-rich mallee. Less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands with thick understorey, or in other woodlands such dominated by Mulga or native Cypress Pine species. Prefers areas of light sandy to sandy loam soils and	Yes	64	Possible

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
	habitats with a dense but discontinuous canopy and dense and diverse shrub and herb layers.			
Marsh Sandpiper Tringa stagnatilis M EPBC	Winter migrant. Occurs in permanent or ephemeral wetlands.	Yes	7	Unlikely
Nunivak Bar-tailed Godwit Limosa lapponica baueri E EPBC M EPBC	Rarely found in inland wetlands or in areas of short grass such as farmland, paddocks and airstrips. Usually found along coastal habitats including intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays.	No	N/A	None
Osprey Pandion haliaetus M EPBC	Found on the coast and in terrestrial wetlands of tropical and temperate Australia and off-shore islands, occasionally ranging inland along rivers, though mainly in the north of the country.	Yes	3	Unlikely
Painted Honeyeater Grantiella picta V BC V EPBC	Occurs in Forest, Woodland, Dry Scrub, often with abundant mistletoe.	Yes	3	Possible
Pectoral Sandpiper Calidris melanotos M EPBC	Prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	Yes	2	Unlikely
Pied Honeyeater Certhionyx variegatus V BC	This species occurs in areas of arid and semi-arid shrublands dominated by Emu-bush (*Eremophila* sp) and *Grevillea* sp. It also inhabits woodlands, sandhills and inland ranges and granite outcrops. Sometimes it is found in coastal areas of north-western WA.	Yes	17	Possible

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Pied Stilt Himantopus leucocephalus M EPBC	Suitable habitats include marshes and swamps, shallow lake edges, riverbeds and flooded fields.	No	N/A	Possible
Pink Cockatoo (eastern) Lophochroa leadbeateri leadbeateri V BC E EPBC	Wide range of treed and treeless inlands habitats, within easy reach of water. Nests in tree hollows with nests at least 1km apart with no more than one pair every 30 square kilometres. Feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles and cypress pines.	Yes	206	Recorded
Plains-wanderer Pedionomus torquatus E BC CE EPBC	Occurs in semi-arid, lowland native grasslands that typically occur on red-brown soils. Preferred habitat comprises of 50% bare ground, 10% fallen timber and 40% herbs.	Yes	9	Possible
Purple-crowned Lorikeet Glossopsitta porphyrocephala V BC	Purple-crowned Lorikeets usually live in open, dry eucalypt areas of forest, woodland or shrubland. They are found in these areas in temperate and semi-arid zones, usually in the flowering canopies of vegetation. They can be found in urban parks and gardens.	Yes	11	Possible
Purple-gaped Honeyeater Lichenostomus cratitus V BC	Inhabits mallee heathlands. A sedentary species that moves in accordance to flowering events.	Yes	1	Possible
Rainbow Bee-eater Merops ornatus M EPBC	Most often found in open forests, woodlands and shrublands, and cleared areas, usually near water. It can be found on farmlands and the species will use disturbed sites such as quarries, cuttings and mines to build its nesting tunnels.	No	N/A	Possible
Red-capped Plover	Occurs on sandy beaches, saltmarches, and saline wetlands and lakes.	No	N/A	Unlikely

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
Charadrius ruficapillus M EPBC				
Red Knot Calidris canutus V EPBC M EPBC	In Australia Red Knot usually occurs in intertidal mudflats, sandflats and sheltered estuaries, bays and inlets. They rarely occur inland.	Yes	1	Unlikely
Red-lored Whistler Pachycephala rufogularis CE BC V EPBC	Occurring as two isolated populations, this species is found in mallee woodland areas with a shrub layer, usually Broombush and native pine such as *Callitris verrucosa,* occasionally with patches of spinifex and mallee creating a dispersed canopy. The Red-lored Whistler is most abundant in areas with a post fire age of 21-40 years, but is known from areas 4-40 years also.	Yes	3	Possible
Red-necked Avocet Recurvirostra novaehollandiae M EPBC	Found in large shallow freshwater or saltwater wetlands and estuarine mudflats.	No	N/A	Possible
Red-necked Stint Calidris ruficollis M EPBC	Found mostly in sheltered coastal bays and lagoons with intertidal mudflats, occasionally inhabit permanent or ephemeral inland water bodies.	Yes	12	Possible
Redthroat Pyrrholaemus brunneus V BC	In NSW the species has been recorded mainly in chenopod shrublands including Old Man Saltbush, Black Bluebush and Dillon Bush shrublands	Yes	33	Possible
Regent Parrot (eastern subspecies) Polytelis anthopeplus monarchoides E BC V EPBC	The eastern population is found in River Red Gum, *Eucalyptus camaldulensis*, floodplain, woodland and mallee.	Yes	17	Possible
Ruddy Turnstone	Widespread across coastal Australia, where it frequents exposed rocky coasts and	Yes	5	Unlikely

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Arenaria interpres V EPBC M EPBC	coral reef. Occasionally recorded inhabiting inland lakes and rivers.			
Satin Flycatcher Myiagra cyanoleuca M EPBC	The Satin Flycatcher is found in tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests.	No	N/A	Unlikely
Scarlet-chested Parrot Neophema splendida V BC	Inhabits semi-arid areas with mallee and mulga scrublands/open woodlands with spinifex and saltbush ground covers.	Yes	1	Possible
Sharp-tailed Sandpiper Calidris acuminata V EPBC M EPBC	Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	Yes	18	Unlikely
Shy Heathwren Hylacola cautus V BC	Occurs in mallee woodlands with a relatively dense understorey of shrubs and heath plants. The species appears in all age classes of vegetation, though believed to prefer either one to five years following fire. Breeds late winter to early summer, where the species builds a dome shaped nest in a concealed location on the ground.	Yes	56	Possible
Southern Scrub-robin Drymodes brunneopygia V BC	The Southern Scrub-robin inhabits Acacia scrub and mallee where particularly a dense sub-shrub is in the understorey (often Broombush and other dry shrubs). Areas of vegetation with a post fire age of 4-80 years is occupied by this species but is most abundant in areas where post fire age is 26-40 years. This species forages for food on the ground, often at the base of mallee trees.	Yes	134	Possible
Southern Whiteface	Occurs in relatively undisturbed open woodlands and shrublands with an	Yes	287	Recorded

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Aphelocephala leucopsis V BC V EPBC	understorey of grasses or shrubs, or both.			
Spotted Harrier Circus assimilis V BC	This medium sized bird occurs in grassy open woodland including remnants of *Acacia* and mallee remnant, inland riparian woodland, grassland and shrub steppe. Most commonly found in native grassland, this species is also known from agricultural land where it forages over open habitat (incl. inland wetland edges). This species preys mainly on terrestrial mammals, other birds and reptiles.	Yes	72	Possible
Square-tailed Kite Lophoictinia isura V BC	Found in a variety of timbered habitats including woodlands and open forests with a particular preference for timbered watercourses.	Yes	7	Possible
Striated Grasswren (sandplain) Amytornis striatus howei E BC E EPBC	Only occurs in areas with mature spinifex, usually in association with mallee eucalypts and sandy soil.	Yes	87	Unlikely
Swift Parrot Lathamus discolor E BC CE EPBC M EPBC	On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations.	No	N/A	Unlikely
Varied Sittella Daphoenositta chrysoptera V BC	Found in forests and woodlands including mallee and acacia	Yes	32	Possible
White-bellied Sea-Eagle Haliaeetus leucogaster V BC M EPBC	Found in coastal areas and inland waterways where it hunts fish.	Yes	10	Possible

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White-fronted Chat Epthianura albifrons V BC	The White-fronted Chat occupies foothills and lowlands up to 1000m and mostly in the southern half of the state in NSW in damp open habitats along the coast and near waterways along the western parts of NSW. Often foraging through bare or grassy ground in wetland areas, this species is noted either singly or in pairs. In coastal areas, it is mainly found in saltmarsh vegetation and open grasslands (sometimes in low shrubs adjacent to wetlands). Some nests located in Sydney have been observed in low isolated mangroves.	Yes	91	Recorded
White-throated Needletail Hirundapus caudacutus V EPBC M EPBC	Almost entirely aerial in Australia. Most often recorded above wooded habitats. This species forages aerially, sometimes at great heights.	Yes	1	Possible
Wood Sandpiper Tringa glareola M EPBC	Known to visit shallow freshwater wetlands. They prefer ponds and pools with emergent reeds and grass, surrounded by tall plants or dead trees and fallen timber.	No	N/A	Unlikely
Yellow Wagtail Motacilla flava M EPBC	Occurs in a variety of habitats, favouring damp or wet vegetation. Forages on the edges of rivers, dams and wetlands.	No	N/A	None
AMPHIBIANS				
Southern Bell Frog Litoria raniformis E BC V EPBC	A large frog, usually near permanent or ephemeral Black Box/Lignum/Nitre Goosefoot swamps, Lignum/Typha swamps and Red Gum swamps along floodplains and river valleys. Sometimes found in amongst agricultural crops where irrigated, if no natural habitat is available.	Yes	50	Possible

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REPTILES				
Canberra Grassland Earless Dragon Tympanocryptis lineata CE EPBC CE BC	Restricted to a small number of Natural Temperate Grassland sites within the ACT and adjacent grasslands near Queanbeyan.	Yes	10	Not applicable. This species occurs near Canberra, not in western NSW
Grey Snake Hemiaspis damelii E BC E EPBC	Floodplains and ephemeral wetlands associated with heavy clay soils are key habitat features for the Grey Snake	No	N/A	None
Jewelled Gecko Strophurus elderi V BC	Restricted to habitats containing spinifex on red sandy plains or dunes and to a lesser extent stony hills. Spinifex may occur as a dominant groundcover with little to no overstorey vegetation or in association with mallee, cypress pine or acacia woodlands.	Yes	35	Possible
Mallee Slender Blue-tongue Lizard Cyclodomorphus melanops elongates E BC	In NSW, animals inhabit mallee/spinifex communities on a sandy or mixed sand/gravel substrate (plains, ridges or hillslopes). It is assumed that the species seeks refuge in vegetation clumps such as spinifex and in fallen timber and leaf litter.	Yes	10	Possible
Mallee Worm-lizard Aprasia inaurita E BC	Inhabits semi-arid, mallee woodlands on red sands. Often shelters in sand, beneath mallee stumps, in leaf litter or in the nests of ants and other insects; thought to be dependent on Spinifex (*Triodia scariosa*).	Yes	3	Possible
Marble-faced Delma Delma australis E BC	Most of the records for this species are centred on Round Hill and Nombinnie. In NSW, the Marble-faced Delma appears to be restricted to spinifex grasslands or temperate mallee woodlands. Sandy substrate is often utilised although cracking red loam soils have been noted	Yes	45	Possible

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	also. Deep leaf litter, rocks, logs, fallen timber and clumps of grass such as spinifex are important elements of preferred habitat.			
Ringed Brown Snake Pseudonaja modesta E BC	Occurs in dry areas, usually in rocky outcrops and dry watercourses. Inhabits a wide variety of vegetation types.	Yes	35	Possible
Western Blue-tongued Lizard *Tiliqua occipitalis* V BC	Inhabits plains, swales, ranges, and sometimes dunes of loamy or clay/sandy soils vegetated by woodlands, especially mallee, shrublands, heaths or hummock grasslands.	Yes	15	Possible
Yellow-tailed Plain Slider Lerista xanthura V BC	Occurs on grassed alluvial sands and sand dunes, including dry open woodlands and spinifex-dominated red sand plains.	Yes	9	Possible
FISH				
Flathead Galaxias Galaxias rostratus CE EPBC CE FM	Flathead Galaxias is a freshwater fish. It is generally found mid-water in still and gently moving waters of small streams, lakes, lagoons, billabongs and backwaters. Its habitat consists of coarse sand or mud substrate and aquatic vegetation.	No	N/A	None
Macquarie Perch Macquaria australasica E EPBC E FM	Occurs in clear water and deep, rocky holes with lots of cover. As well as aquatic vegetation, additional cover may comprise of large boulders, debris and overhanging banks.	No	N/A	None
Murray Cod Maccullochella peelii V EPBC	The Murray Cod has the ability to live in a diverse range of habitats, including clear rocky streams, to slow flowing, turbid rivers and billabongs.	Yes	N/A	None
Murray Hardyhead Craterocephalus fluviatilis E EPBC	Murray Hardyhead live along the edges of wetlands and slow-flowing lowland rivers. They are often found among aquatic plants, particularly in	No	N/A	None

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CE FM	saline waters containing few other fish species.			
Silver Perch Bidyanus bidyanus CE EPBC V FM	Inhabits freshwater rivers, lakes and reservoirs, particularly in areas of high water flow.	Yes	N/A	None
Trout Cod Maccullochella macquariensis E EPBC	Recent research in the Murray and Murrumbidgee Rivers show that Trout Cod occupy stream positions characterised by a high abundance of large woody debris (or 'snags') in water that is comparatively deep and close to riverbanks. However, midstream snags are also an important habitat component	No	N/A	None
MAMMALS				
Greater Bilby Macrotis lagotis PE BC V EPBC	Once wide-spread in arid, semi-arid and fertile areas, now restricted to arid regions of Australia. Translocated population occurs nearby.	Historical, Presumed Extinct in the wild in NSW	1	None
Bolam's Mouse Pseudomys bolami E BC	Semi-arid woodlands and shrublands, usually with chenopod shrub species.	Yes	120	Possible
Burrowing Bettong Bettongia lesueur V EPBC	Once occurred across nearly half of Australia. Mainland subspecies now extinct.	Historical, Presumed Extinct in the wild in NSW	1	None
Bridled Nail-tail Wallaby Onychogalea fraenata PE BC E EPBC	Occurred in Acacia shrubland and grassy woodland in semi-arid regions of eastern Australia. Translocated population occurs nearby at Scotia Sanctuary.	Historical, Presumed Extinct in the wild in NSW	N/A	None
Crescent Nailtail Wallaby Onychogalea lunata PE BC E EPBC	Species is extinct.	Historical, Presumed Extinct in the wild in NSW	1	None

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Eastern Hare-wallaby Lagorchestes leporides PE BC E EPBC	Species is extinct.	Historical, Presumed Extinct in the wild in NSW	1	None
Desert Mouse Pseudomys desertor CE BC	Most records are from sand dunes or sand plain habitats dominated by spinifex.	Yes	2	Unlikely
Golden Bandicoot (mainland) Isoodon auratus PE BC V EPBC	Once occurred across nearly half of Australia. Currently restricted to Barrow Island, WA.	Historical, Presumed Extinct in the wild in NSW	1	None, Listed as Presumed Extinct in NSW
Greater Stick-nest Rat Leporillus conditor PE BC V EPBC	Extinct in NSW.	Historical, Presumed Extinct in the wild in NSW	2	None, Listed as Presumed Extinct in NSW
Koala (combined populations of QLD, NSW and ACT) Phascolarctos cinereus E BC E EPBC	The Koala inhabits eucalypt woodland and forest, foraging on over 100 different species (Eucalypt and other) although will browse from preferred species where available. Generally solitary but lives within a complex social hierarchy structure.	Yes	3	Unlikely
Kultarr Antechinomys laniger E BC	Inhabits open country, especially claypans among *Acacia* woodlands.	Yes	1	Unlikely
Mitchell's Hopping Mouse Notomys mitchellii PE BC	Species is extinct in NSW.	Historical, Presumed Extinct in the wild in NSW	2	None, Listed as Presumed Extinct in NSW
Numbat Myrmecobius fasciatus PE BC V EPBC	Species is extinct in NSW. Reintroduced population located at Scotia Sanctuary.	Historical, Presumed Extinct in the wild in NSW	1	None, Listed as Presumed Extinct in NSW

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Pig-footed Bandicoot Chaeropus ecaudatus PE BC E EPBC	Species is extinct.	Historical, Presumed Extinct in the wild in NSW	1	None. Listed as Presumed Extinct in NSW
Sandy Inland Mouse Pseudomys hermannsburgensis V BC	Occurs in a wide variety of woodland including Coolabah and Acacia woodland, tall open shrubland and hummock grassland.	Yes	3	Possible
Southern Hairy-nosed Wombat Lasiorhinus latifrons E BC	Occurs in semi-arid grassland and open woodland.	Yes	2	Unlikely
Southern Ningaui Ningaui yvonneae V BC	Shelters in spinifex clumps, beneath logs, and in dense vegetation, but may also dig its own burrows.	Yes	780	Possible
Stripe-faced Dunnart Sminthopsis macroura V BC	Prefers native dry grasslands and low dry shrublands, particularly along drainage lines where resources are often more available.	Yes	2	Possible
Western Pygmy Possum Cercartetus concinnus E BC	Wheatbelt and mallee areas in a variety of habitats with suitable flowering plants.	Yes	6	Possible
Western Quoll Dasyurus geoffroii PE BC V EPBC	Species is extinct in NSW.	Historical, Presumed Extinct in the wild in NSW	1	None. Listed as Presumed Extinct in NSW
Woylie Bettongia penicillata ogilbyi PE BC E EPBC	Presumed extinct in NSW. Reintroduced population located at Scotia Sanctuary.	Historical, Presumed Extinct in the wild in NSW	3	None. Listed as Presumed Extinct in NSW

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MICROCHIROPTERA				
Corben's Long-eared Bat Nyctophilus corbeni V BC V EPBC	The distribution of the south-eastern form of Corben's Long-eared Bat coincides with the area of the Murray Darling Basin with Pilliga Scrub regions being the most favoured area of habitation. This species roosts in tree hollows, crevices and under loose bark. As a slow flying agile species, it utilises the understorey to hunt for non-flying prey items such as caterpillars and beetles. They will also hunt on the ground. This species is more common where vegetation structure includes box/ironbark/cypress-pine in areas along the western slopes and plains of NSW and southern Queensland.	Yes	5	Possible
Inland Forest Bat Vespadelus baverstocki V BC	Roosts in tree hollows and abandoned buildings. Known to roost in very small hollows in stunted trees only a few metres high.	Yes	38	Possible
Little Pied Bat Chalinolobus picatus V BC	Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress-pine forest, mallee, Bimbil box. Roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings.	Yes	19	Possible
Yellow-bellied Sheathtail-bat Saccolaimus flaviventris V BC	Roosts in tree hollows and buildings in groups of up to six. Occurs in a wide range of habitat types.	Yes	2	Possible
ECOLOGICAL COMMUNITIES				
Acacia loderi shrublands EEC BC	The community has a naturally open structure of individual shrubs to small trees (to 8 m tall) with a low, diverse understorey dominated by chenopod sub-shrubs, herbs and grasses. The community is often interspersed by	-	N/A	Possible

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	woodlands of Belah *Casuarina pauper*, Rosewood *Alectryon oleifolius* or *Flindersia maculosa*.			
Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions EEC BC	The community occurs on red-brown, sandy loam soils as scattered patches grading into surrounding woodlands dominated by Belah and Western Rosewood, White Cypress Pine (*Callitris glaucophylla*) or sandplain mallee.	-	N/A	Possible
Artesian Springs Ecological Community n the Great Artesian Basin	The *Artesian Springs* Ecological Community is the name given to the ecological community that is naturally restricted to artesian springs at the southern and western margins of the Great Artesian Basin in north western NSW	-	N/A	Unlikely
Buloke Woodlands of the Riverina and Murray Darling Depression Bioregions E EPBC	Occurs as tracts or patches within open forest or woodlands dominated by other species, commonly associated with clay and or alkaline sub-soil. This is an open woodland with a well developed grassy ground cover. Buloke is the common species however Slender Cypress Pine and Grey Box may be associated, even abundant.	-	N/A	Possible
Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions EEC BC E EPBC	Characterised by Coolibah (*Eucalyptus coolabah*) and, in some areas, Black Box (*E. largifolrens*). Occurs in grey self-mulching clays of periodically waterlogged floodplains, swamp margins, ephemeral wetlands and stream levees.	-	N/A	None
Mallee Bird Community of the Murray Darling Depression Bioregion E EPBC	Mallee ecosystems occur in the drier parts of Australia, south of the arid zone in WA, SA, NSW, and Victoria.	-	N/A	Recorded

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Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plain Bioregions CE EPBC	The primary diagnoistic for this community is the dominance of Black Mallee Box or Bull Mallee. In NSW, it occurs primarily in the Kyalite-Tooleybuc-Koraleigh-Speewa area with possible extensions east toward Moulamein.	-	N/A	Unlikely
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions EEC BC	Sandhill Pine Woodland typically occupies red-brown loamy sands with alkaline sub-soils on the alluvial plain of the Murray River and its tributaries, and on parts of the sandplain in south-western NSW.	-	N/A	Recorded
Tecticornia lylei, Wiry Glasswort, loa shrubland in the Murray Darling Depression Bioregion	*Tecticornia lylei*, Wiry Glasswort, low open-shrubland is an Endangered Ecological Community dominated by the chenopod shrub *T. lylei*. It occurs on saline clay soils on the beds of small salt lakes and around the perimeter of larger salt lakes.	-	N/A	Unlikely based on extensive survey by Principal Ecologist on adjoining lands
FLORA				
A saltbush *Atriplex infrequens* V BC V EPBC	*Atriplex infrequens* is associated with broad drainage tracts, clay flats and possibly occasionally inundated habitats. Very little ecological information is available for this species so its critical habitat components can only be speculated as relatively undisturbed and ungrazed drainage lines and flats.	Yes	1	Unlikely
Nulla Grass Austrostipa nullanulla E BC	Restricted to gypseous lunettes and copi rises, especially on the margins of relict lakes.	Yes	34	Recorded
Bitter Quandong Santalum murrayanum	Generally grows in gravely and sandy loam soils on dunes, in open woodland and tall shrubland. Also recorded	Yes	17	Possible

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E BC	in sand in spinifex-shrub steppe.			
Bladder Senna Swainsona colutoides E BC	Bladder Senna grows on sandy flats or skeletal hillside soils in mallee woodland. Found in high density in areas of previously burnt vegetation.	Yes	28	Possible
Bluebush Daisy Cratystylis conocephala E BC	Grows in mallee with areas of Belah, with calcareous red soil.	Yes	49	Possible
Button Immortelle Leptorhynchos waitzia E BC	Occurs in sandy or loamy soils on salt flats or intermittently inundated areas.	Yes	1	Possible
Desert Greenhood Pterostylis xerophila V EPBC	Little is known about the precise habitat. In Victoria, it occurs in open mallee scrublands, usually on rocky outcrops or stony rises, on well-drained red sands and heavier clay loams.	None	N/A	Unlikely
Desert Hopbush Dodonaea stenozyga CE BC	Occurs in semi-arid mallee scrub or open eucalypt woodland on sandy soil.	Yes	19	Possible
Fleshy Minuria Kippistia suaedifolia E BC	Grows around saline lakes and depressions, often in association with gypsum.	Yes	2	Possible
Greencomb Spider-orchid Caladenia tensa E EPBC	The Greencomb Spider-orchid grows on red-brown sandy loams on rises in open woodland dominated by Yellow Gum (Eucalyptus leucoxylon sens. lat.) and Rottnest Island Pine (Callitris preissii).	None	N/A	Unlikely
Harrow Wattle Acacia acanthoclada E BC	Grows in mallee communities on ridges and dunes and very occasionally on rocky outcrops; generally grows in deep, loose, sandy soil.	Yes	5	Possible
Menindee Nightshade	Habitats are generally lake beds or floodplains of heavy grey clays with a highly self-mulching surface. Also found	Yes	7	Possible

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
Solanum karsense V BC V EPBC	on sandy floodplains and ridges and in calcareous soils, red sands, red-brown earths and loamy soils.			
Mossgiel Daisy Brachyscome papillosa V BC V EPBC	Recorded primarily in clay soils on Bladder Saltbush (Atriplex vesicaria) and Leafless Bluebush (Maireana aphylla) plains, but also in grassland and in Inland Grey Box (Eucalyptus microcarpa) - Cypress Pine (Callitris spp.) woodland.	No	N/A	None
Purple-wood Wattle Acacia carneorum V BC V EPBC	Grows in grassland and woodland in red, sandy soil; also found in Mulga communities on sand dunes, level sandy sites and alluvial accumulations along watercourses; recorded from inland semi-arid Acacia and Casuarina shrublands and woodlands.	No	N/A	None
Ridged Water-milfoil Myriophyllum porcatum V EPBC	An aquatic species that occurs in shallow, ephemeral wetlands (including lakes, swamps, rock pools in granite outcrops, waterholes in claypans) and highly modified habitats (including farm dams and drainage lines on private land).	No	N/A	Unlikely
Slender Darling-pea Swainsona murrayana V BC V EPBC	Associated with clay soils, but known from grey, red and brown earth. Has been found in many vegetation types including grassland, black box and bladder saltbush communities on level plains, floodplains and depressions, often with *Maireana* species. Possibly encouraged by light disturbance.	No	N/A	Unlikely
Stiff Groundsel Senecio behrianus PE BC E EPBC	Once widespread on the floodplains of the Murray-Darling river system, extant populations grow on poorly drained sedimentary soil on or close to floodplains.	Yes	1	Unlikely

Common Name Scientific Name Legal Status	Habitat	Recorded previously in locality	Number of records	Likelihood of biota occurring within subject site
Tetratheca pilosa subsp. Pilosa PE BC	Extinct in NSW.	Presumed Extinct in NSW	1	None
Winged Pepper-cress Lepidium monoplocoides E BC E EPBC	Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by Allocasuarina luehmannii (Bulloak) and/or eucalypts, particularly Eucalyptus largiflorens (Black Box) or Eucalyptus populnea (Poplar Box). The field layer of the surrounding woodland is dominated by tussock grasses.	Yes	3	Possible
Yellow Swainson-pea Swainsona pyrophila V BC V EPBC	Found in mallee scrub, usually found to germinate only after fire and subsequent rain	No	N/A	Unlikely

APPENDIX 3 – PROTECTED MATTERS SEARCH TOOL RESULTS

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 19-Jan-2024

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	48
Listed Migratory Species:	17

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	7
Commonwealth Heritage Places:	None
Listed Marine Species:	28
Whales and Other Cetaceans:	None
Critical Habitats:	1
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	34
Regional Forest Agreements:	None
Nationally Important Wetlands:	8
EPBC Act Referrals:	37
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

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

Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	40 - 50km upstream from Ramsar site	In feature area
Riverland	Within Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	150 - 200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	Community known to occur within area	In feature area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area	In feature area
Mallee Bird Community of the Murray Darling Depression Bioregion	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Amytornis striatus howei Murray Mallee Striated Grasswren, Striated Grasswren (sandplain) [91648]	Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat may occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In buffer area only
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern) [82926]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Manorina melanotis Black-eared Miner [449]	Endangered	Species or species habitat known to occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pachycephala rufogularis Red-lored Whistler [601]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Polytelis anthopeplus monarchoides Regent Parrot (eastern) [59612]	Vulnerable	Breeding likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In buffer area only
FISH			
Bidyanus bidyanus Silver Perch, Bidyan [76155]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Craterocephalus fluviatilis Murray Hardyhead [56791]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In feature area
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In buffer area only
FROG			
Litoria raniformis Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat known to occur within area	In feature area
MAMMAL			
Bettongia lesueur lesueur Burrowing Bettong (Shark Bay), Boodie [66659]	Vulnerable	Translocated population known to occur within area	In buffer area only
Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat known to occur within area	In buffer area only
Leporillus conditor Wopilkara, Greater Stick-nest Rat [137]	Vulnerable	Translocated population known to occur within area	In buffer area only
Macrotis lagotis Greater Bilby [282]	Vulnerable	Translocated population known to occur within area	In buffer area only
Myrmecobius fasciatus Numbat [294]	Endangered	Translocated population known to occur within area	In buffer area only
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Onychogalea fraenata			
Bridled Nail-tail Wallaby, Bridled Nailtail Wallaby [239]	Endangered	Species or species habitat known to occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
PLANT			
Acacia carneorum			
Needle Wattle, Dead Finish, Purple-wood Wattle [66685]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Atriplex infrequens			
[4143]	Vulnerable	Species or species habitat known to occur within area	In feature area
Brachyscome papillosa			
Mossgiel Daisy [6625]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Caladenia tensa			
Greencomb Spider-orchid, Rigid Spider-orchid [24390]	Endangered	Species or species habitat may occur within area	In buffer area only
Lepidium monoplocoides			
Winged Pepper-cress [9190]	Endangered	Species or species habitat likely to occur within area	In feature area
Myriophyllum porcatum			
Ridged Water-milfoil [19919]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pterostylis xerophila			
Desert Greenhood [7997]	Vulnerable	Species or species habitat may occur within area	In feature area
Solanum karsense			
Menindee Nightshade [7776]	Vulnerable	Species or species habitat known to occur within area	In feature area
Swainsona murrayana			
Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Swainsona pyrophila			
Yellow Swainson-pea [56344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
REPTILE			
Hemiaspis damelii			
Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea			
Grey Wagtail [642]		Species or species habitat may occur within area	In buffer area only
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat known to occur within area	In buffer area only
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In buffer area only
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Telecommunications Commission [15187]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [15199]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [15651]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [15657]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [15659]	NSW	In buffer area only
Defence		
Defence - KAIRIVU BARRACKS - MILDURA [20998]	VIC	In buffer area only
Environment and Heritage		
Commonwealth Land - Calperum Station [86]	SA	In buffer area only

Listed Marine Species

[Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Breeding known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area overfly marine area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In buffer area only
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stiltia isabella Australian Pratincole [818]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In buffer area only
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area overfly marine area	In buffer area only

Critical Habitats [Resource Information]

Name	Type of Presence	Buffer Status
Manorina melanotis (Black-eared Miner) - Gluepot Reserve, Taylorville Station and Calperum Station, excluding the area of Calperum Station south and east of Main Wentworth Road.	Listed Critical Habitat	In buffer area only

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Bambill B.R	Natural Features Reserve	VIC	In buffer area only
Benetook B.R.	Natural Features Reserve	VIC	In buffer area only
Chowilla	Game Reserve	SA	In buffer area only
Chowilla	Regional Reserve	SA	In buffer area only
Danggali	Wilderness Protection Area	SA	In buffer area only
Danggali	Conservation Park	SA	In buffer area only
Karawinna B.R	Natural Features Reserve	VIC	In buffer area only

Protected Area Name	Reserve Type	State	Buffer Status
Karween B.R.	Natural Features Reserve	VIC	In buffer area only
Lake Walla Walla	Reference Area	VIC	In buffer area only
Merbein B.R.	Natural Features Reserve	VIC	In buffer area only
Merbein South F.R.	Nature Conservation Reserve	VIC	In buffer area only
Meringur F.R.	Nature Conservation Reserve	VIC	In buffer area only
Merrinee B.R.	Natural Features Reserve	VIC	In buffer area only
Mildura I220A B.R.	Natural Features Reserve	VIC	In buffer area only
Millewa	Reference Area	VIC	In buffer area only
Morkala B.R.	Natural Features Reserve	VIC	In buffer area only
Morkalla - Red Cliffs Railway B.R.	Natural Features Reserve	VIC	In buffer area only
Murray - Sunset	National Park	VIC	In buffer area only
Nanya Station	NRS Addition - Gazettal in Progress	NSW	In buffer area only
Nearie Lake	Nature Reserve	NSW	In buffer area only
Pirlta B.R.	Natural Features Reserve	VIC	In buffer area only
River Murray Reserve	Natural Features Reserve	VIC	In buffer area only
River Murray Reserve (non-PV)	Natural Features Reserve	VIC	In buffer area only
Scotia	Private Nature Reserve	NSW	In buffer area only
Tarawi	Nature Reserve	NSW	In buffer area only
Toupnein Creek	Reference Area	VIC	In buffer area only
Unnamed (No.HA1165)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1544)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1582)	Heritage Agreement	SA	In buffer area only

Protected Area Name	Reserve Type	State	Buffer Status
Unnamed (No.HA311)	Heritage Agreement	SA	In buffer area only
Unnamed P0268	Private Nature Reserve	VIC	In buffer area only
Wargan-Mallee B.R.	Natural Features Reserve	VIC	In buffer area only
Werrimull B.R.	Natural Features Reserve	VIC	In buffer area only
Yarrara F.F.R.	Nature Conservation Reserve	VIC	In buffer area only

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Cardross Lakes	VIC	In buffer area only
Darling Anabranch Lakes	NSW	In buffer area only
Lake Ranfurly	VIC	In buffer area only
Lake Wallawalla	VIC	In buffer area only
Lindsay Island	VIC	In buffer area only
Riverland Wetland Complex	SA	In buffer area only
Wallpolla Island	VIC	In buffer area only
Wargan Basins (Meridian Lakes)	VIC	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Lindsay Island Floodplain Restoration Project, VIC	2020/8765		Assessment	In buffer area only
Yelta solar energy generation facility	2022/09363		Completed	In buffer area only
Controlled action				
Electricity Transmission Line	2001/380	Controlled Action	Completed	In feature area
EnergyConnect NSW - Western Section	2020/8673	Controlled Action	Post-Approval	In feature area
Great Darling Anabranch - pipeline construction and environmental water flow ma	2004/1319	Controlled Action	Post-Approval	In feature area
SA-NSW Energy Interconnector, Robertstown to NSW Border, SA	2019/8468	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Temporarily disconnect nine wetlands from the Murray River for drought manage...	2007/3496	Controlled Action	Completed	In buffer area only
Temporary disconnection of Nelwood Swamp and Horseshoe Lagoon from the River Mu	2007/3786	Controlled Action	Completed	In buffer area only
Wallpolla Island Floodplain Restoration Project	2020/8750	Controlled Action	Assessment Approach	In buffer area only
Not controlled action				
Capture of Juvenile Murray Hardyheads to Establish a Captive Management and Breeding Prog	2008/4015	Not Controlled Action	Completed	In buffer area only
Construct a steel frame shed to house and operate new automation and fertigation	2004/1609	Not Controlled Action	Completed	In buffer area only
Construction of an environmental flow regulator on lower Chowilla Creek	2007/3307	Not Controlled Action	Completed	In buffer area only
Conversion of the North Western Victoria rail system from broad gauge to standar	2002/657	Not Controlled Action	Completed	In buffer area only
groundwater monitoring wells and soil samples	2005/2045	Not Controlled Action	Completed	In buffer area only
Improving environmental flows at Horseshoe Lagoon	2006/2548	Not Controlled Action	Completed	In buffer area only
Improving environmental flows at Webster's Lagoon	2006/2546	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Lake Merreti Inlet Structure-increasing of hydrological capacity	2004/1509	Not Controlled Action	Completed	In buffer area only
Lindsay-Wallpolla Island Environmental Flows Project	2005/2365	Not Controlled Action	Completed	In buffer area only
Modifications to Lock and Weir 10 Wentworth	2004/1367	Not Controlled Action	Completed	In buffer area only
Modifications to Lock and Weir 9, Kulnine	2004/1366	Not Controlled Action	Completed	In buffer area only
New rock ramp fishway/Bank E	2006/3033	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Permanent plantings of citrus and wine grapes on allotment 9, Murtho Rd	2004/1512	Not Controlled Action	Completed	In buffer area only
Release of Captive Bridled Nailtail Wallabies	2010/5447	Not Controlled Action	Completed	In buffer area only
Riverland Salt Disposal Project - Noora Basin	2008/4039	Not Controlled Action	Completed	In buffer area only
River Murray Lock and Weir No 7 Upgrade	2002/626	Not Controlled Action	Completed	In buffer area only
Section 18 DP55550 Permanent Citrus Planting	2003/1172	Not Controlled Action	Completed	In buffer area only
Trial artificial flooding to assess response of River Red Gums	2004/1374	Not Controlled Action	Completed	In buffer area only
Upgrade of River Murray Lock and Weir No 8	2002/627	Not Controlled Action	Completed	In buffer area only
Upgrade Weirs in the Chowilla Floodplain	2006/3098	Not Controlled Action	Completed	In buffer area only
Upper Lindsay Watercourse Enhancement Project, Vic	2012/6539	Not Controlled Action	Completed	In buffer area only
Water management structures	2009/4991	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Murtho Salt Interception Scheme	2008/4564	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Ginkgo mineral sands project	2002/597	Referral Decision	Completed	In buffer area only
Permanent plantings of citrus and/or wine grapes on allotment 102, Murtho Rd	2004/1744	Referral Decision	Completed	In buffer area only

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

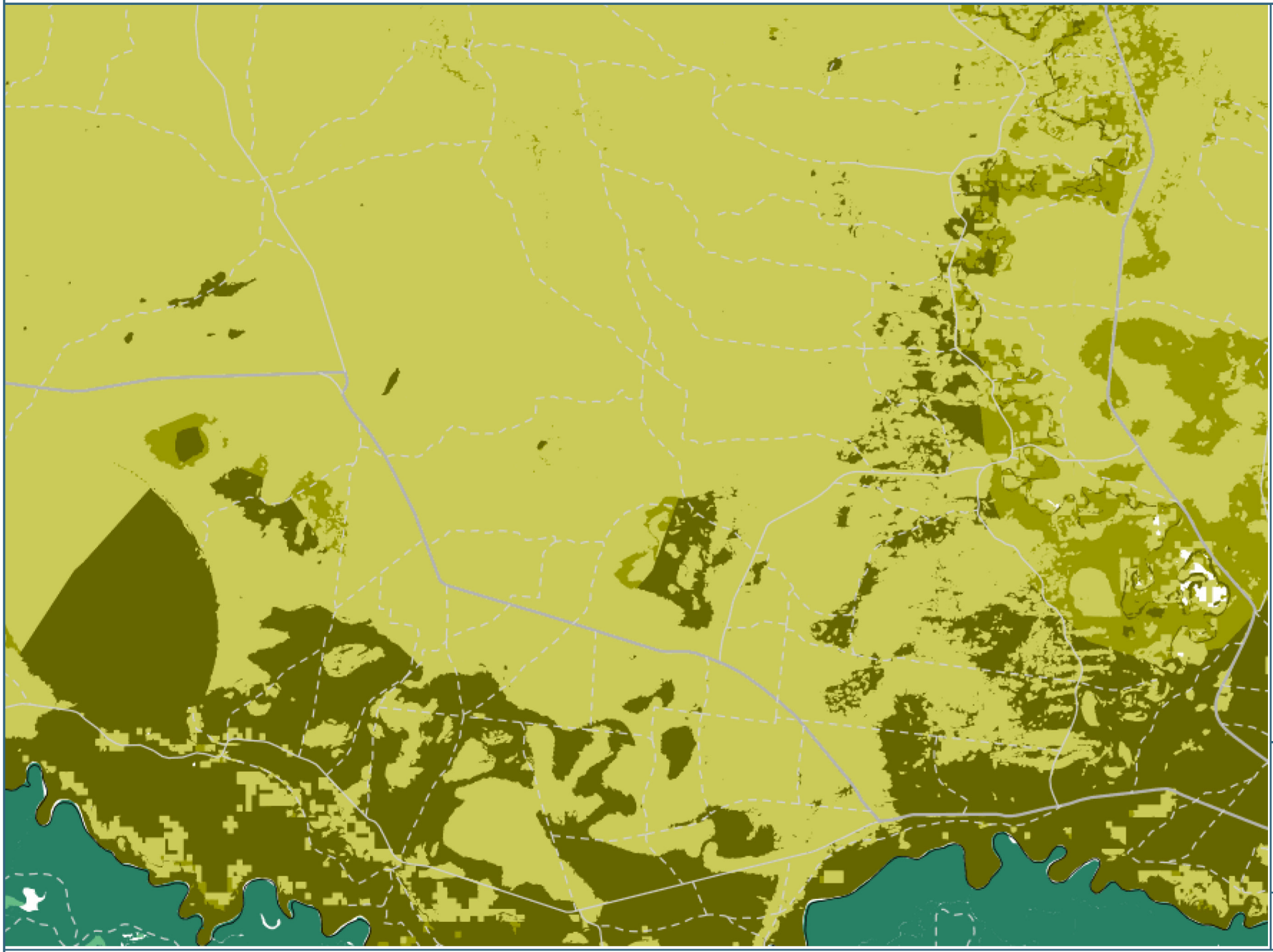
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GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

APPENDIX 4 – GROUNDWATER DEPENDENT ECOSYSTEM SEARCH RESULTS

Australian Government
Bureau of Meteorology

Groundwater Dependent Ecosystems Atlas

Terrestrial GDE



Data Source: Bureau of Meteorology, Geoscience Australia and State/Territory lead water agencies. Refer to metadata for further information: Click here

Australian Albers GDA94

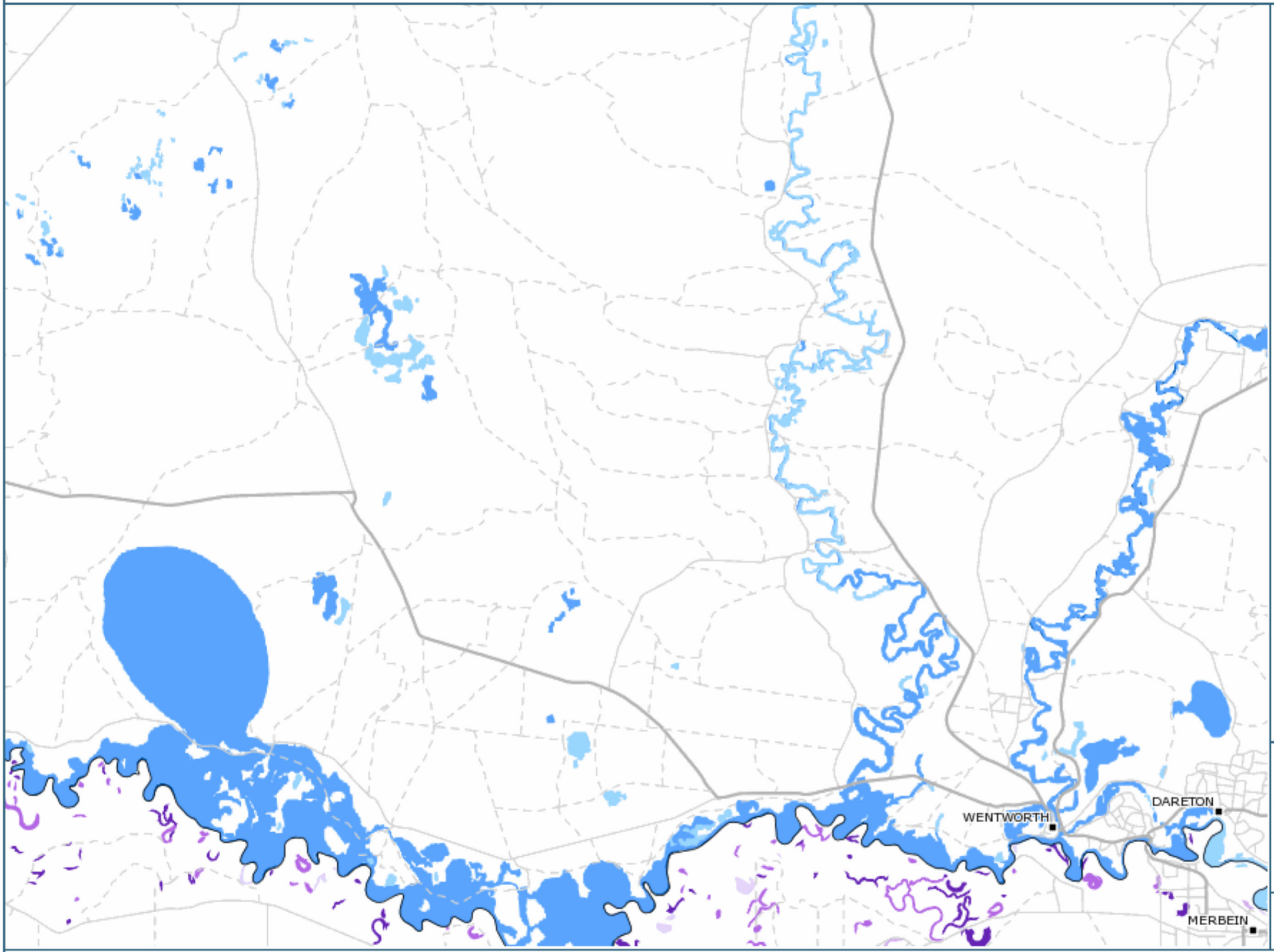
CC BY

Date: 18 March, 2024

Australian Government
Bureau of Meteorology

Groundwater Dependent Ecosystems Atlas

Aquatic GDE



Aquatic GDE

- Known GDE (regional study)
- High potential GDE (regional study)
- Moderate potential GDE (regional study)
- Low potential GDE (regional study)
- Unclassified potential GI (regional study)
- High potential GDE (national assessment)
- Moderate potential GDE (national assessment)
- Low potential GDE (national assessment)
- Unclassified potential GI (national assessment)

Islands

- Islands

N

1:446,930

Kilometres 10

Data Source: Bureau of Meteorology, Geoscience Australia and State/Territory lead water agencies. Refer to metadata for further information: Click here

Australian Albers GDA94

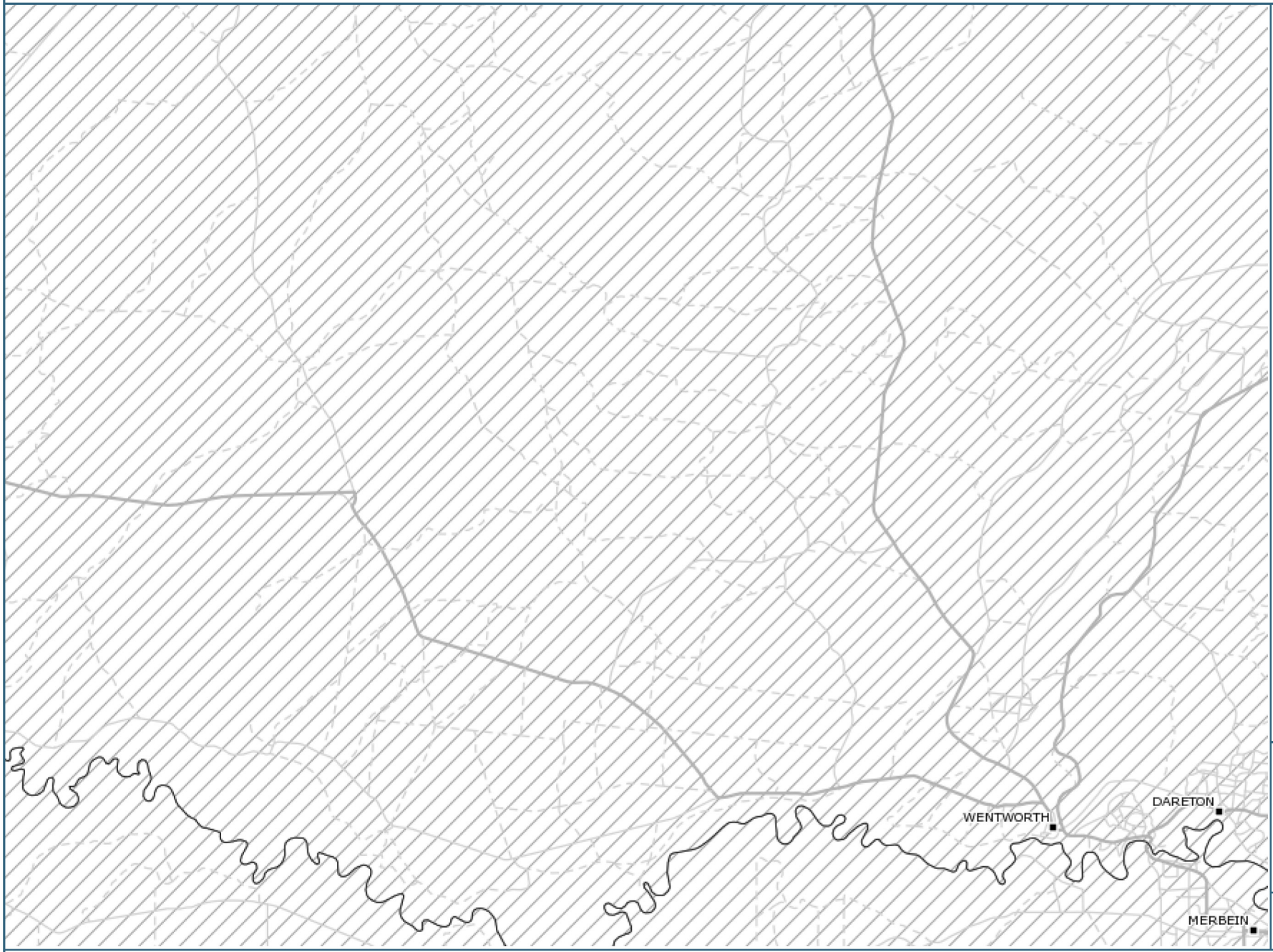
CC BY

Date: 18 March, 2024

Australian Government
Bureau of Meteorology

Groundwater Dependent Ecosystems Atlas

Subterranean GDE



Subterranean GDE

- Known GDE (regional study)
- High potential GDE (regional study)
- Moderate potential GDE (regional study)
- Low potential GDE (regional study)
- Unclassified potential GI (regional study)

Subterranean GDE (no data)

- No ecosystems analyse

Islands

- Islands

Mainland

- Mainland

N

1:446,930

Kilometres 10

Data Source: Bureau of Meteorology, Geoscience Australia and State/Territory lead water agencies. Refer to metadata for further information: Click here

Australian Albers GDA94

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Date: 18 March, 2024

Appendix E
Preliminary Noise and Vibration Assessment



Technical Memorandum

To:	Aurecon Australasia Pty Ltd	**From:**	**SLR Consulting Australia**
	Level 11/73 Miller St, North Sydney NSW 2060	**Date:**	April 4, 2024
		Project No.	610.0313660.00001

RE: Lake Victoria Wind Farm
Preliminary Noise Assessment

1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Aurecon Australasia Pty Ltd (Aurecon) to provide a preliminary screening assessment of potential noise impacts to inform the planning being undertaken for the Lake Victoria Wind Farm ('the Project'). Aurecon has been engaged to provide environmental planning and assessment services by the Project proponent WestWind Energy Development Pty Ltd (WestWind).

The NSW Government has a wind energy framework to provide greater clarity, consistency and transparency for industry and the community regarding both assessment and decision-making on wind energy projects. The NSW Department of Planning and Environment released the Wind Energy Noise Assessment Bulletin for State significant wind energy development in December 2016. During the Scoping and Pre-lodgement phase of a project it requires the following:

> *Proponents of wind energy projects are required to consider the potential noise impacts of a wind energy project at all stages of the project, including during the site selection and project design phase, where the development should be designed to minimise noise impacts.*
>
> *At the pre-lodgement stage, a proponent should undertake an indicative noise impact assessment of noise levels expected at all receivers. The indicative noise assessment will form part of the Preliminary Environmental Assessment to be submitted when making a request for SEARs. While it is recognised that a project's design may change at the development application stage, it is important to provide early indicative noise predictions using simple modelling techniques and conservative assumptions. Such assumptions would include using the maximum sound power level of the likely turbine proposed and calculated under the worst case noise propagation conditions. These indicative predictions should be compared against the base criteria adopted in NSW of 35 dB(A), unless detailed studies support more elevated criteria on the basis of prevailing background noise levels.*

This report has been prepared as a preliminary screening noise assessment for the Project.

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2.0 Project Description

The Project involves the establishment of a wind energy facility including wind turbines generators (WTGs) and associated electrical infrastructure approximately 24 km northwest of Wentworth, New South Wales (NSW).

The project site is located within the Wentworth Shire Local Government Area (LGA) and the total area covers approximately 41,700 ha. The Project is located on privately owned farmland currently used for agricultural grazing.

The development will consist of up to 203 turbines with an installed capacity of approximately 1.5 Gigawatts (GW).

A State Significant Development (SSD) application will be made for the Project to the NSW Department of Planning, Housing and Infrastructure (DPHI).

2.1 Characteristics of the site

The project site incorporates two landowners and four leaseholders. A preliminary noise assessment has been carried out for all dwellings within around 12 kilometres of the turbine locations.

The project site is bounded by Nulla Road to the west. The elevation of the site ranges between approximately 30 m to 70 m above sea level. The surrounding district is primarily used for agricultural (grazing) purposes with surrounding areas comprised of intact and degraded native vegetation.

Wentworth has a semi-arid climate with hot summers and mild winters. It has a mean annual rainfall of around 285 mm. Prevailing winds are southwesterlies.

All receivers surrounding the project site are expected to have an ambient background noise environment that is determined by pre-dominantly natural sources which are largely wind influenced. This preliminary screening assessment only considers the relevant base noise limits. It is anticipated that baseline noise monitoring will be completed in a subsequent detailed noise assessment.

2.2 Receiver Locations

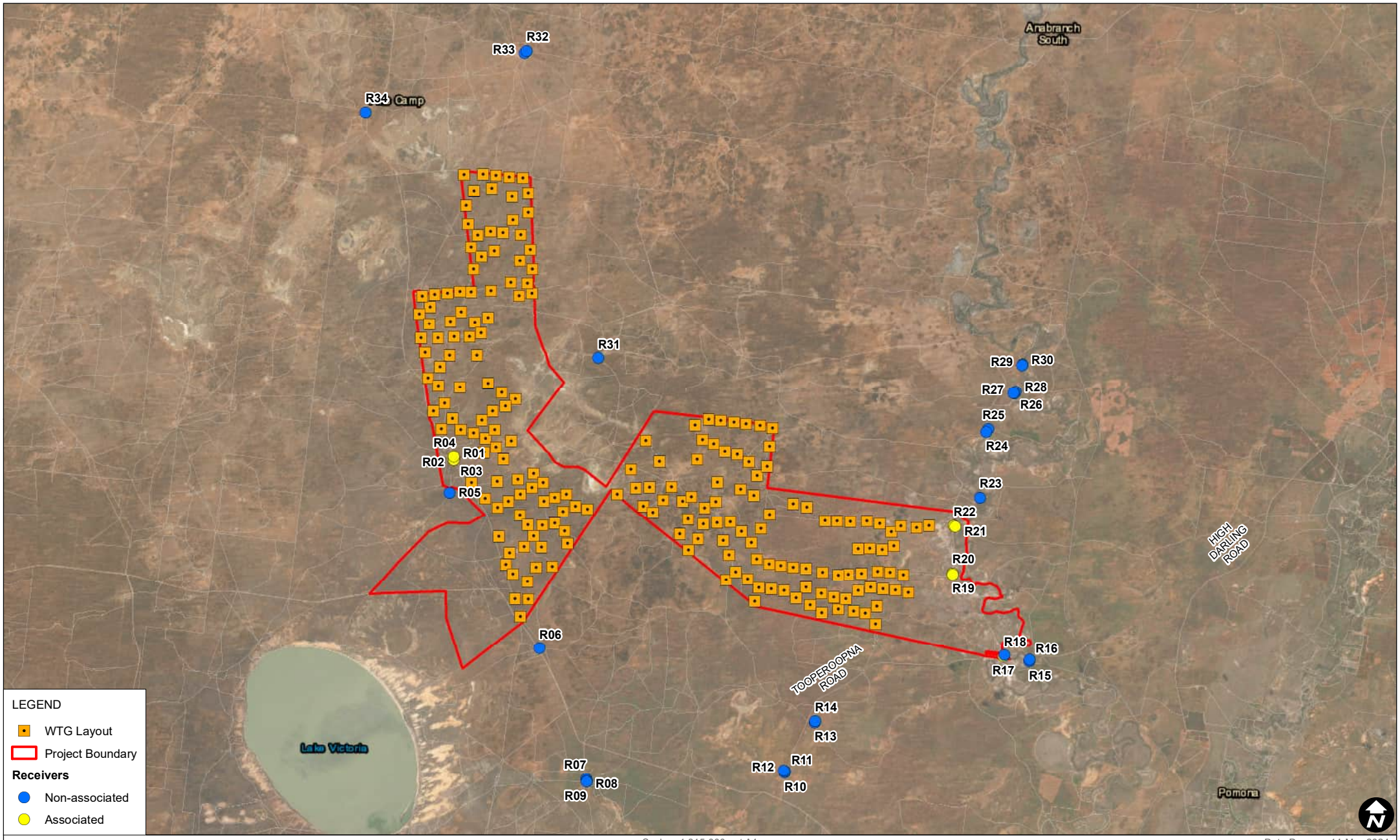
The sensitive receivers (dwellings) surrounding the site are located in all directions. The assessment locations include all dwellings located within around 12 km of a proposed WTG.

Sensitive receivers have been divided into two categories:

- Associated (ie within the project site)
- Non-associated (ie nearby the project site)

Figure 1 shows the nearby dwellings assessed for the project and indicative turbine positions. Further details on each identified receiver are shown in **Table 2**.

DRAFT



Scale: 1:315,000 at A4
Coordinate System: GDA2020 MGA Zone 54

Date Drawn: 14-Mar-2024
Project Number: 610.031725

Data Source:
ESRI Basemaps

SLR

RECEIVER LOCATIONS AND INDICATIVE WTG LAYOUT

FIGURE 1

H:\Projects-SLR\610-SrvSYD\610-SYD\610.031725.00001 WestWind - Lake Victoria WF\06 SLR Data\01 CADGIS\GIS\SLR610031725_F01_ReceiverLocation_WTG_Layout_01.mxd

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2.3 Preliminary Investigation

WestWind has provided the initial layout as per the Lake Victoria Wind Farm request for Information (RFI) package dated 07 March 2024. The initial WTG layout includes:

- 203 Turbines
- 3 - 8 megawatts (MW) capacity per turbine
- Turbine tip height 280 m
- Rotor diameter up to 200 m
- WTG hub height 110 - 180 m

For the preliminary investigation, the maximum of ranges shown above have been modelled.

2.3.1 Sound Power Levels

Table 1 presents the estimated sound power levels and frequency spectrum consistent with that for a WTG of the considered capacity operating at maximum wind speeds (ie ≥10m/s). Sound power levels will be revised when finalised manufacturer data is available for the selected WTGs.

Table 1 Assumed Sound Power Levels

WTG Size		Octave band sound power level, dBA								Overall dBA
Rotor diameter	Capacity	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	
200 m	8 MW	80.8	90.1	95.6	100.1	102.7	104.3	102.1	94.6	109

3.0 Noise Criteria

The NSW Government has adopted the South Australian EPA document *Wind farms – environmental noise guidelines – 2009* which forms the basis of the regulatory noise standard and assessment methodology.

The minimum noise criteria are:

- 35 dBA at relevant receivers in localities which are primarily intended for ‘rural living’ (eg rural−residential ‘lifestyle’ area).
- 45 dBA at project associated receivers.

For project associated receivers there is typically an agreement in place with the wind farm developer, which provides the developer with land for appropriate siting of the wind farm and offers the landowner a level of compensation and diversity in their income stream. However, developers still have obligations under NSW guidelines by entering into an agreement with a landowner. In practice this is typically achieved by adopting the World Health Organization (WHO) Guidelines for Community Noise (WHO,1999) recommendation which translates to an external noise limit of 45 dBA.

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4.0 Noise Predictions

Noise modelling of the initial WTG layout was completed using SoundPLAN V8.2 software implementing algorithms from ISO9613-2:1996 Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation (ISO9613).

The ISO9613 method is for downwind noise propagation, and as such the prediction model assumes downwind noise propagation from all sources to all receivers. This propagation assumption is conservative and can yield an unrealistic overprediction in some circumstances as it is not possible for the wind to blow from all directions simultaneously. In the predictive assessment of wind farm noise, the actual frequency distribution of wind directions is not used.

Furthermore, the model input parameters recommended by the UK Institute of Acoustics - A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (IoA Wind turbines) as implemented in SoundPLAN were adopted, which include:

- Atmospheric conditions at 10°C temperature and 70% relative humidity.
- Topographic screening attenuation of no greater than 2 dB.
- 4 m receiver height.
- A conservative 100% acoustically hard ground (G=0) has been assumed.
- 3 dBA correction where a concave ground profile “across a valley” between a wind turbine and a receiver, defined as: $h_m \geq 1.5 \times (\text{abs}(h_s - h_r)/2)$.

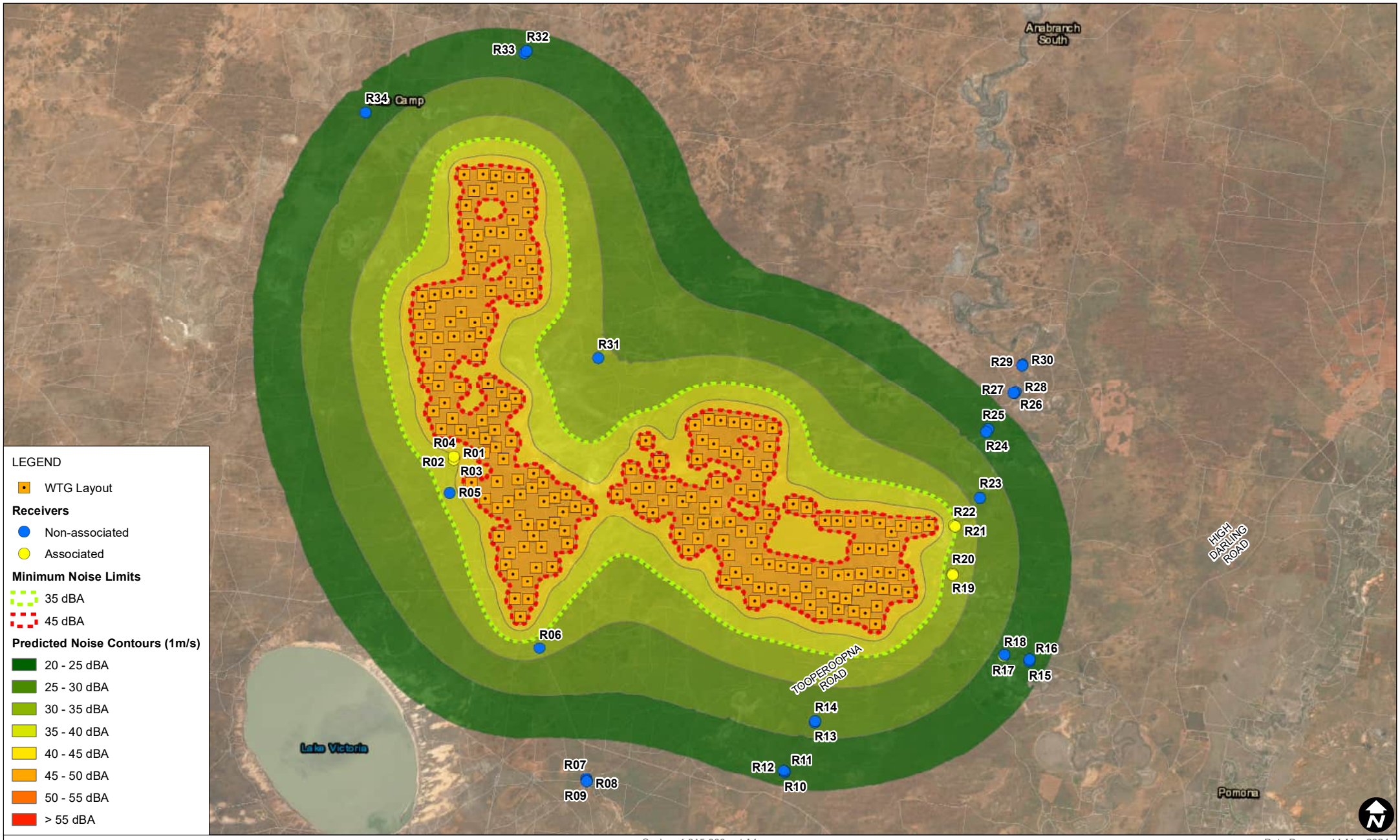
The predicted ‘worst-case’ L_{Aeq} noise level at all residential receivers for the initial WTG layout are detailed in **Table 2** and shown graphically in **Figure 2** to **Figure 4**.

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Table 2 Predicted WTG Noise Levels

Receiver	Project status	Coordinates GDA2020 / MGA Zone 54		Nearest WTG	Distance to nearest WTG (km)	WTG noise level (dBA)	Minimum criteria (dBA)	Complies?
		Easting (m)	Northing (m)					
R01	Associated	533166	6257519	WTG064	1.8	40	45	Y
R02	Associated	533141	6257469	WTG064	1.9	40	45	Y
R03	Associated	533147	6257387	WTG072	1.9	40	45	Y
R04	Associated	533148	6257587	WTG064	1.8	40	45	Y
R05	Non-associated	532878	6255271	WTG072	1.6	**37**	35	**N**
R06	Non-associated	538662	6245227	WTG106	2.4	32	35	Y
R07	Non-associated	541687	6236817	WTG106	11.3	14	35	Y
R08	Non-associated	541704	6236707	WTG106	11.4	14	35	Y
R09	Non-associated	541715	6236654	WTG106	11.5	14	35	Y
R10	Non-associated	554465	6237245	WTG161	10.5	21	35	Y
R11	Non-associated	554487	6237324	WTG161	10.4	21	35	Y
R12	Non-associated	554404	6237358	WTG161	10.4	22	35	Y
R13	Non-associated	556412	6240452	WTG161	7.1	26	35	Y
R14	Non-associated	556433	6240539	WTG161	7.0	27	35	Y
R15	Non-associated	570219	6244386	WTG173	9.0	22	35	Y
R16	Non-associated	570243	6244493	WTG173	8.9	22	35	Y
R17	Associated	568576	6244698	WTG173	7.4	24	45	Y
R18	Non-associated	568638	6244778	WTG173	7.4	24	35	Y
R19	Associated	565290	6249999	WTG173	3.1	33	45	Y
R20	Associated	565302	6250073	WTG173	3.1	33	45	Y
R21	Associated	565460	6253081	WTG199	1.7	35	45	Y
R22	Associated	565375	6253130	WTG199	1.6	35	45	Y
R23	Non-associated	567057	6254960	WTG199	3.8	28	35	Y
R24	Non-associated	567451	6259159	WTG199	7.1	23	35	Y
R25	Non-associated	567584	6259357	WTG199	7.3	23	35	Y
R26	Non-associated	569254	6261637	WTG199	10.1	18	35	Y
R27	Non-associated	569201	6261680	WTG199	10.1	18	35	Y
R28	Non-associated	569356	6261746	WTG199	10.3	18	35	Y
R29	Non-associated	569783	6263468	WTG199	12.0	14	35	Y
R30	Non-associated	569790	6263502	WTG199	12.0	14	35	Y
R31	Non-associated	542449	6263932	WTG058	6.0	31	35	Y
R32	Non-associated	537839	6283726	WTG005	8.2	22	35	Y
R33	Non-associated	537704	6283597	WTG005	8.1	22	35	Y
R34	Non-associated	527469	6279760	WTG001	7.5	23	35	Y

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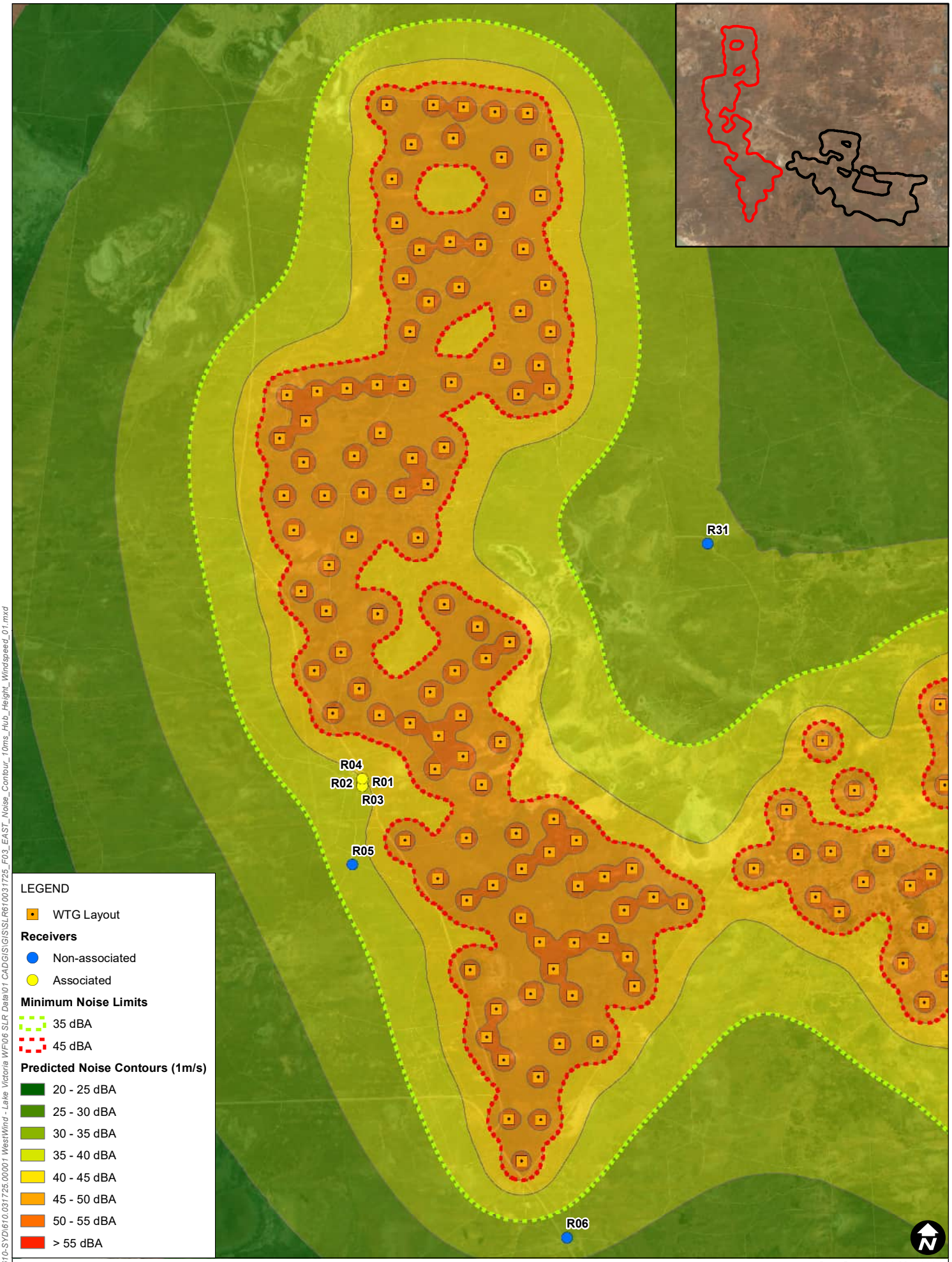
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NOISE CONTOUR - 10MS HUB HEIGHT WINDSPEED

FIGURE 2

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Project Number: 610.031725

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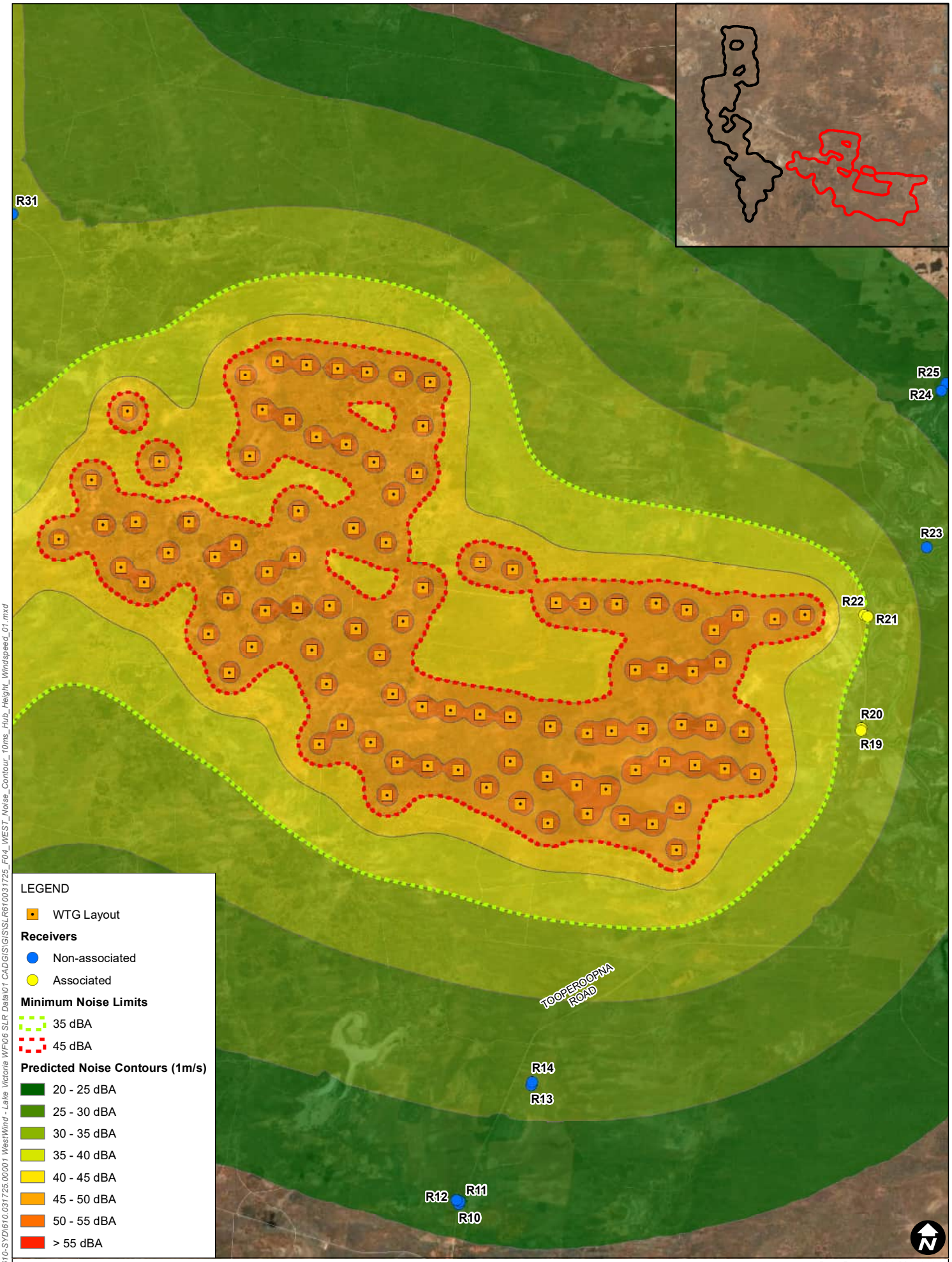
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WEST - NOISE CONTOUR - 10MS HUB HEIGHT WINDSPEED

FIGURE 3

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Scale: 1:130,000 at A4
Coordinate System: GDA2020 MGA Zone 54

Date Drawn: 20-Mar-2024
Project Number: 610.031725

Sheet Size : A4

Data Source:
ESRI Basemaps

SLR

EAST - NOISE CONTOUR - 10MS HUB HEIGHT WINDSPEED

FIGURE 4

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5.0 Conclusion

The preliminary assessment of the initial WTG layout indicates that the wind farm is predicted to be above the minimum criteria at one receiver to the west (R05). This outcome is based on the implementation of 8 MW WTGs with no mitigation applied.

During the detailed noise impact assessment it is anticipated the following will be undertaken:

- Baseline noise monitoring at nearby receivers to quantify the existing ambient noise environment. Background noise levels would be statistically regressed with wind speed. The background noise 'curve' would then used to determine the relevant noise criteria for each site across the full operating wind speed range.
- Refinement of the noise model input assumptions (eg WTG model specifications and WTG sound power levels).
- Refinement and consolidation of the WTG layout.
- Consideration of noise reduction / optimised operational modes of WTGs, if required.
- Finalisation of project associated landholders.

6.0 Recommendations

The predicted exceedance at receiver R05 (to the west of the Project) should be resolved through further design development and detailed noise investigations. This could involve:

- Establishing ambient noise levels at these locations (typically the criteria applied at receiver locations is 35 dBA or Background + 5 dBA, whichever is the higher).
- Relocating WTGs or reducing number of WTGs in proximity to the receiver.
- Utilising noise optimised modes or substituting quieter WTGs in proximity to the receiver.
- Examining the potential for improved internal acoustic amenity through implementing building acoustic treatment.
- A negotiated agreement with the private landowner.

7.0 References

NSW DPE (2016) Wind Energy: Noise Assessment Bulletin

WHO (1999) Guidelines for Community Noise

UK Institute of Acoustics (2013) - A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (IoA Wind turbines)

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Appendix F
Preliminary Social Impact Assessment



Lake Victoria Wind Farm

Preliminary Social Impact Assessment

Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Unit Trust (WestWind)

Reference: P525174

Revision: C

16 May 2024



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Document control record

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Document control		aurecon				
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Client contact		Sebastian Madden	**Client reference**			
Rev	**Date**	**Revision details/status**	**Author**	**Reviewer**	**Verifier** (if required)	**Approver**
0	2024-03-14	Draft review	L Peña / S Magner	A Cook		M Drowley
A	2024-04-12	Draft for client review	L Peña			
B	2024-05-01	Final	L Peña	J Miller		M Drowley
C	2024-05-16	Revised final in response to DPHI comments	L Peña / S Magner	A Cook		M Drowley
Current revision		**C**				

Approval			
Author signature		Approver signature	
Name	Liliana Peña	Name	Michael Drowley
Title	Manager, Engagement and Change Advisory, Aurecon	Title	Associate, Environment and Planning

Executive summary

We acknowledge Aboriginal elders past and present and all Aboriginal community members as the original custodians of the land on which this proposal is based.

Lake Victoria Wind Farm Pty Ltd has engaged Aurecon Australasia Pty Ltd (Aurecon) as trustee for the Lake Victoria Wind Farm Trust (WestWind) to assist with the environmental and planning approvals for the Lake Victoria WindSecti Farm (the Project). The preliminary Social Impact Assessment (preliminary SIA) informs the '*State significant development guidelines – preparing a scoping report*' on the social impacts of the proposed wind energy project.

This preliminary SIA provides a high-level overview of the project and outlines potential social impacts to support the Project application for the Secretary's Environmental Assessment Requirements (SEARs) as part of the development approvals process associated with the State Significant Development (SSD) planning pathway.

Project overview

WestWind proposes to build the Lake Victoria Wind Farm, which would include the construction and operation of up to 203 wind turbine generators (WTGs) spread over an area of around 41,700 hectares about 24 kilometres northwest of Wentworth in south-western New South Wales (NSW) (the Project).

The Project would be located within the Wentworth Shire Local Government Area (LGA) and spread across eight host lots, which are located within Pine Camp, Rufus, and Anabranch South.

Preliminary Social Impact Assessment findings

This preliminary SIA provides a desktop assessment of the Project's potential impacts. It includes compiling a social baseline profile for the Project and preliminary prediction and evaluation of social impacts. Early community and stakeholder consultation outcomes have informed the scoping of Project-related social impacts and opportunities.

The preliminary assessment of the social impacts will inform and support the refinement of the Project design to reduce risks of negative Project impacts and increase opportunities for positive impacts. Refer to Chapter 7 for a detailed description of identified potential social impacts.

Sensitive receivers in the Project's social locality, including nearby towns and the Wentworth Shire LGA and Mildura LGA in Victoria, approximately 20 kilometres from the Project area, may experience indirect project construction impacts.

Direct impacts may be experienced by private dwellings that are located near any proposed turbine. The magnitude of impacts for the sensitive receivers in the social locality would be **minor to moderate**. There are three non-associated dwellings located within 5,800 metres of a proposed turbine. The visual impacts for these dwellings would be **moderate**.

Construction impacts

The preliminary SIA identified the following potential negative and positive Project social impacts during the construction phase:

- Construction activities and associated noise and vibration could temporarily impact the local amenity for sensitive receivers near a proposed turbine. Potential impacts during construction would be associated with the operation of high noise-generating plant and equipment, road traffic noise and the use of construction compounds. However, due to the distance of the nearest sensitive receivers, vibration and noise impacts during Project construction are expected to be minor.

- Construction activities may impact local traffic due to increased heavy vehicles on the local road network and potentially changed road conditions. These impacts would primarily be associated with the delivery of WTG components. The route and upgrade requirements for WTG transportation would be determined during the preparation of the Project Environmental Impact Statement (EIS).
- Increased travel times may cause day-to-day disruption due to increased traffic and potentially changed road conditions, which may frustrate road users. Traffic increases would primarily be associated with the workforce entering and leaving the Project area each day and are not anticipated to significantly disrupt the local road network.
- It is estimated that 375 full-time equivalent workers would be required during the peak of construction activities. The increased workforce population and associated service demand may temporarily impact social infrastructure and service availability. However, the duration of the construction activity and the size of the construction workforce for the Project may mean an opportunity for economic development in the social locality as demand for goods and services may increase with population.
- The added Project workforce may impact demographic characteristics and community structure. The workforce is likely to alter the age and gender distribution of the social locality residential population, with most workers likely to skew younger and male.
- The Project would potentially include providing worker accommodation within the Project area and approximately 1.5 km from the closest dwelling. Provided the worker accommodation facility is constructed within the Project area and serviced with amenities and other support systems, negative impacts from the Project on local/regional accommodation and housing accommodation would be minimal or negligible. Stakeholder consultation is recommended to address any potential concerns around the worker accommodation facility.
- The influx of Project-related workforce and construction activities could temporarily impact the nearby community's surroundings, amenity, and way of life. The local community may be accustomed to a transient population linked to Project EnergyConnect. However, this project is relatively recent, and the overlap of construction activities for the WestWind Project may lead to negative cumulative impacts. The presence of newcomers may impact social connections, interrelationships, networks, and interactions. Lack of community cohesion can result in social dislocation and community tensions.
- Perceived impacts on local biodiversity values, including impacts to threatened species, flora and fauna, native vegetation, and habitat which could impact community values and therefore its wellbeing or sense of place.
- Perceived impacts on Aboriginal cultural heritage items due to the Project. A preliminary assessment indicates a low risk of heritage impacts due to the Project construction. Targeted stakeholder engagement and further investigation would be required during the EIS stage to confirm the presence of areas of cultural heritage or archaeological significance within the Project area.
- Without proper management, e.g. proactive, timely community engagement and consistent and transparent Project messaging, construction and Project operation activities may cause consultation fatigue, anxiety, and uncertainty in the community regarding the scale of the development, required land agreements, and added pressure to access community services (including medical facilities) due to the temporary increase in workforce population.
- There are a number of new renewable energy, infrastructure and mining projects in Wentworth Shire LGA that can potentially change the local community while increasing uncertainty about its future and anxiety due to potential cumulative impacts. The local community may experience anxiety about the changes and opportunities the Project would bring to local dynamics. Increased anxiety may have greater health impacts on the elderly or those living with a long-term health condition or disability.
- Community members may be concerned about further changes to the agricultural local character and transition to a perceived “industrial” landscape associated with new infrastructure development, including energy and mining projects, which could potentially impact people’s sense of place and add to the potential cumulative impacts.
- While new and proposed infrastructure in the social locality may create additional employment opportunities for local and regional workforce, it may also add stress and anxiety in the local community regarding the scale of development and local community change.

- The local community and Council may have high expectations regarding the Project benefits, including providing an adequate workforce, supply chains and housing supply, minimising land use conflicts, and maximising the economic benefits for the local community. Uncertainty about the scale of the development, benefit-sharing initiatives, and the potential perceived inability of people to influence the Project decisions may increase anxiety and stress for the local community.
- The Project would improve the livelihoods of local business owners by stimulating economic activity through a temporary increase in the region's workforce.
- The Project would improve workers' livelihoods by creating increased job opportunities and training the local workforce, including vulnerable groups.
- The Project would foster opportunities to involve the Barkandji Native Title Group Aboriginal Corporation during both the assessment and construction phases to manage cultural heritage features and provide employment and training opportunities, thereby facilitating inclusivity and community cohesion.

Operational impacts

The preliminary SIA identified the following potential negative and positive Project social impacts during the operation phase:

- There is the potential for some stakeholders to question the scale of benefits likely to be experienced locally, given the expected small operational workforce numbers.
- Perceived reduced availability of land for agricultural purposes due to changes in land use and increased concerns of property devaluation due to the presence of the Project.
- Perceived impacts on health and wellbeing, including through electromagnetic interference, shadow flicker, blade throw and noise because of the operation of the WTGs.
- The Project would result in visual impacts by establishing WTGs throughout the Project area. WTGs would be visible from properties and publicly accessible locations around the Project area, changing the landscape character. The Preliminary Landscape Character and Visual Impact Assessment (PLCVIA) identified three receivers and one sensitive public viewpoint -Anabranch Community Hall- within the high visual magnitude threshold. Visual impacts can affect local amenity and a community's sense of place. A detailed assessment would be required during the EIS stage, including consultation with sensitive receivers to undertake further visual assessment from selected sensitive viewpoints on private property. Additional viewpoints and areas of sensitivity may be identified through community consultation for the Project.
- Changes to landscapes can adversely affect a community sense of place and enjoyment of local values. However, the landscape character impacts are predicted to be low to negligible per the PLCVIA).
- There may be community concerns that operational workers may change existing community dynamics and social networks. However, given the operational workforce would only be 35 site-based personnel, community concerns are anticipated to be minimal.
- The Project would expand the growing renewables industry in the Wentworth Shire and would contribute to the emission reductions required to support those affected by climate change, including in far west NSW.
- The Project could improve intergenerational equity thanks to alternative energy sources and community well-being due to increased job opportunities, renewable energy solutions, Project associated benefit-sharing initiatives, local employment, procurement, and training opportunities to upskill the local community.
- The Project would improve sustainability and enhance community resilience by investing in community initiatives, creating local employment through the operation phase, and fostering a positive shift towards a more sustainable and resilient community due to the creation of a new long-term industry in the region.

- The Project proposes funding programs designed to give directly to the local communities and enhance existing conditions (refer to Section 1.2.1). The details of these benefit sharing initiatives would be developed in consultation with the local community thereby increasing community participation in the Project decision making process and positively impacting decision making systems in the local community.

Recommendations

Engagement activities have been implemented to identify, inform, and consult stakeholders and the community about the Project. Stakeholder feedback has demonstrated diverse concerns spanning the Project's environmental, social, economic, and governance aspects, highlighting the need for comprehensive risk management, transparent communication, and meaningful community engagement throughout the Project lifecycle.

It is recommended that stakeholder engagement continues throughout the Project life cycle to highlight its benefits and proactively address the potential for negative community sentiment concerning:

- Property access and infrastructure damage
- Increased traffic and its impact on roads and disruptions to moving stock and agricultural activities.
- Visual and noise impacts from turbines
- Potential interference with future cropping activities, lambing, and livestock disruption.
- Unmet stakeholder expectations and consultation fatigue
- Safety regarding potential accidents due to turbine failure and broader concerns about governance, oversight, and public safety.

Stakeholder engagement should also enable the co-design of benefit-sharing initiatives, including Host Landholder Agreements, Neighbour Agreements and Community Benefits Schemes.

WestWind conducted an open introductory meeting with the Barkandji Native Title Group Aboriginal Corporation. It is imperative that this engagement continues and results in meaningful, collaborative, and shared benefit outcomes. The Clean Energy Council's *Leading Practice Principles: First Nations and Renewable Energy Projects* guide is relevant to guide the engagement process with this specific stakeholder group.

To maximise the Project's success, it is recommended to:

- Implement a comprehensive Community Engagement Plan throughout the Project lifecycle and address misinformation that could exacerbate negative community sentiment due to perceived impacts.
- Engage key stakeholders to enable the development of Community Benefits Schemes to support community initiatives. Assess opportunities to create a legacy in the community by investing in housing, education, road upgrades, and adding social value to the local community.
- Engage key stakeholders to co-design a local employment and procurement plan. This should consider the upskilling of local workers, local procurement and employment, and procurement, training and employment opportunities for women, Aboriginal and Torres Strait Islander people and people with disabilities.
- Continue investigating the appropriate size and location of temporary workforce accommodation to support the Project.
- Engage local service providers to develop a strategy for addressing increasing demand for services, e.g. accommodation, health, recreation, etc.

Overall, the potential adverse amenity and way of life impacts arising from the Project's construction and operation in the social locality can be well managed and mitigated through robust management plans and other control measures, including transparent and proactive consultation with the local community.

It is recommended that the identified social impacts be ground-truthed, supplemented by stakeholder engagement, and reviewed against any changes associated with further Project design development as part of a detailed Social Impact Assessment.

As part of the EIS, future stages of the socio-economic impact assessment for this Project would include a detailed prediction and assessment of positive and negative impacts. Informed by stakeholder consultation, a detailed Social Impact Assessment would identify relevant strategies to mitigate the Project's negative impacts and opportunities to enhance its positive impacts.

Further stakeholder engagement and technical and environmental studies would provide evidence to inform the detailed assessment of the Project's positive and negative impacts.

Mitigation measures will need to be refined as the Project progresses. To address impacts proactively, impacts must be monitored and managed through collaboration and proactive engagement with key stakeholders.

Contents

1 Introduction 1

1.1 Project overview 1
1.2 Project description 1
1.2.1 Community Benefit Fund 2
1.3 Project area overview 2
1.4 Description of works 4
1.4.1 Construction 4
1.4.2 Operations 5
1.5 Purpose of this report 6
1.6 Assumptions and limitations 6

2 Methodology 9

2.1 Social impact assessment requirements 9
2.2 Determining the social locality 9
2.2.1 Local social locality: key communities 10
2.2.2 Regional social locality 10
2.3 Describing the existing environment 11
2.4 Scoping likely social impacts 13
2.4.1 Determining the level of SIA assessment 13

3 Policy framework 14
4 Existing environment 18

4.1 Community profile 18
4.2 Economic overview 21
4.3 Land use context 22
4.4 Social infrastructure overview 24

5 Stakeholder engagement 25

5.1 Engagement outcomes and perceived impacts 25
5.1.1 Key community values, needs and aspirations 26

6 Development context 28
7 Preliminary social impact assessment 33
8 Conclusion 47
9 References 48

Appendices

Appendix A

SIA Guideline Risk Matrix

Appendix B

Demographic indicators

Figures

Figure 1 Project location
Figure 2a-b Preliminary Project layout
Figure 3 Project social locality
Figure 4 Land zoning
Figure 5 Regional context
Figure 6 Proposed development in the social locality

Tables

Table 1-1 Project area overview
Table 1-2 Key parameters
Table 1-3 Indicative construction components and approximate dimensions
Table 2-1 Social impact categories
Table 2-2 Level of assessment
Table 3-1 Summary of energy policies in NSW and their relevance to the project
Table 4-1 Demographic overview of social locality
Table 4-2 Demographic insights into key communities
Table 4-3 Key occupations and industries in the social locality and key communities
Table 5-1 Project stakeholders and potential areas of interest/concern
Table 6-1 Energy and mining projects near the social locality
Table 7-1 Preliminary impact evaluation – Potential negative (N) impacts
Table 7-2 Preliminary impact evaluation – Potential positive (P) impacts

Glossary

Term	Definition
Amenity	Amenity often refers to the quality of life, character and elements in a community that make it a more pleasant and comfortable place to be a part of. Impacts of a proposal such as traffic, perceived air quality impacts, noise and visual impacts can affect the amenity of an area.
Community (social) values	Elements held as being important to quality of life and wellbeing of a community or stakeholder.
Cumulative impacts	Cumulative impacts can occur when the impacts of a project add to other past, present, or future proposals or developments. Collectively, cumulative impacts have the potential to result in substantial changes to a community existing condition.
PLCVIA	Preliminary Landscape Character and Visual Impact Assessment. The assessment of the impacts of the project on landscape and visual values. The PLCVIA is conducted to determine the likelihood of high impacts and assist in determining further assessment.
Project area	Proposed construction and operational area for the Project
Sensitive receiver	A sensitive receiver refers to individuals, groups, communities, or places that may be more vulnerable or differentially affected by a project's potential social impacts. Sensitive receivers can include marginalised populations, indigenous communities, children, the older population, people with disabilities, or any vulnerable group that may be disproportionately impacted by a project or proposed development due to their socio-economic status, cultural heritage, or geographic location. Sensitive receivers can also include dwellings, educational facilities, health and community facilities, public facilities and services, and recreational areas.
Social impact	Intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions.
The Project	Lake Victoria Wind Farm
Visual impact	The result of assessing the sensitivity level of a viewer and the modification level of a development.

Abbreviations

Term	Definition
ABS	Australian Bureau of Statistics
BESS	Battery Energy Storage System
DPE	NSW Department of Planning and Environment
DPHI	NSW Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EMI	Electromagnetic interference
FTE	Full time equivalent
GW	Gigawatt
LGA	Local Government Areas
MW	Megawatt
NSW	New South Wales
Preliminary SIA	Preliminary Social Impact Assessment
PLCVIA	Preliminary Landscape Character and Visual Impact Assessment
REZ	Renewable Energy Zone
SA	South Australia
SA1	ABS Statistical Area Level 1
SEARs	Secretary's Environmental Assessment Requirements
SIA	Social Impact Assessment
SSD	State Significant Development
UCL	Urban Centres and Localities
VIC	Victoria
WTGs	Wind turbine generators

1 Introduction

Aurecon Australasia Pty Ltd (Aurecon) has been engaged by Lake Victoria Wind Farm Pty Ltd as trustee for the Lake Victoria Wind Farm Trust (WestWind) (the proponent) to assist with the environmental and planning approvals for the Lake Victoria Wind Farm (the Project).

The Project is being delivered to support the New South Wales (NSW) Government's commitment to a diverse, affordable, modern energy system and wind energy is expected to be a key part of the state's energy mix, supported under the government's Renewable Energy Action Plan.

1.1 Project overview

WestWind proposes to build the Lake Victoria Wind Farm, which would include the construction and operation of up to 203 wind turbine generators (WTGs) spread over an area of around 41,700 hectares about 24 kilometres northwest of Wentworth in south-western NSW (the Project). The Project would be located within the Wentworth Shire Local Government Area (LGA) and would be spread across eight host land parcels and three localities: Pine Camp, Rufus, and Anabranch South. Refer to Figure 1 for the Project location.

WestWind is preparing a Scoping Report for the proposed Project to attain Secretary's Environmental Assessment Requirements (SEARs) as part of development approvals process associated with the State Significant Development (SSD) planning pathway.

All SSD development applications are required to follow a comprehensive impact assessment process and community participation. Furthermore, all SSD projects are determined by the Minister for Planning and Public Spaces based on their merits, having regard to their economic, environmental, and social impacts and the principles of ecologically sustainable development.

WestWind has engaged Aurecon to prepare a preliminary Social Impact Assessment (preliminary SIA) to provide input into the Scoping Report being prepared for the Project. The Scoping Report will be specifically targeted towards informing the setting of the SEARs for the Project and identifying the key issues that are to be considered in detail in the Environmental Impact Statement (EIS).

1.2 Project description

The Project is a renewable energy development with a generation capacity of up to 1.5 gigawatts (GW), enough to power over 800,000 households across the national electricity market. The Project would also include the installation of one to four battery energy storage systems (BESS) within the Project area. The Project is currently in the early stages of development, including stakeholder engagement and concept design.

The key components of the Project are as follows:

- Up to 203 (3 blade) WTGs (3 to 8 megawatt (MW) capacity each), with a maximum blade-tip height of 280 metres above ground level
- 3 to 6 permanent meteorological masts
- Four collector stations and one terminal station (co-located with a collector station)
- Provision for a 600 MW battery energy storage system (up to a capacity of 2,400 MWh)
- Other operational infrastructure, including site offices, amenities, laydown areas and operational and maintenance facilities
- Temporary infrastructure areas including construction site compounds, workers accommodation, laydown and stockpile areas and batching plants
- Approximately 416 kilometres of access tracks throughout the Project area (minimum width of 5.5 metres on straight tracks, widened to 7 metres on tracks with corners)

- Internal collector network (electrical connections between the proposed wind turbine generators and the substation).

The estimated workforce during construction would be approximately 375 full time equivalent (FTE) on-site during peak of construction activity. The Project is anticipated to be operational by 2031 and would operate for around 30 years. About 70 workers would be required for the operation and maintenance of the Project (35 remote support workers and 35 site based workers).

This Project description has been used as a basis for identifying and assessing the potential social impacts.

1.2.1 Community Benefit Fund

Per the Project Community and Stakeholder Engagement Report, once the Project is operational, a community fund will be established to share the financial benefits of the project. Each year, the Project will pay $2,000 per constructed turbine into the community benefit fund, which will be for community-based initiatives, projects and events that benefit local communities around the wind farm.

The fund would target a range of community needs including health and social welfare, safety, environment, education and youth, sport and recreation, culture, arts, and economic development. It would provide ongoing opportunities to WestWind to engage with the local community.

1.3 Project area overview

The Project is spread within an area of around 41,700 hectares in the Wentworth Shire LGA. The south-eastern boundary of the Project area is located around 16 kilometres north-west of Pomona and around 24 kilometres north-west of Wentworth. The north-western boundary is around 48 kilometres north-west of the south-eastern boundary and around 72 kilometres northwest of Wentworth's town centre. The population of Pomona is around 160 people, while the population of Wentworth is around 1,600. The top industries of employment in the Wentworth Shire LGA from the 2021 Census were aged care, local government, and accommodation.

The Project is expected to involve the direct participation of four farming families and NSW Crown Lands through the hosting of wind turbines and ancillary infrastructure. During the Project's estimated 30-year operational phase the wind farm would pay Council rates, providing significant additional funding for the Wentworth Shire LGA. The Project would also fund several additional programs designed to give directly to the local communities around the wind farm's location. The details of these programs would be developed in consultation with the local community.

Table 1-1 Project area overview

Lot/DP:	■ Lot 4167 DP766733 ■ Lot 500 DP761443 ■ Lot 4168 DP766734 ■ Lot 501 DP761444 ■ Lot 4 DP1255308 ■ Lot 4169 DP766735 ■ Lot 502 DP761489 ■ Lot 12 DP756190
Land size:	41,669 hectares
LGA:	Wentworth Shire
Site zoning:	RU1 – Primary Production
Land use:	The Project area is located on land primarily used for agricultural purposes. The land has been modified over time through agricultural practices, including livestock grazing and some cropping.



State boundary

Major road

▲ Lake Victorial Wind Farm

● City or town



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:5,500,000

0 70 140 km

Projection: GCS GDA 1994

Lake Victoria Wind Farm **Preliminary Social Impact Assessment**

Figure 1: Project location

1.4 Description of works

The Project includes the following permanent and ancillary infrastructure. Further information on the parameters and layout of this infrastructure is provided in Table 1-2.

Table 1-2 Key parameters

Project component(s)	Approximate dimensions	Quantity
WTGs		
WTG height	Up to 280 m above ground level	Up to 203
Rotor diameter	Up to 200 m	
Upper most blade tip	280 m	
Lowermost blade tip	~ 50 m	
Hub height	110-180 m	
WTG foundations	25-30 m diameter, 3.5-4 m deep	
Ancillary infrastructure		
Operations and maintenance facility	50 m x 70 m	1
Main (on-site) substations	150 m x 290 m	1
Internal underground cable network	269 km in length	N/A
Internal access tracks	Up to 416 km	N/A
Primary site access point	Off Nulla Road (however alternative access points on Anabranch Mail Road and Tooperoopna Road may be used if they meet the necessary requirements such as load limits)	1
Meteorological masts	125 m to 200 m high	1 to 2
Battery Energy Storage System(s)		
Facility/compound	140 m x 140 m	4
Capacity	Up to 2,400 MWh (up to 600 MW over 4 hours)	N/A

1.4.1 Construction

Key components for Project construction are shown in Figure 2a-b and detailed in Table 1-3.

Table 1-3 Indicative construction components and approximate dimensions

Project component(s)	Approximate area	Quantity
Temporary construction facilities		
Site Compound	12,000 to 18,000 m^2	2 to 4
On-site concrete batching plants	13,000 m^2	2 to 4
Balance of Plan Laydown	11,000 m^2	3
Temporary Workers Accommodation	20,000 m^2	
Stockpiles and materials storage compounds	Subject to construction requirements	
Laydown areas	Subject to construction requirements	
Turnaround bays	Subject to construction requirements	

Existing access tracks within the Project area would be used during the construction and operation of the Project. This would minimise environmental impacts that would be associated with the construction of new access tracks.

The Project would likely connect to the grid via Project Energy Connect, which would run through the Project area. A terminal station would likely be placed in the centre of the Project area where Project Energy Connect would pass through.

Construction hours

Construction of the Project would take place during standard working hours as follows:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 1pm
- Sunday and public holidays: no work.

Construction workforce

It is estimated that 375 FTE workers would be required during the peak of construction activities. A worker accommodation facility would potentially be established as part of the Project. This would be located within the Project area. A worker accommodation facility has been included in the current Project layout, however further consultation with community and regulatory stakeholders would be required to determine the feasibility of this accommodation facility, including its capacity.

Transport access routes

Infrastructure components sourced from Sydney would likely be transported by truck via the Hume Highway, Sturt Highway, Silver City Highway and Renmark Road, passing through regional centres such as Goulburn, Gundagai, Wagga Wagga, Hay and Wentworth. Project components sourced from Melbourne would be transported by truck via the Calder Freeway, Calder Alternative Highway, Calder Highway, Sturt Highway, Meridian Road, Silver City Highway and Renmark Road, passing through regional centres such as Kyneton, Wedderburn, Charlton, Red Cliffs and Wentworth. Project components sourced from Adelaide would be transported by truck via the Port River Expressway, the North South Motorway, the Northern Expressway, Sturt Highway, Meridian Road, Silver City Highway and Renmark Road, passing through regional centre such as Nuriootpa, Blanchetown, Barmera, Berri, and Wentworth. The Project is also exploring alternative transport routes that originate at Whyalla port and Portland port.

Site access would be off Nulla Road, however alternative access points in Anabranch Mail Road and Tooperoopna Road may be used if they meet the necessary requirements (e.g. load limits). Investigations into whether road upgrades would be required for the delivery of WTG components, included swept path analyses, would be carried out during the EIS phase.

The transport route of WTG components and other Project related materials would be investigated further during the preparation of the EIS with the outcomes considered as part of the traffic study.

1.4.2 Operations

Operation workforce

It is expected that approximately 70 workers will be needed during the Project's operation phase.

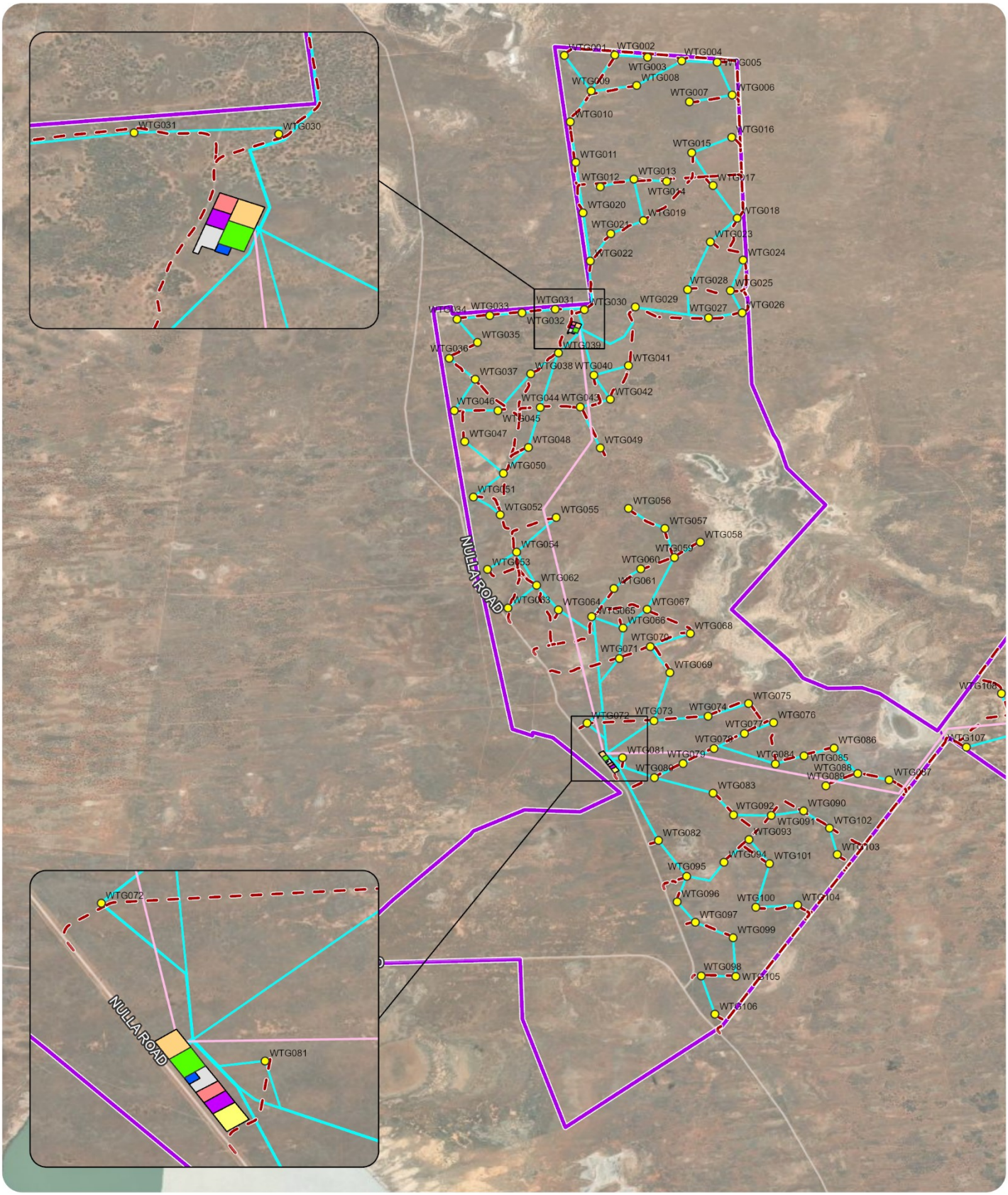
1.5 Purpose of this report

This preliminary SIA has been prepared in accordance with the provisions of the NSW Department of Planning, Housing and Infrastructure (DPHI)'s *Social Impact Assessment Guideline for State Significant Projects* (SIA Guideline) (NSW Department of Planning and Environment (DPE), 2023). This preliminary SIA report will assist in identifying any potential social risks to the Project and whether further approvals or further assessments are required as part of the detailed SIA to support the EIS.

The purpose of this SIA is to provide a preliminary assessment of the Project's potential social impacts, and the means which these social impacts are identified, assessed, and managed. This preliminary SIA identifies the Project potential influence in the existing social conditions and considering the construction and operational aspects to define the social locality for the Project. The social locality provides the context to describe the social baseline and to preliminarily identify social impacts.

1.6 Assumptions and limitations

- The desktop assessment for this preliminary SIA is based on the Project description and spatial data provided to Aurecon in February and March 2024.
- The preliminary SIA is based on the Preliminary Site Layout shown in Figure 2.
- As this SIA is preliminary in nature, it makes assumptions based on the desktop assessment and the outcomes from other preliminary assessments prepared for the Scoping Report, e.g. PLCVIA, Noise and Biodiversity Assessment Reports.
- No site inspection or targeted stakeholder engagement has been undertaken as part of this preliminary SIA.
- The preliminary SIA is based on the Project description as outlined in Sections 1.2, 1.3 and 1.4. A detailed assessment of social impacts is required to confirm the findings of this report and would be undertaken to inform the EIS.
- Methodology, program, and timing of the construction works are currently indicative and subject to ongoing design development.



Project area
Access Track
Overhead 220kV line
Underground cable
Operation and maintenance facility
Collector station
BESS compound
Laydown area
Concrete batching plant
Site compound
Temporary worker accommodation



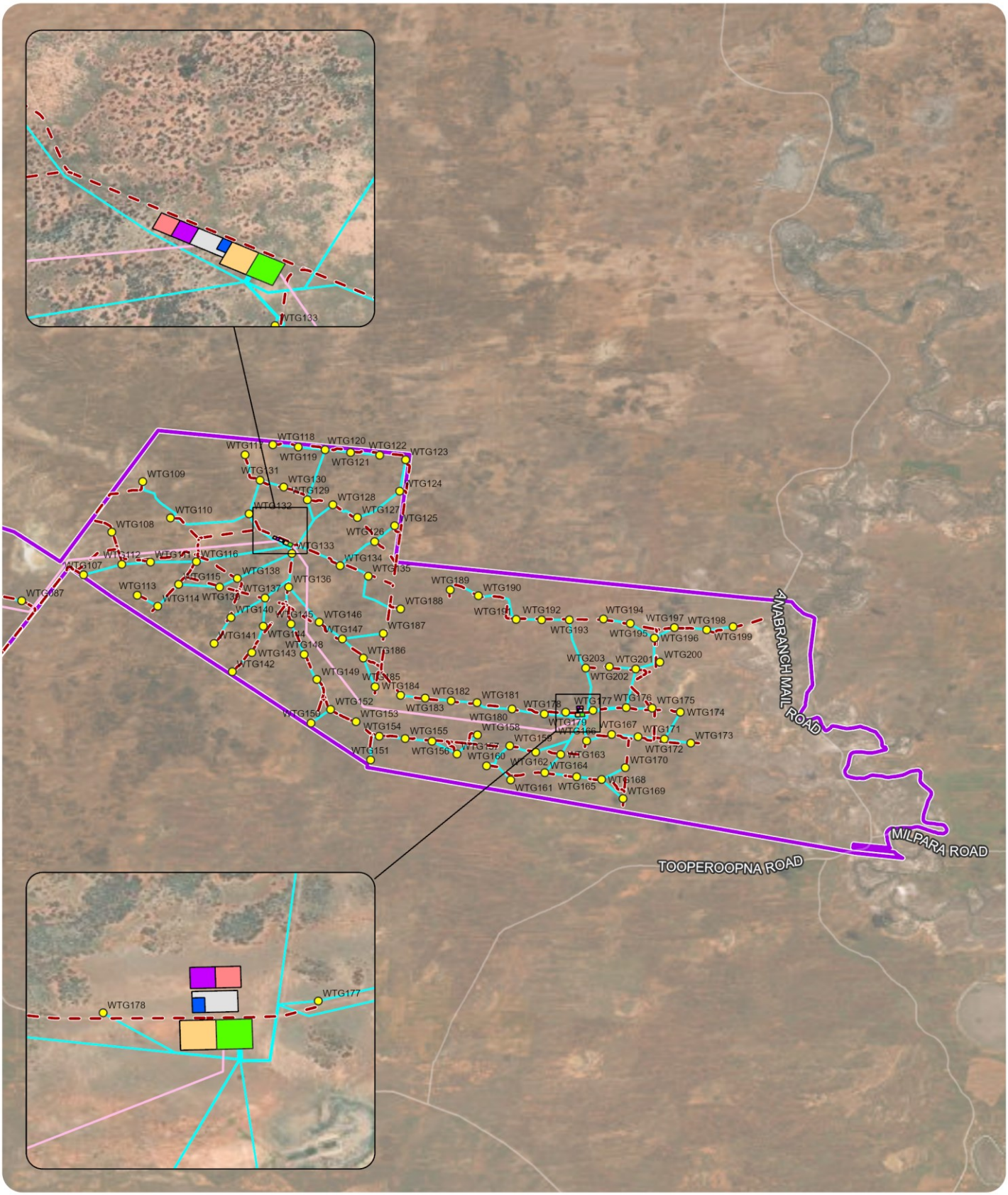
Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:160,000
0 2 4 km

Projection: GCS GDA 1994

Lake Victoria Wind Farm **Preliminary Social Impact Assessment**

Figure 2a: Preliminary project layout



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:200,000

0 2.5 5 km

Projection: GCS GDA 1994

Figure 2b: Preliminary Project layout

2 Methodology

2.1 Social impact assessment requirements

This preliminary SIA forms part of the Project Scoping Report and Request for SEARs to be lodged with DPHI. Consequently, this preliminary SIA has been prepared in accordance with the provisions of the DPHI's SIA Guideline as part of the Scoping Report process.

It is a requirement of the SIA Guideline that SIA scoping be completed, and the findings incorporated into the proponent's Scoping Report. This preliminary SIA includes the following:

- An understanding of the Project's social locality
- Initial analysis of the defining characteristics of the communities within the Project's social locality, including any vulnerable groups (the social baseline)
- Initial evaluation of likely social impacts for different groups in the social locality
- How the engagement strategy will help to identify and assess social impacts

According to the SIA Guideline, and as outlined in Table 2-1, social impacts can be grouped into several categories and may involve changes to people's way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems.

Table 2-1 Social impact categories

Categories	Meaning
Way of life	How people live, how they get around, how they work, how they play, and how they interact daily
Community	Composition, character, cohesion, function, and sense of place
Access	How people access and use infrastructure, services, and facilities, whether provided by local, state, or Commonwealth governments, or by for-profit or not-for-profit organisations or groups
Culture	Both Aboriginal and non-Aboriginal culture, including shared beliefs, customs, values, and stories, and connections to country, land, waterways, places, and buildings
Health and wellbeing	Physical and mental health, especially for those who are highly vulnerable to social exclusion or substantial change, plus wellbeing of individuals and communities
Surroundings	Access to, and use of, services that ecosystems provide, public safety and security, access to and use of the natural and built environment, and its aesthetic value and amenity
Livelihoods	People's capacity to sustain themselves, whether they experience personal breach or disadvantage, and the distributive equity of impacts and benefits
Decision-making systems	Whether people experience procedural fairness; can make informed decisions; have power to influence decisions; and can access complaint, remedy, and grievance mechanisms

Source: (DPE, 2023)

2.2 Determining the social locality

As per the SIA Guideline, the social locality comprises the area where direct and indirect social impacts potentially arising from the Project are predicted to occur.

The SIA Guideline outlines the key components that should be considered in determining the social locality and describing the social baseline. Several factors have been considered in determining the social locality for the Project, including:

- The nature and scale of the Project and its associated activities
- The characteristics of surrounding communities and how positive and negative impacts may be reasonably perceived or experienced by different stakeholders, including those who may be vulnerable or marginalised

- The potentially affected built or natural features located near the Project that have social value or importance
- Cumulative impacts that may impact affected communities because of other projects or operations near the Project area
- The history of the proposed Project area and the area and any similar experiences people near the Project have had
- The broader (indirect) area of social influence of communities that future incoming workforces, business opportunities, construction access and supply chain routes will impact.

Consequently, the social locality for this preliminary SIA is the result of understanding the nature, location, and scale of the Project. The social locality is further characterised at the local and regional level. The local level is defined by key communities and the regional level is defined at the local government area level. The local and regional social localities used to inform the SIA are described in Sections 2.2.1 and 2.2.2 below. The existing environment within the social locality is described in Chapter 4.

2.2.1 Local social locality: key communities

The Project is near the major regional city Mildura (in Victoria (VIC)), accessible via the major road Silver City Highway, and the nearby town Renmark (in South Australia (SA)), accessible via minor roads Wentworth-Renmark Road and Renmark Road. In addition, the towns of Wentworth, Dareton and Buronga (in NSW) and Merbein (in Victoria) are along the Murray River near the Project. These towns are identified as the key communities in the Project's social locality, as they are likely to provide goods and services to support the Project's construction phase due to their accessibility to the Project site via major and minor roads.

The key communities are the urban areas within the social locality that would be most affected by the Project. They have been defined using the Australian Statistical Geography Standard's 'Urban Centres and Localities' (UCLs) framework, as used in the Australian Bureau of Statistics (ABS) 2021 Census. The key communities and their ABS classifications are:

- Mildura - Buronga (Buronga Part) (UCL112013) (NSW)
- Wentworth (UCL115156) (NSW)
- Dareton (UCL122048) (NSW)
- Mildura - Buronga (Mildura Part) (UCL212003) (VIC)
- Merbein (UCL215054) (VIC)
- Renmark (UCL415037) (SA).

The social locality may extend beyond these boundaries as the Project planning progresses to include places of residence of the future construction and operational workforce and where materials may be sourced for the Project.

The social locality will be further refined as required during the EIS assessment phase. The 15 SALs and six UCLs that make up the local social locality are shown in Figure 3.

2.2.2 Regional social locality

The Project is located near the borders of NSW, VIC and SA, within the southern portion of Wentworth LGA in NSW. The Murray River separates NSW and Victoria at the southern border of Wentworth LGA. The area surrounding the Project site consists of 15 suburbs. The amalgamation of these 15 suburbs and a series of key communities has been determined as the Project's social locality.

The social locality has been defined for the Project to be the amalgamation of the following 15 ABS Suburbs and Localities (SALs) units:

- Anabranch South (SAL10052) (NSW)
- Boeill Creek (SAL10435) (NSW)

- Buronga (SAL10693) (NSW)
- Coomealla (SAL11041) (NSW)
- Curlwaa (SAL11171) (NSW)
- Dareton (SAL11207) (NSW)
- Ellerslie (Wentworth - NSW) (SAL11406) (NSW)
- Gol Gol (SAL11697) (NSW)
- Mourquong (SAL12820) (NSW)
- Pine Camp (SAL13224) (NSW)
- Pomona (SAL13252) (NSW)
- Rufus (SAL13452) (NSW)
- Wentworth (SAL14242) (NSW)
- Merbein (SAL21653) (VIC)
- Renmark (SAL41248) (SA).

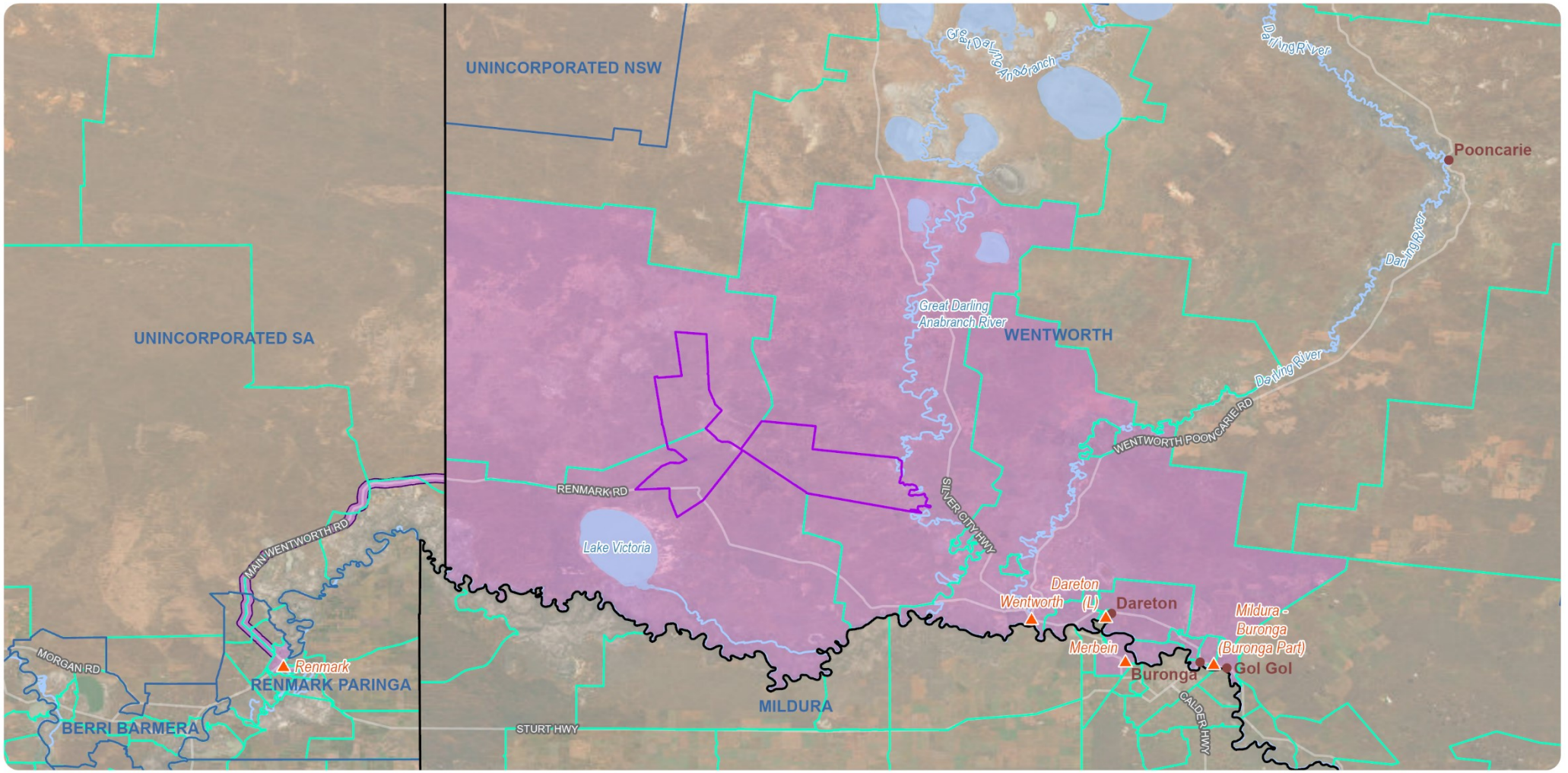
2.3 Describing the existing environment

This preliminary SIA describes the Project's existing environment (social baseline profile). It gathers knowledge from both primary and secondary data sources to understand the existing social environment in which the Project is being proposed, and of potentially affected communities. The social baseline profile provides the basis for assessing and predicting the Project's social impacts. The description includes:

- Analysis of key population and demographic indicators, including data from the 2021 ABS Census of Population and Housing
- Desktop audit of community facilities, public services and places of special interest drawing on Council's database to identify likely locations of community activity, and the distribution of services and facilities that are likely to be accessed by communities within the social locality.
- A review of regional planning policies and strategies to contextualise the Project. Outcomes of community engagement completed by WestWind relating to the Project has also informed this Project context.

The social locality is informed by the scoping of social impacts and will be further refined and updated accordingly to Project changes and further investigation of impacts during the detailed social impact assessment phase.

The description of the social baseline provides a summary of the social locality, including a high-level overview of regional demographic characteristics, socio-economic backgrounds, land use, key industries, and social infrastructure.



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:1,000,000

0 15 30 km

Projection: GCS GDA 1994

Figure 3: Project social locality

2.4 Scoping likely social impacts

The SIA Guideline includes specific impact magnitude levels to describe the impacts of a project to communities, infrastructure, services, and health. The magnitude levels outlined in the SIA Guideline have been used in this section to describe the socio-economic impacts of the proposal. The scoping of likely social impacts resulting from the Project has been guided by the SIA Guideline and with reference to the social impact categories presented in Table 2-1.

The scoping of likely social impacts included:

- Gaining an understanding of the Project's social locality
- Reviewing the outcomes of consultation activities conducted by WestWind to date and considering community opinions and sentiment towards the project activities through a desktop research and traditional and social media scan.
- Considering the characteristic of the communities within the social locality (the social baseline) that is, identifying individuals and communities who are likely to experience social impacts associated with the Project with particular focus on temporary construction activities.
- Preliminary identification and assessment of the potential social impacts of the Project's construction and operation on local communities – including sensitive receivers and community assets, values, and infrastructure to determine the social impacts significance rating
- Preliminary identification and assessment of management and mitigation measures to avoid, minimise, manage, or mitigate the identified impacts.

2.4.1 Determining the level of SIA assessment

A key objective of the SIA scoping phase is to identify the level of assessment required for identified social impacts, and to inform the Project design and planning approvals. The approach used to determine the level of assessment required for the identified social impacts has been completed in accordance with the SIA Guideline.

A significance assessment was undertaken using the SIA Guideline risk matrix (refer to Appendix A). The risk matrix considers social impact likelihood, and magnitude through the assessment of the identified project impact extend, duration, intensity, and the sensitivity of the potentially affected stakeholder group.

The level of assessment helps to determine the extent of effort and data required to evaluate the impact during the detailed assessment. The levels of assessment and the indicative data requirements are shown in Table 2-2. The scoped social impacts and their required level of assessment are outlined in Chapter 7.

Table 2-2 Level of assessment

Level of assessment		**Secondary data**	**Primary data *Consultation***	**Research**
Detailed	The project may result in significant social impacts, including cumulative impacts	Required	Broad consultation	Targeted research
Standard	The project is unlikely to result in significant social impacts, including cumulative impacts	Required	Targeted consultation	Potentially targeted research
Minor	The project may result in minor social impacts	Required	Limited – if required (e.g. local council)	Not required
Not relevant	The project will have no social impact, or the social impacts of the project will be so small that they do not warrant consideration.			

Source: (DPE, 2023)

3 Policy framework

The review of National, State, and local plans, policies and strategies highlighted a series of strategy drivers for the Project. Overall, the Project aligns with the State-focused goals and local strategic plan accountabilities. Table 3-1 provides an overview of the Project's alignment with key government planning documents and strategies.

Table 3-1 Summary of energy policies in NSW and their relevance to the project

Policy document	Detail	Relevance
NSW Climate Change Policy Framework (2016)[1]	The aim of the framework is to maximise the economic, social, and environmental wellbeing of NSW in the context of a changing climate, as well as current and emerging international and national policy settings and actions to address climate change. There are two key objectives: 1. Achieve net-zero carbon emissions by 2050; and 2. Be more resilient to a changing climate.	The Project would contribute to achieving the two key objectives, by providing a source of renewable energy to the state.
NSW Electricity Strategy (2019)[2]	The strategy is the NSW Government's plan for a reliable, affordable, and sustainable electricity future. The NSW Government has three objectives for the electricity system: reliability, affordability, and sustainability. The NSW Government's preference is for the market to deliver the investment required to ensure reliable and affordable electricity. The NSW Government will support the development of new transmission to connect low-cost generation to the electricity system by developing its Renewable Energy Zones (REZ). New generation is considered essential to improve the affordability and reliability of the electricity system and to protect the environment.	The Project would contribute to the NSW Electricity Strategy by providing new, renewable energy generation to support the state's electricity system.
NSW Net Zero Plan Stage 1: 2020-2030 (2020)[3]	The NSW Government's objective is to achieve net zero emissions by 2050 by creating new jobs, cutting household costs and attracting investment. The Net Zero Plan Stage 1: 2020–2030 sets out how the NSW Government will deliver on this objective over the next decade. The forecast is to deliver a 35% emissions reduction in NSW by 2030 compared to where we were in 2005. A priority area of the plan is to drive uptake of proven emissions reduction technologies that grow the economy, create new jobs, or reduce the cost of living. It is noted that some low emissions technologies, such as firmed renewable generation and home energy efficiency products, are now the most cost-competitive new way to generate power and reduce electricity bills.	The Project would contribute to the state's emissions reductions targets by providing firmed renewable energy to the state. The Project is also likely to create new jobs and positively impact the local economy.

[1] NSW Office of Environment and Heritage, 2016, *NSW Climate Change Policy Framework*, viewed 6 March 2024, <https://www.energy.nsw.gov.au/sites/default/files/2022-08/nsw-climate-change-policy-framework-160618.pdf>
[2] NSW Department of Planning, Industry and Environment, 2019, *NSW Electricity Strategy*, viewed 6 March 2024, <https://www.energy.nsw.gov.au/sites/default/files/2022-08/2019_11_NSW_ElectricityStrategyDetailed.pdf>
[3] NSW Department of Planning, Industry and Environment, 2020, *NSW Net Zero Plan Stage 1: 2020-2030*, viewed 6 March 2024, <https://www.energy.nsw.gov.au/sites/default/files/2022-08/net-zero-plan-2020-2030-200057.pdf>

Policy document	Detail	Relevance
NSW Electricity Infrastructure Roadmap (2020)[4]	The NSW Electricity Infrastructure Roadmap is the state's plan to transition the electricity sector. The vision is for NSW consumers to enjoy some of the cheapest, cleanest, most reliable energy in the world. The aim is to have a modern electricity system that is built on five foundational pillars: 1. Driving investment in regional NSW: supporting the regions as the state's economic and energy powerhouse. 2. Delivering energy storage infrastructure: supporting stable, long-term energy storage in NSW. 3. Delivering Renewable Energy Zones (REZ): coordinating regional transmission and renewable generation in the right places for local communities. 4. Keeping the grid secure and reliable: backing the system with gas, batteries or other reliable sources as needed. 5. Harnessing opportunities for industry: empowering new and revitalised industries with cheap, reliable, and low emissions electricity.	The Project would contribute to the state's vision of a modern electricity system, and provision of low emissions electricity.
Draft Far West Regional Plan 2041 (2022)[5]	The Draft Far West Regional Plan 2041 is an update of the Far West Regional Plan 2036 (see below). It outlines the NSW Government's vision for the future of the Far West Region. The draft regional plan provides a targeted land use planning approach focused, among other themes, on: ■ the opportunities of a changing regional economy and catalyst projects such as the South-West Renewable Energy Zone, and major renewable energy, livestock processing and mining projects ■ capitalising on strong agricultural, extractive resource, renewable energy, government service and visitor economy sectors ■ Adapting to a hotter and drier climate and the NSW Government's commitment for net zero carbon emissions by 2050. ■ providing services to the region's dispersed population ■ helping Local Aboriginal Land Councils to utilise the planning system and optimise their land holdings. The vision for the region is to be a leader in climate change adaptation and supporting remote communities. Growth in renewable energy creates jobs in smaller communities and in associated industries. The aspiration is that in 2041, people in the Far West Region enjoy higher standard of living and wellbeing, and quality built and natural environments. People living in Wentworth LGAs have ties with communities along the Murray River, and can access the infrastructure and services in Mildura, Victoria.	The Project would contribute to remote communities wellbeing by creating local job opportunities while improving the local communities ability to adapt to a changing climate. The Project would support the Draft Far West Regional Plan's aspiration for the local community to enjoy a higher standard of living and wellbeing, and quality-built environments.

[4] NSW Department of Planning, Industry and Environment, 2020, *NSW Electricity Infrastructure Roadmap*, viewed 6 March 2024, <https://www.energy.nsw.gov.au/sites/default/files/2022-08/NSW%20Electricity%20Infrastructure%20Roadmap%20-%20Detailed%20Report.pdf>

[5] NSW Department of Planning and Environment, 2022, *Draft Far West Regional Plan 2041*, viewed 12 April 2024, https://shared-drupal-s3fs.s3.ap-southeast-2.amazonaws.com/master-test/fapub_pdf/Lisa+Drupal+Documents/Draft+Far+West+Regional+Plan+2041.pdf

Policy document	Detail	Relevance
Far West Regional Plan 2036 (2017)[6]	The Far West Regional Plan aims to guide the NSW Government's land use planning priorities and decisions over the next 20 years. It provides an overarching framework to guide subsequent and more detailed land use plans, development proposals and infrastructure funding decisions. The vision for the region is to have a diverse economy, supported by the right infrastructure, with an exceptional natural environment and resilient communities. For Wentworth Shire specifically, some of the key opportunities outlined include: 1. Growth in renewable energy – including wind, solar and bioenergy generation – to promote local jobs in smaller communities and provide opportunities for associated industries 2. Increasing ties with other communities along the Murray River, and leverage opportunities associated with growth in Mildura, Victoria 3. New revenue streams from mining operations to increase local employment and economic output 4. Investigate development of a regional tourism trail between Balranald, Wentworth, Mallee Cliffs, Mungo and Yanga floodplains	The Project would contribute to the local community's energy security. Additionally, the Project will contribute to the growth in renewable energy in the region.
Wentworth Shire Council Local Strategic Planning Statement (2020)[7]	The Local Strategic Planning Statement sets the land use framework for Wentworth Shire's economic, social and environmental land use needs over the next 20 years. It The gives effect to the *Far West Regional Plan 2036* implementing the directions and actions at a local level. Wentworth Shire aims to leverage the area's rural, industrial and residential strengths to generate economic and social growth opportunities over the next 20 years. There are a number of planning priorities, which include to: diversify energy supply through renewable energy generation; enhance access to education and training; collaborate and partner with Aboriginal communities; provide greater opportunities for affordable housing; minimise potential amenity impacts from employment development, increase resilience to climate change; and protect and manage environmental assets.	The Project would contribute to the diversification of energy supply within the Wentworth Shire LGA through the construction of a wind farm north of Lake Victoria. The Project would potentially include the provision of a worker accommodation facility, however further consultation would determine the feasibility of this facility, including capacity.
Wentworth Shire Community Strategic Plan 2022-2032 (2022)[8]	The purpose of the Community Strategic Plan is to outline the future vision and aspirations of the community to assist with long term planning, prioritisation and decision making in Wentworth Shire. There are economic, social, environmental and civic leadership strategies and objectives, which include to: promote the shire as an ideal location for investment and the establishment of innovative sustainable and diversified industries; and encourage and support initiatives that improve local employment opportunities.	The Project would establish a new industry within the Wentworth Shire LGA which would contribute to sustainable outcomes across the community. Additionally, the construction and operation of the Project would likely allow for increased local employment opportunities, thereby improving economic outcomes in the local community.

[6] NSW Department of Planning, Industry and Environment, 2017, *Far West Regional Plan 2036*, viewed 6 March 2024, <https://www.planning.nsw.gov.au/sites/default/files/2023-03/far-west-regional-plan-2036.pdf>

[7] Wentworth Shire Council, 2020, *Wentworth Shire Council Local Strategic Planning Statement*, viewed 6 March 2024, <https://www.wentworth.nsw.gov.au/wp-content/uploads/2020/05/3FINAL-WSC-Local-Strategic-Planning-Statement-Adopted-by-Council-18-March-2020.pdf>

[8] Wentworth Shire Council, 2022, *Wentworth Shire Community Strategic Plan 2022-2032*, viewed 6 March 2024, <https://www.wentworth.nsw.gov.au/wp-content/uploads/2022/08/2022-2032-Community-Strategic-Plan.pdf>

Policy document	Detail	Relevance
Leading Practice Principles: First Nations and Renewable Energy Projects (2024)[9]	Co-authored by the Clean Energy Council and KPMG and co-designed with First Nations peoples, this is the first comprehensive national guide on First Nations engagement, participation and benefit-sharing for renewable energy projects. There are 10 key principles and associated practices that by incorporating into their operations and decision-making processes, proponents of renewable energy projects can demonstrate they are respecting the rights of First Nations peoples and improving outcomes for First Nations rightsholders and communities. The guide outlines First Nations expectations for the sector and details the key considerations for First Nations engagement at each stage of the project lifecycle.	The Project should consider following this guide to appropriately and effectively engage with First Nations peoples and communities in the Project's social locality.

[9] Clean Energy Council, 2024, *Leading Practice Principles: First Nations and Renewable Energy Projects*, viewed 6 March 2024, <https://assets.cleanenergycouncil.org.au/documents/resources/reports/Leading-Practice-Principles-First-Nations-and-Renewable-Energy-Projects.pdf>

4 Existing environment

This chapter presents a description of the existing socio-economic environment within the social locality, including the regional and local social localities and describes the social context without the Project. It documents the existing characteristics of the communities within the Project's social locality, including identified vulnerable groups. The information presented in this chapter is predominantly based on ABS 2021 Census Data. Detailed demographic data referenced throughout this chapter is provided in Appendix B.

4.1 Community profile

This section provides an overview of the regional and local communities within the social locality, including consideration of population, population changes and Aboriginal populations, dwellings, and age groups. An overview the key industries and areas of employment for the Project's social locality is included in Section 4.3.

Key characteristics of the local and regional social localities include:

- A slight skew towards an older population, which is projected to increase in the coming decades.[10]
- A notable Aboriginal and Torres Strait Islander population, particularly in the suburbs of Dareton and Coomealla.
- A somehow diverse population in terms of residents born overseas, with the suburb of Renmark having a slightly more diverse population with a notable population of India-born residents.
- A higher incidence of long-term health conditions compared with NSW.
- Varied employment and income across the social locality, with suburbs that are notably advantaged and suburbs that are notably disadvantaged.
- Vulnerable groups are likely to include the older population, the Aboriginal and Torres Strait Islander population, residents who do not speak English, residents with long-term health conditions, and low-income or unemployed workers.
- Increases in population and housing demand are expected in towns in the south-western part of the region, especially in the Wentworth LGA. Intermittent peak increases will occur in other towns in response to local economic circumstances such as new mine openings, infrastructure and renewable energy projects, and seasonal agricultural and tourism activities.[11]

Table 4-1 provides a demographic overview of the Project's social locality. Refer to Table B.1 in Appendix B for tabulated demographic data.

Table 4-1 Demographic overview of social locality

Topic	Demographic overview
Population and age	■ The Project's social locality has a population of 14,439 residents. ■ The social locality has been growing at an average rate of 1.0% (140 residents) per year since 2016. ■ The median age is 44. The age profile is relatively balanced: 28.5% of residents are aged under 25, 22.5% between 25-44, 25.8% between 45-64, and 23.2% over 65. This is similar to the Wentworth LGA, although both age profiles skew slightly older than in NSW, where fewer residents are over 65 years old (17.6%).
Aboriginal and Torres Strait Islander population	■ The Aboriginal and/or Torres Strait Islander population accounts for 6.8% of residents. This is slightly lower than the Wentworth LGA (8.3%), however both are higher than the state (3.4%). ■ Aboriginal and/or Torres Strait Islander residents are concentrated predominantly in the suburbs of Dareton (26.5%) and Coomealla (16.7%).

[10] NSW Department of Planning, Housing and Infrastructure, 2022, *Population projections*, viewed 7 March 2024, <https://www.planning.nsw.gov.au/research-and-demography/population-projections>

[11] Draft Far West Regional Plan 2041. https://www.planning.nsw.gov.au/plans-for-your-area/regional-plans/far-west

Topic	Demographic overview
Overseas born population	■ The overseas born population accounts for 9.9% of residents. This is higher than the Wentworth LGA (6.2%), however both are lower than the state (29.3%). The most common overseas birth countries include India (1.6%), England (1.6%) and New Zealand (0.7%). ■ The most common languages spoken at home other than English are Punjabi (1.8%), Greek (1.0%) and Italian (0.6%). ■ The suburb of Renmark has the highest overseas born population at 17.7% with a notable population of India-born residents.
Long-term health conditions	■ 32.8% of residents have one or more long-term health conditions. The incidence of long-term health conditions increases with age. There is a higher incidence of long-term health conditions compared to the state (27%). Consequently, there may be a prevalence of sensitivity to any external factors that are perceived to cause or contribute to negative health and wellbeing impacts. ■ The most common long-term health conditions include arthritis, mental health condition, asthma, diabetes and heart disease.
Employment	■ The most common industries of employment in the social locality include Agriculture Forestry and Fishing (13.4%), Health Care and Social Assistance (13.4%) and Retail Trade (10.0%). ■ The unemployment rate is 5.2%, which is slightly higher than both the Wentworth LGA (4.2%) and state (4.9%). ■ Unemployment is highest in the suburb of Dareton at 15.4%. Dareton has historically been noted as one of the most disadvantaged Aboriginal communities in NSW which may contribute the high unemployment rate. The Aboriginal community was removed from their country in Dareton by the State government and then returned to live in makeshift accommodation around Dareton in the 1950s and 60s.[12] ■ Most residents (75.4%) travel to work by car, either as driver or passenger.
Median weekly household income	■ The median weekly household income in the social locality is $1,238, which is lower than both the Wentworth LGA ($1,392) and state ($1,829). ■ The suburbs of Boeill Creek and Gol Gol have the highest median weekly household income at $2,399 and $2,104 respectively. ■ In contrast, the suburbs of Dareton and Wentworth have the lowest median weekly household income at $823 and $952 respectively. This suggests that Dareton and Wentworth are more economically disadvantaged compared to the broader region.

Table 4-2 provides demographic insights into the Project's key communities. Refer to Table B.2 in Appendix B for tabulated demographic data.

Table 4-2 Demographic insights into key communities

Key community	Demographic insights
Mildura - Buronga (Buronga Part) (NSW)	■ Buronga is situated on the banks of the Murray River opposite the town of Mildura. It is the gateway to Wentworth, Mungo National Park, Euston and Balranald.[13] ■ Buronga has the lowest median age (38) out of the key communities, which is lower than the state (39). Buronga also has the lowest incidence of long-term health conditions at 27.4%, which is similar to NSW (27.0%). ■ Buronga has the highest median weekly household income at $1,722. This is much higher than the other key communities and is closer to the state ($1,829). ■ Buronga may be a key community that experiences higher levels of advantage, and therefore may be more adaptable to changes in their environment and surroundings.

[12] NSW Legislative Council Standing Committee on Social Issues, 2008, *Inquiry Into Closing The Gap – Overcoming Indigenous Disadvantage*, viewed 7 March 2024, <https://www.parliament.nsw.gov.au/lcdocs/submissions/38748/Submission%2028%20-%20name%20suppressed.pdf

[13] Discover Murray River, n.d., *Buronga in NSW on the Murray River directly opposite Mildura*, viewed 16 May 2024, <http://www.murrayriver.com.au/buronga/>

Key community	Demographic insights
Wentworth (NSW)	▪ Wentworth is a historic town on the junction of the Murray and Darling Rivers, approximately 27 km from Mildura. It is the popular access point for visitors wanting to explore Lake Mungo and Mungo National Park.[14] ▪ Out of the key communities, Wentworth has both the highest median age at 56, and the highest percentage of residents over 65 years old (36.3%). This indicates an older population compared to the region, who may be particularly concerned with health and wellbeing impacts of nearby major projects. ▪ Wentworth has the highest percentage of people with long-term health conditions at 40.6%. This is a higher incidence of long-term health conditions compared to the state (27%). The most common long-term health conditions are Arthritis, Mental Health Condition and Asthma. Consequently, there may be a prevalence of sensitivity to any external factors that are perceived to cause or contribute to negative health and wellbeing impacts. ▪ Wentworth has the second lowest median weekly household income at $898. This is in stark contrast to the Wentworth LGA in which the town is situated, where the median weekly household income is $1,392. This suggests that Wentworth is more disadvantaged compared to the broader region.
Dareton (NSW)	▪ Dareton is a town in NSW, Australia. The town is located 20 km from Mildura and 13 km from Wentworth. Dareton had its genesis in 1922 with the recommendation to establish irrigation in the area and is now at the centre of the Coomealla Irrigation Area.[15] ▪ Out of the key communities, Dareton is the smallest in terms of population size with 456 residents. ▪ Dareton has the highest proportion of Aboriginal and Torres Strait Islander population at 26.5%. Dareton's high Aboriginal or Torres Strait Islander population coupled with its proximity to the Namatjira Aboriginal Settlement indicates the need for strong consideration of Indigenous perspectives and interests in making planning decisions that affect the area.[16] ▪ Dareton has the highest unemployment rate at 15.4%. Dareton has historically been noted as one of the most disadvantaged Aboriginal communities in NSW which may contribute the high unemployment rate. The Aboriginal community was removed from their country in Dareton by the State government and then returned to live in makeshift accommodation around Dareton in the 1950s and 60s.[17] ▪ Dareton has the lowest median weekly household income at $823. This is in stark contrast to the Wentworth LGA in which the town is situated, where the median weekly household income is $1,392. This suggests that Dareton is more economically disadvantaged compared to the broader region.
Mildura – Buronga (Mildura Part) (VIC)	▪ Mildura is a major regional city within the Mildura LGA. It is the cultural and economic centre of a region known as 'Sunraysia'. It is also a popular riverside resort town.[18] Mildura Airport, situated southwest of the city, is the busiest regional airport in Victoria.[19] ▪ Mildura stands out with the largest population of the key communities with 35,652 residents. This suggests that Mildura may be a more prominent town servicing an increase in workers and supply to the Lake Victoria site. ▪ Mildura has the second lowest median age (39) out of the key communities, which is the same as the state. ▪ Mildura has the second highest percentage of overseas born residents at 16.9%, reflecting a diverse population higher than the social locality (9.9%). The most common overseas birth country is Malaysia (884 residents), and the most common language other than English is Mandarin (811 residents). Engagement undertaken for the Project should be cognisant of any affected residents who do not speak English.

[14] Aussie Towns, n.d., *Wentworth, NSW*, viewed 6 March 2024, <https://www.aussietowns.com.au/town/wentworth-nsw>
[15] Australian Explorer, n.d., *Dareton, NSW*, viewed 6 March 2024, <https://www.australianexplorer.com/dareton.htm>
[16] Wentworth Shire Council, 2021, *Our Town Our Future Dareton Revitalised Strategy*, viewed 7 March 2024, <https://www.wentworth.nsw.gov.au/wp-content/uploads/2021/07/Our-Town-Our-Future-Dareton-Revitalised-Strategy-FINAL.pdf>
[17] NSW Legislative Council Standing Committee on Social Issues, 2008, *Inquiry Into Closing The Gap – Overcoming Indigenous Disadvantage*, viewed 7 March 2024, <https://www.parliament.nsw.gov.au/lcdocs/submissions/38748/Submission%2028%20-%20name%20suppressed.pdf
[18] Aussie Towns, n.d., *Mildura, VIC*, viewed 6 March 2024, <https://www.aussietowns.com.au/town/mildura-vic>
[19] Mildura Airport, n.d., *Homepage*, viewed 6 March 2024, <https://milduraairport.com.au/>

Key community	Demographic insights
Merbein (VIC)	■ Merbein is a town on the Victoria-NSW border, approximately 10 km from Mildura, on the banks of the Murray River. Merbein is at the heart of the irrigation district.[20] ■ Out of the key communities, Merbein has the second highest percentage of people with long-term health conditions at 40.5%. This is a higher incidence of long-term health conditions compared to the state (27%). The most common long-term health conditions are Arthritis, Mental Health Condition and Asthma. Consequently, there may be a prevalence of sensitivity to any external factors that are perceived to cause or contribute to negative health and wellbeing impacts.
Renmark (SA)	■ Renmark is a town on the Murray River in the east of SA. It is located 258 km north east of Adelaide, 139 km west of Mildura.[21] ■ Out of the key communities, Renmark is the second largest in terms of population size with 4,703 residents. ■ Renmark has the highest percentage of overseas born residents at 17.7%, reflecting a diverse population higher than the social locality (9.9%). The most common overseas birth country is India (209 residents), and the most common language other than English is Punjabi (254 residents). Engagement undertaken for the Project should be cognisant of any affected residents who do not speak English.

4.2 Economic overview

Table 4-3 outlines the key industries and areas of employment for the Project's social locality and key communities compared to the Wentworth LGA and state of NSW.

Table 4-3 Key occupations and industries in the social locality and key communities

Location	Key occupations and industries
Social locality	
Social locality	■ Of the 14,439 residents in the social locality, the labour force accounts for 53.1%. There are 326 unemployed workers (5.2% unemployment rate). ■ The most common occupations are Labourers (16.7%), Managers (15.1%) and Professionals (12.9%). ■ The top industries of employment are Agriculture, Forestry and Fishing (13.4%), Health Care and Social Assistance (13.4%) and Retail Trade (10.0%).
Key communities	
Mildura - Buronga (Buronga Part) (NSW)	■ Of the 2,400 residents in this key community, the labour force accounts for 62.2%. There are 49 unemployed workers (4.0% unemployment rate). ■ The most common occupations are Professionals (17.0%), Managers (15.2%) and Technicians and Trades Workers (14.5%). ■ The top industries of employment are Health Care and Social Assistance (14.1%), Education and Training (11.6%) and Retail Trade (10.4%).
Wentworth (NSW)	■ Of the 1,305 residents in this key community, the labour force accounts for 37.9%. There are 34 unemployed workers (7.1% unemployment rate). ■ The most common occupations are Professionals (16.4%), Labourers (14.4%) and Technicians and Trades Workers (13.4%). ■ The top industries of employment are Health Care and Social Assistance (18.9%), Accommodation and Food Services (12.2%) and Public Administration and Safety (10.4%).
Dareton (NSW)	■ Of the 456 residents in this key community, the labour force accounts for 30.3%. There are 17 unemployed workers (15.4% unemployment rate). ■ The most common occupations are Community and Personal Service Workers (17.5%), Technicians and Trades Workers (14.4%) and Labourers (13.4%). ■ The top industries of employment are Health Care and Social Assistance (18.6%), Public Administration and Safety (11.3%) and Construction (10.3%).

[20] Discover Murray River, n.d., *Merbein, Victoria accommodation, attractions and information, NSW*, viewed 6 March 2024, <http://www.murrayriver.com.au/merbein/>

[21] Aussie Towns, n.d., *Renmark, SA*, viewed 6 March 2024, <https://www.aussietowns.com.au/town/renmark-sa
>
>

Location	Key occupations and industries
Mildura – Buronga (Mildura Part) (VIC)	■ Of the 35,652 residents in this key community, the labour force accounts for 55.8%. There are 954 unemployed workers (5.9% unemployment rate). ■ The most common occupations are Professionals (18.3%), Labourers (14.8%) and Community and Personal Service Workers (13.3%). ■ The top industries of employment are Health Care and Social Assistance (17.0%), Retail Trade (11.4%) and Education and Training (8.7%).
Merbein (VIC)	■ Of the 2,077 residents in this key community, the labour force accounts for 49.0%. There are 53 unemployed workers (6.6% unemployment rate). ■ The most common occupations are Labourers (17.0%), Community and Personal Service Workers (15.9%) and Technicians and Trades Workers (14.0%). ■ The top industries of employment are Health Care and Social Assistance (17.1%), Retail Trade (12.5%) and Construction (8.0%).
Renmark (SA)	■ Of the 4,703 residents in this key community, the labour force accounts for 51.5%. There are 145 unemployed workers (7.1% unemployment rate). ■ The most common occupations are Labourers (23.7%), Community and Personal Service Workers (13.2%) and Managers (12.2%). ■ The top industries of employment are Agriculture, Forestry and Fishing (15.9%), Health Care and Social Assistance (13.3%) and Retail Trade (10.8%).
Benchmark	
Wentworth LGA	■ Of the 7,453 residents in this LGA, the labour force accounts for 55.2%. There are 142 unemployed workers (4.2% unemployment rate). ■ The most common occupations are Managers (20.7%), Professionals (13.9%) and Technicians and Trades Workers (13.5%). ■ The top industries of employment are Agriculture, Forestry and Fishing (15.8%), Health Care and Social Assistance (12.0%) and Education and Training (8.5%).
NSW	■ Of the 8,072,163 residents in this state, the labour force accounts for 58.7%. There are 189,852 unemployed workers (4.9% unemployment rate). ■ The most common occupations are Professionals (25.8%), Managers (14.6%) and Clerical and Administrative Workers (13.0%). ■ The top industries of employment are Health Care and Social Assistance (14.4%), Retail Trade (9.0%) and Professional, Scientific and Technical Services (8.9%).

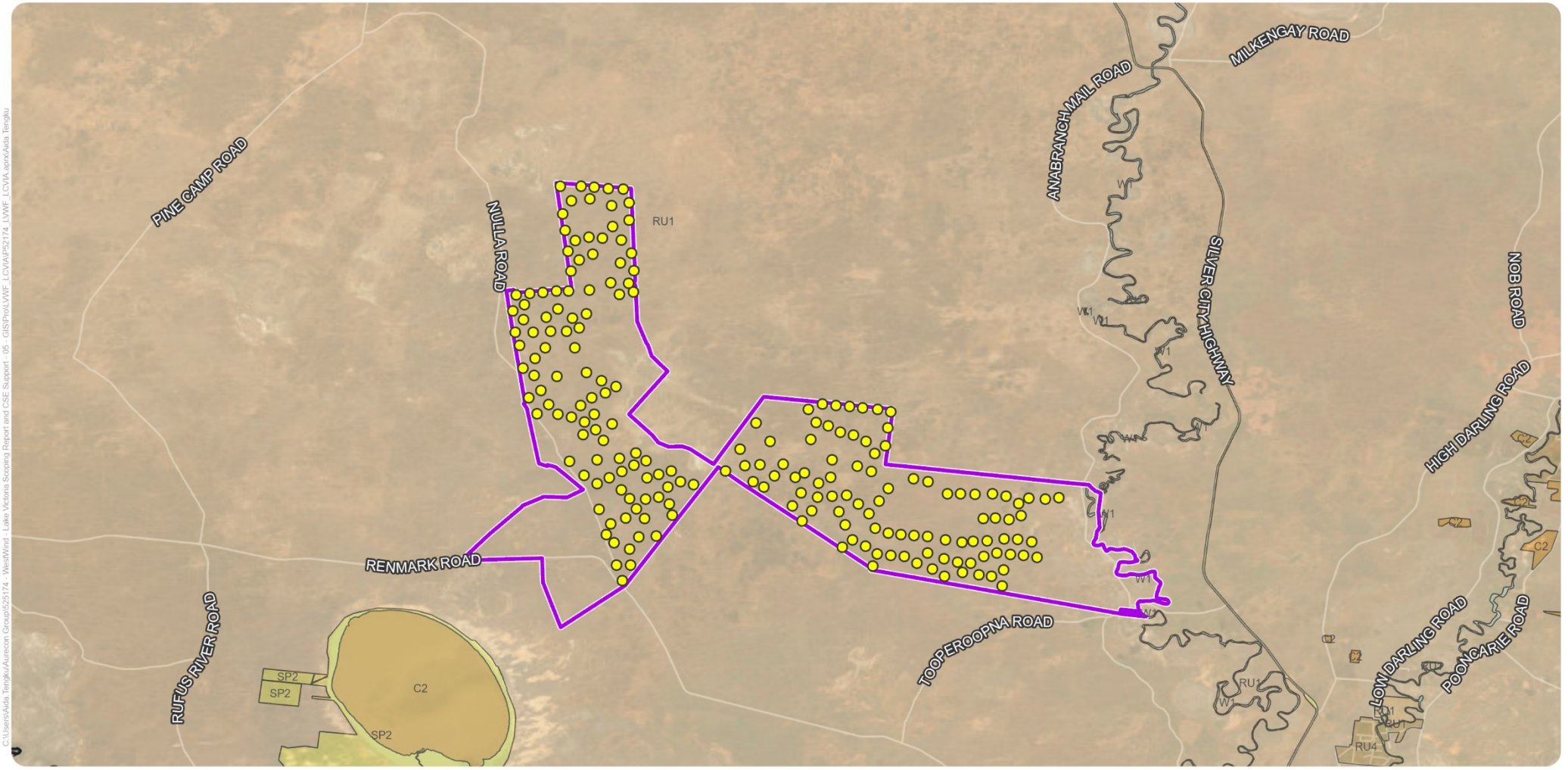
4.3 Land use context

The Project area is located on land primarily used for agricultural purposes. The land has been modified over time through agricultural practices, including livestock grazing and some cropping. Patches of wooded vegetation are scattered across the Project area, with early desktop investigations in the area indicating potential constraints for development from the presence of some remnant native vegetation.

The Project area is bordered by the Great Darling Anabranch River towards the east and Lake Victoria is approximately 4.4 kilometres south-west. Preliminary desktop investigations indicate that these waterways are likely going to be a source of some cultural heritage and hydrology constraints for the Project.

The Project area includes nine host dwellings, while seven dwellings are located within five kilometres of the Project area. The closest suburb to the Project area is Pomona, which includes a local public school and community hall. The nearest shops and sources of accommodation are in the town of Wentworth.

The land use zoning can be seen in Figure 4.



Project area

Lake Victoria Wind Farm Infrastructure

Turbine location

Land Zoning

- C2 - Environmental Conservation / Management
- C4 - Environmental Living
- RU1 - Primary Production
- RU4 - Primary Production Small Lots
- SP2 - Infrastructure
- W1 - Natural Waterways



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:415,000

0 5 10 km

Projection: GCS GDA 1994

Figure 4: Land Zoning

4.4 Social infrastructure overview

Social infrastructure comprises of schools and other education institutions, medical services, emergency services, recreational facilities, and community facilities.

Most of the social infrastructure nearby to the Project is in the Mildura township. Education institutions in Mildura include four public primary schools, two public secondary schools, one Catholic primary school, one Catholic secondary school, and two private denominational primary and secondary schools.[22] There is also a La Trobe university campus and TAFE college. There are also schools in Dareton, Wentworth, Pomona, Buronga and Gol Gol.

The Mildura township is also well serviced by health facilities. There are at least seven medical centres and two community health centres in town. There are also medical centres in Buronga, Merbein, Wentworth and Renmark. Dareton has specialised health services for mental health and drug and alcohol use. Major public and private hospitals (Mildura Base Public Hospital and Mildura Health Private Hospital) are located in the Mildura township. The Mildura Base Public Hospital provides services such as emergency and intensive care, maternity, general medicine and surgery, oncology and mental health.[23] A district hospital in Renmark (Renmark Paringa District Hospital) provides in-hospital care, specialist surgical, outpatients and aged care beds.[24]

Regarding emergency services, in addition to the Mildura Base Public Hospital for medical emergencies, there are fire and police stations in Mildura, Buronga, Merbein, Wentworth, Dareton and Renmark.

Recreational facilities in the Project's social locality and key communities include Mildura Sporting Precinct, Mildura Old Aerodrome Sporting Complex, Mildura Waves Aquatic and Leisure Centre, Mildura Swimming Club, South Mildura Football Club and Wentworth Sporting Complex Golf Club. There are also a range of community facilities including public swimming pools, community centres, childcare centres and aged care across Mildura, Merbein, Wentworth and Renmark.

[22] Australian Schools Directory, n.d., *Schools in Mildura, Irymple, Redcliffs, and surrounds*, viewed 7 March 2024, <https://www.australianschoolsdirectory.com.au/mildura-area-vic-schools>

[23] Mildura Base Public Hospital, n.d., *Our Hospital*, viewed 7 March 2024, <https://www.mbph.org.au/about/about-our-hospital>

[24] SA Health, n.d., *Renmark Paringa District Hospital*, viewed 7 March 2024, <https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/services/hospitals/regional+hospitals+and+health+services/rmclhn+hospitals+and+health+services/renmark+paringa+district+hospital/renmark+paringa+district+hospital>

5 Stakeholder engagement

This preliminary SIA evaluates impacts for those individuals, families, and communities who are likely to experience social impacts associated with the proposed development, with particular focus on temporary construction activities, and potential public benefit in delivering the Project.

WestWind has started a stakeholder engagement program to identify, inform and consult stakeholders and the community about the Project. Early stakeholder consultation aimed to provide a preliminary understanding of stakeholder needs and concerns. A Community and Stakeholder Engagement Report will be prepared for the Project to inform the Project Scoping Report.

WestWind has started engaging First Nations and Traditional Owners regarding the project. It is imperative that this engagement occurs and results in meaningful, collaborative, and shared benefit outcomes. Clean Energy Council's *Leading Practice Principles: First Nations and Renewable Energy Projects*[25] guide is highly recommended to be used throughout the engagement process.

Table 5-1 lists the likely stakeholders interested in the Project, as well as the potential anticipated areas of interest and concern relevant to the social impact assessment.

Table 5-1 Project stakeholders and potential areas of interest/concern

Stakeholder group	Potential interest/concerns
Associated landowner	Discussions on the Project, land access, Project impacts including operational impacts, visual amenity, safety concerns, impact on livestock, construction disruption, remuneration and Project impacts on land value. Decommissioning
Nearby residents within 5 kilometres	Discussions on the Project, updates, Project construction and operation impacts. Stakeholder consultation, community wellbeing and benefit sharing initiatives, impacts to property values and local amenity, economic benefits, and job creation opportunities.
Traditional owners	Potential impacts to cultural heritage values. Management of local Aboriginal values. Project related opportunities
Nearby mines	Workforce availability, cumulative impacts, project interfaces.
Local industry, tourism, business, agricultural organisations	Economic impacts, job and revenue creation opportunities, opportunities for tourism and local business activation. Project related workforce impacts on accommodation and provision of local services. Economic growth and opportunities, impact on farming operations, work opportunities, impacts on operations, delays on road network, supply and contract opportunities, employment, and training opportunities.
Commonwealth, State, Local government	Community consultation, project impacts, jobs, economic impacts, opportunities for tourism and industry benefits, impact to residents, local business. Benefit sharing initiatives, community benefits and wellbeing. Community consultation and investment on local roads and infrastructure. Encouraging growth and development of the locality and region.
Emergency services	Project impacts, including community access to services and road access in the event of emergency, bushfire mitigation and increased services demand by increased workforce, construction impacts on health and safety, training opportunities, safety plans
Interest groups and community services and facilities	Discussions on the Project, stakeholder consultation, business opportunities, environmental impacts, Project construction and operation impacts, impacts on local roads and community infrastructure, increased workforce, and training opportunities

5.1 Engagement outcomes and perceived impacts

As detailed in the Project Community and Stakeholder Engagement report, direct engagement has occurred with Wentworth Council, nearby landowners, Barkandji Prescribed Body Corporate, nearby residents, mining companies, and other key stakeholders. In addition to the engagement with nearby neighbours and landowners, two Lake Victoria Energy Park Open Days sessions were held in March 2024 to gather feedback from the broader community. Refer to the Community and Stakeholder Engagement report for a detailed list of stakeholders and engagement activities.

[25] Clean Energy Council, 2024, *Leading Practice Principles: First Nations and Renewable Energy Projects*, viewed 6 March 2024, <https://assets.cleanenergycouncil.org.au/documents/resources/reports/Leading-Practice-Principles-First-Nations-and-Renewable-Energy-Projects.pdf>

During initial engagement WestWind sought community feedback to inform potential opportunities to provide broad community benefits. Overall, these themes represent multifaceted concerns spanning environmental, social, economic, and governance aspects of the Project. The outcomes of engagement have been used to inform further the scoping of likely social impacts with key issues of concern primarily relating to:

- Property and access impacts: Some landowners expressed concern that potential workers may not follow designated access tracks, work activities will degrade road conditions, damage gates, fences, as well as concerns about increased biosecurity risk.
- Traffic Management: There were mentions of increased traffic and its impact on roads, as well as disruptions to moving stock and agricultural activities.
- Operational risks and visual impacts: Concerns were expressed relating to noise from turbines, potential interference with future cropping activities, disruption to lambing and livestock. Some landowners expressed concerns relating to visual impacts from turbines on local landscapes.
- Decision-making systems: Some landowners expressed feedback relating to promises not being fulfilled, consultation fatigue, impacts post project decommissioning, and a lack of trust in both the project developers and government institutions.
- Safety: Concerns were raised about safety and potential accidents due to turbine failure.

During consultation, the Wentworth Shire Council Executive Team was generally supportive of the Project and raised the following points for consideration:

- The importance of tangible community benefits and minimal impact on public infrastructure, particularly roads.
- The Secure Energy's contribution to Wentworth's financial well-being, reflecting a positive precedent for the Project's potential impact.

WestWind also conducted an open introductory meeting with the Barkandji Native Title Group Aboriginal Corporation CEO, to introduce personnel, provide an overview of the Project, address any concerns, and explore opportunities for involvement. Per the Project Community and Stakeholder Engagement report the Barkandji CEO raised the following matters for consideration:

- The importance of Barkandji involvement during both the assessment and construction phases to manage cultural heritage features.
- Utilising the Barkandji ranger team for pest animal and weed control during the construction and operational phases.
- Establishing future meetings and site visits to discuss opportunities as the Project progresses.

Further stakeholder engagement will be undertaken as the Project progresses. WestWind will continue to engage with local authorities and impacted landowners ahead of the EIS submission to develop tailored mitigation strategies, to ensure resolution of property-related concerns.

5.1.1 Key community values, needs and aspirations

Based on a social and traditional media scan undertaken in early March 2024, there may be local support for renewable energy projects in the Wentworth region. In the *Wentworth Shire Community Strategic Plan 2022-2032*[26] community consultation indicates a desire for economic change and development and more employment opportunities. This community consultation resulted in a key strategic pillar for Wentworth Shire Council to become a ‘vibrant, growing and thriving region’ with an objective to ‘promote the shire as an ideal location for investment and establishment of innovative, sustainable, and diversified industries’.

[26] Wentworth Shire Council, 2022, *Wentworth Shire Community Strategic Plan 2022-2032*, viewed 6 March 2024, <https://www.wentworth.nsw.gov.au/wp-content/uploads/2022/08/2022-2032-Community-Strategic-Plan.pdf>

Nearby Project EnergyConnect, a transmission line connecting NSW, VIC and SA that connects into the Buronga substation (for more information, refer to Chapter 6), may be contributing to economic development in the local community. Purpose-built accommodation camps have been set up in Buronga and Wentworth[27] which may minimise the negative impacts of a large influx of workers, and project developer Transgrid is investing in grants for local community and not-for-profit organisations in Wentworth Shire through its Community Partnerships Program.[28] There were also opportunities for local businesses to supply the project.[29]

However, Project EnergyConnect has also had some recent controversy. In late 2023 to early 2024, there has been industrial action over poor pay and working conditions,[30] with alleged breaches including non-compliant harnesses and first aid kits, poor food, water and sun safety, unqualified workers conducting electrical work, and no toilets.[31] This may contribute to negative sentiment in the area regarding energy projects.

[27] Tancredi, 2022, *EnergyConnect: works commence at Buronga*, viewed 8 March 2024, <https://www.energymagazine.com.au/energyconnect-works-commence-at-buronga/>
[28] Wentworth Shire Council, 2022, *EnergyConnect project to deliver economic benefit to Wentworth Shire*, viewed 8 March 2024, <https://www.wentworth.nsw.gov.au/energyconnect-project-to-deliver-economic-benefit-to-wentworth-shire/>
[29] Wentworth Shire Council, 2021, *Opportunity for businesses to supply for energy project*, viewed 8 March 2024, <https://www.wentworth.nsw.gov.au/opportunity-for-businesses-to-supply-for-energy-project/>
[30] Macdonald-Smith, 2024, *Transgrid strike action threatens renewables build-out*, viewed 8 March 2024, <https://www.afr.com/companies/energy/transgrid-strike-action-threatens-renewables-build-out-20240105-p5evcn>
[31] Pavlich & Kennedy, 2023, *EnergyConnect transmission line workers left in unsafe conditions without toilets, water, union alleges*, viewed 8 March 2024, <https://www.abc.net.au/news/2023-12-07/etu-safety-concerns-energyconnect-transmission-line-construction/102984916>

6 Development context

This chapter draws on several data sources to build an understanding of the development context within the region, and the social locality in which the Project is based. The closest energy development to the Project would be Project EnergyConnect (NSW – Western Section). This development would connect to the Buronga Substation and travel east to Chowilla, SA, and south to Red Cliffs, VIC. The proposed 330 kV transmission line as part of this project would pass through the south-western portion of the Project area near Renmark Road and near the northern boundary of the eastern section of the Project area. In addition, Project EnergyConnect (NSW – Eastern Section) would connect to the Buronga Substation, which is located around 40 kilometres east of the Project area, and travels east towards Wagga Wagga, NSW.

Other related developments would be located in the South West Renewable Energy Zone (REZ). The South West REZ extends to Mildura and areas of the Wentworth Shire LGA towards its western boundary. Developments such as the proposed Mallee Wind Farm and Euston Wind Farm would be located around 50 kilometres and 100 kilometres east of the Project, respectively, within the South West REZ.

There are no current wind farms operating, approved or under consideration within the Victorian Murray River REZ (VicPlan, October 2023).

Table 6-1 lists existing and proposed energy and mining projects in or near the Project social locality. Understanding the social locality's historical response to change assists in predicting how the Project may be perceived and accepted locally; and the degree to which the Project aligns or changes community values and local sentiment.

Although the following projects could boost the local economy by increasing local employment and expenditure opportunities, they could also add to the potential cumulative impacts of the Project. Workforce requirements and possible overlap of construction activities for proposed developments could also increase demand for skills, accommodation, and community and social services.

Refer to Figure 5 and Figure 6 for the regional development context.

Table 6-1 Energy and mining projects near the social locality

Project	Description
Energy projects in or near the social locality	
Project EnergyConnect (NSW)	EnergyConnect is Australia's largest energy transmission project. It involves building a new 900 km transmission line to connect the energy grids in NSW, VIC and SA, to help improve reliability and security of electricity supply and allow for future connections from renewable energy sources.[32] Project EnergyConnect (NSW – Western Section) would connect to the Buronga Substation and travel east to Chowilla, SA, and south to Red Cliffs, VIC. The proposed 330 kV transmission line as part of this project would pass through the south-western portion of the Project area near Renmark Road and near the northern boundary of the eastern section of the Project area. In addition, Project EnergyConnect (NSW – Eastern Section) would connect to the Buronga Substation, which is located around 40 km east of the Project area, and travels east towards Wagga Wagga, NSW.
Mallee Wind Farm (NSW)	The Mallee Wind Farm is a proposed 1 GW wind and battery energy storage project by Spark Renewables in the Wentworth LGA, approximately 22 km to the north-east of Mildura city. The project is proposed to be in the South West REZ. Anticipated to be operational in 2027, the Mallee Wind Farm would power up to 450,000 Australian homes each year. It is currently in the EIS and SIA preparation phase, with community consultation taking place.[33]
Euston Wind Farm (NSW)	The Euston Wind Farm is a proposed wind farm located 8 km north of the township Euston in within the Balranald LGA. The proposed site lies within the South West REZ. The wind farm will include approximately 100 wind turbines as well as battery energy storage.[34]

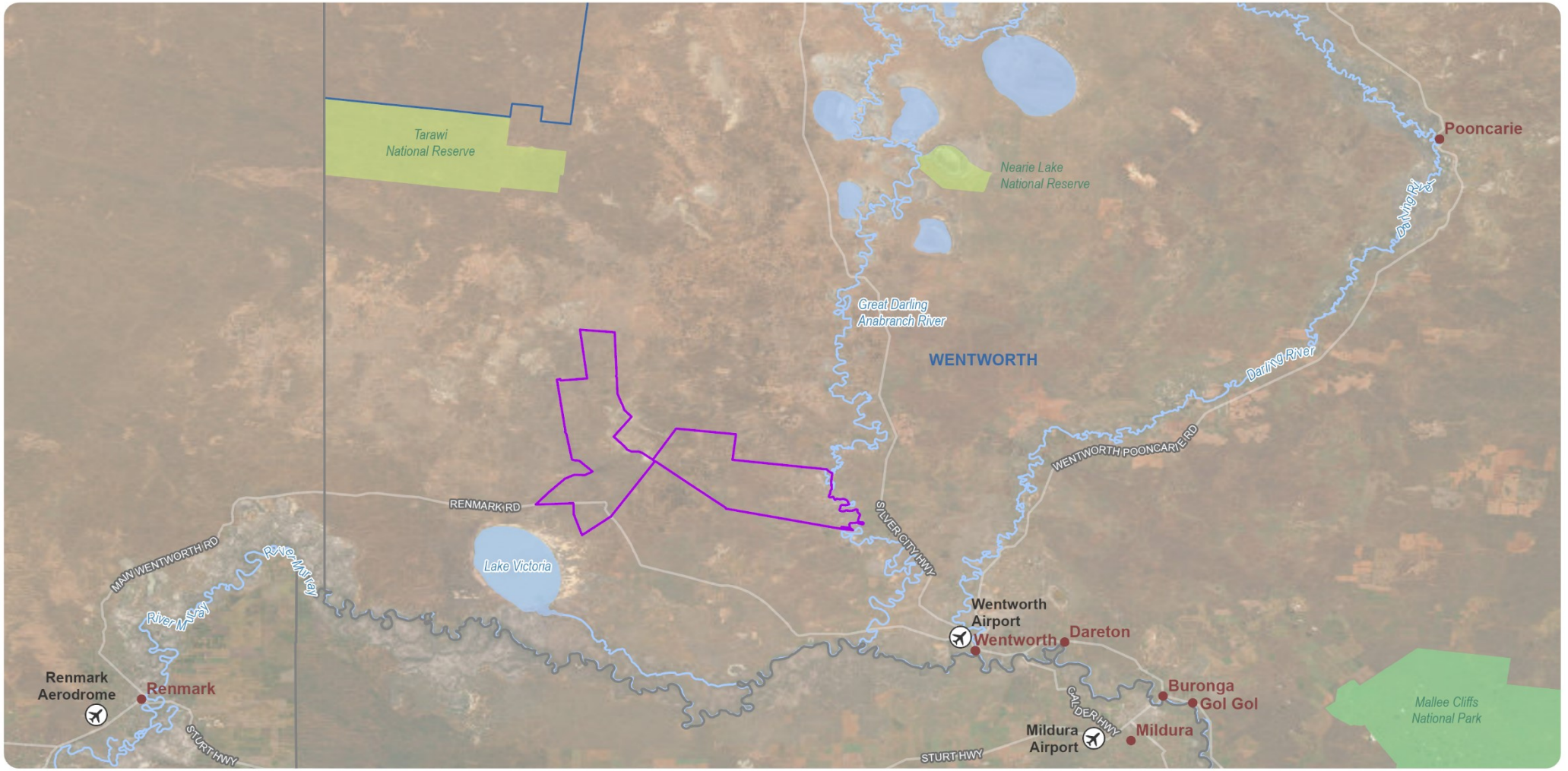
[32] Transgrid, n.d., *EnergyConnect – Overview*, viewed 8 March 2024, <https://www.transgrid.com.au/projects-innovation/energyconnect>
[33] Spark Renewables, n.d., *Mallee Wind Farm*, viewed 8 March 2024, <https://sparkrenewables.com/mallee-wind-farm/>
[34] DP Energy, n.d., *Euston Wind Farm – The Project*, viewed 8 March 2024, <https://eustonwindfarm.com.au/the-project/>

Project	Description
Dareton Solar Park (NSW)	Dareton Solar Park is a 2.88 MW AC solar farm, located in Coomealla. It was commissioned in 2019. It used a specialised frame system that enabled more efficient use of land, with the ability to install 1.7 MW of panels per hectare, resulting in reduced land size requirements, a more cost effective design and minimal site preparation works.[35]
Yatpool Solar Farm (VIC)	BayWa r.e.'s Yatpool Solar Farm is located just outside Mildura city. Across 258 ha there are 350,000 photovoltaic panels installed totalling 106.5 MWp and generating enough renewable electricity to power 40,000 homes. The Yatpool Solar Farm is just 6 km from its sister project the Karadoc Solar Farm which is already generating 112.5 MWp of clean power.[36]
Karadoc Solar Farm (VIC)	Also just outside Mildura city and to the east of the Yatpool Solar Farm is its sister project the Karadoc Solar Farm. The Karadoc Solar Farm is generating 112.5 MWp of clean power with 330,000 photovoltaic panels. A large part of the power generated by the Karadoc Solar Farm will be used by major Australian brewer, Carlton & United Breweries, following the signing of a 12-year Power Purchase Agreement earlier this year.[37]
Carwarp Solar and Thermal Power Plant (VIC)	RayGen's Carwarp Solar and Thermal Power Plant is located just outside Mildura city. This project includes four solar towers each generating 1 MW of electricity and 2 MW of heat along with 2.8 MW/50 MWh storage, aiming to provide grid stability to the region. Commercial operations of the plant began in January 2023.[38]
Berri Energy Project (SA)	Completed in early 2023, the Berri Energy Project by Flow Power comprises of 5.8 MW of solar panels and a 7 MWh BESS, generating 11,500 MWh annually. It is located approximately 17 km south-east of Renmark. The site was previously overgrown with weeds, and the solar farm is now surrounded by native vegetation.[39]
Other energy projects in the broader region	
Kiamal Solar Farm (VIC)	Kiamal Solar Farm is located 94 km south of Mildura city. Kiamal Solar Farm has completed Stage 1, which included a solar farm with a nameplate capacity of 200 MW (AC)/256 MWp, a 190 MVA synchronous condenser and Kiamal Terminal Station. Stage 1 provided employment opportunities to more than 300 people across an 18-month period and over 10 full-time employees during the operational phase. Stage 2 of the Kiamal Solar Farm will include a solar farm with a nameplate capacity of 150 MW (AC)/186 MWp with battery storage and a transmission line to the Kiamal Terminal Station. Stage 2 detailed design is currently in progress.[40]
Wemen Solar Farm (VIC)	Located just south of the Murray River approximately 90 km south-east of Mildura city is the Wemen Solar Farm. Owned by Gentari Solar Australia (formerly, WIRSOL Energy), the site has an installed capacity of approximately 110 MWp (DC), spanning across an area close to 700 acres.[41]
Mining projects	
Copi Mineral Sands Project	The Copi project involves the development and operation of a mineral sands mine and associated infrastructure about 75 kilometres northwest of Wentworth. The proposed mine would extract and process heavy mineral ore to produce a heavy mineral concentrate. Produced concentrate would then be transported via road to Broken Hill for loading and despatch by rail to the mineral separation plant at Pinkenba, Brisbane.[42] The project-life would comprise a construction period of approximately 2.5 years, mining operations for up to 20 years, and a 5-year period for rehabilitation following cessation of mining operations. The project would require approximately 480 persons during the peak construction phase, approximately 240 persons for the operational phase and approximately 40 persons for rehabilitation works.

[35] Diamond Energy, n.d., *Dareton Solar Park*, viewed 8 March 2024, <https://diamondenergy.com.au/dareton/>
[36] BayWa r.e., n.d., *Yatpool*, viewed 8 March 2024, <https://www.baywa-re.com.au/en/cases-in-australia/yatpool>
[37] BayWa r.e., n.d., *Karadoc solar plant starts energy generation*, viewed 8 March 2024, <https://www.baywa-re.com.au/en/company/news/details/karadoc-solar-plant-starts-energy-generation>
[38] RayGen Resources, n.d., *RayGen Power Plant Carwarp*, viewed 8 March 2024, <https://raygen.com/carwarp/>
[39] Flow Power, n.d., *Berri Energy Project*, viewed 8 March 2024, <https://flowpower.com.au/berri-energy-project/>
[40] Total Eren, n.d., *Kiamal Solar Farm – Solar Farm (Stage 1)*, viewed 8 March 2024, <https://kiamalsolarfarm.com.au/solar-farm-stage-1/#:~:text=Environmental%20Benefits,of%20CO2%20emissions%20a%20year
[41] Gentari Solar Australia, n.d., *About Wemen Solar Farm*, viewed 8 March 2024, <https://www.wemensolarfarm.com.au/>
[42] Copi Mineral Sands Project. Scoping Report (2023). Viewed on 12 April 2024. https://www.planningportal.nsw.gov.au/major-projects/projects/copi-mineral-sands-project

Project	Description
Euston Critical Minerals Project (formerly 'Euston Mineral Sands Project').	The Euston Mineral Sands Project involves the development and operation of a mineral sands mine and associated infrastructure about 25 kilometres south-east of Buronga. The project is expected to have a mine life of up to 12 years, including construction, mining, and backfilling of overburden material, and up to 14 years of rehabilitation. The project would employ approximately 250 to 350 full time equivalent (FTE) persons, and approximately 150 to 250 FTE for the operational phase. It is anticipated that most of the operations workforce will be drawn from the local region. All mine support expected to be drive-in-drive-out from the surrounding and regional communities.[43]

[43] Euston Mineral Sands Project, Scoping Report (2023). Viewed on 12 April 2024. https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PDA-49591461%2120230119T024434.317%20GMT



Project area
State boundary
Local Government Area
Waterbody
Major road
Airport
Town or village
NPWS Estate
National Park
Nature Reserve

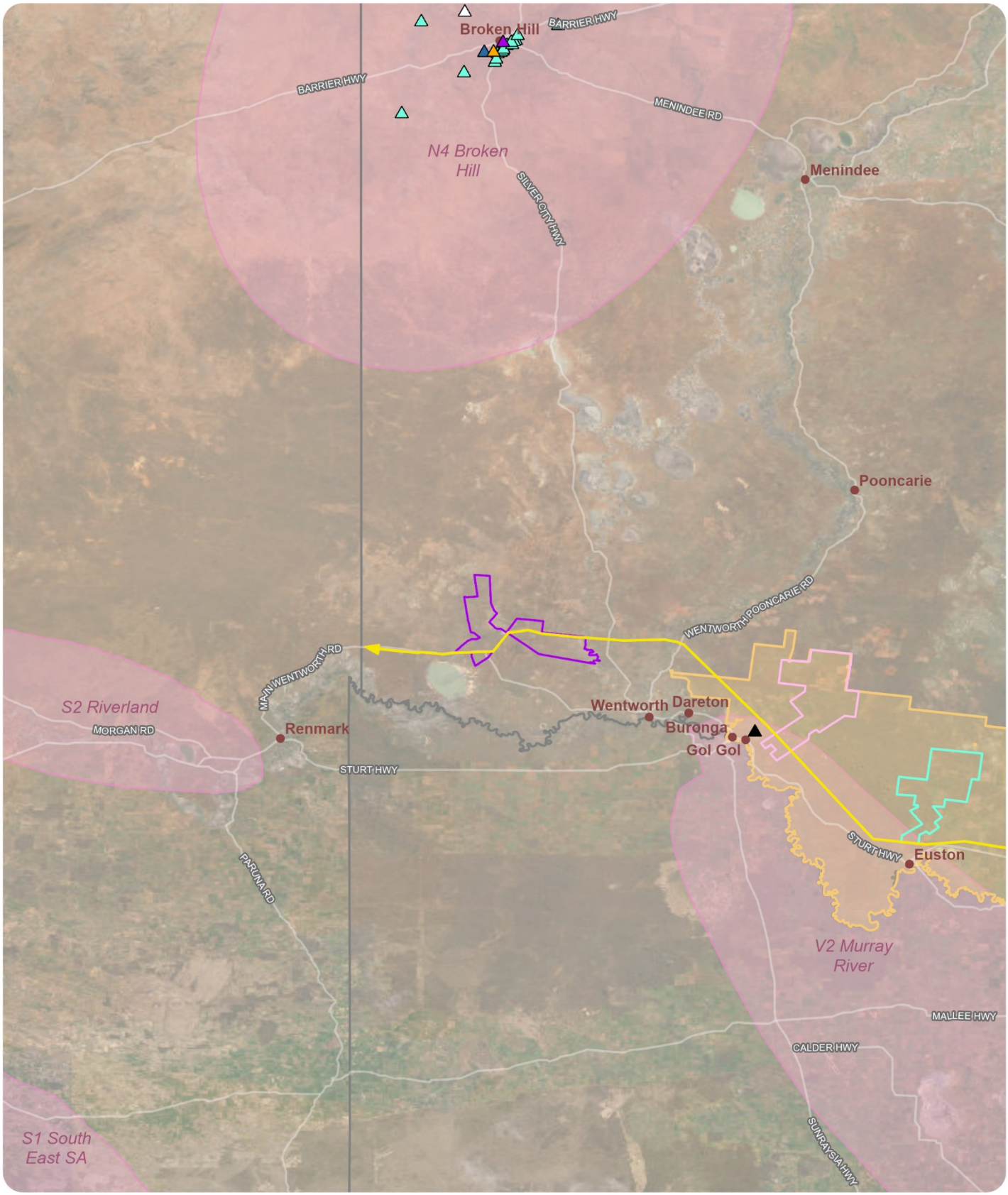


Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:900,000
0 13 26 km

Projection: GCS GDA 1994

Figure 5: Regional context



Project area
Candidate Renewable Energy Zones
Southwest REZ
State boundary
Major road

Town or village
Underground Mine

Wind Farms
Operational

Solar Farms
Operational

In Planning
Under Construction

Emerging Energy Program
Battery Storage
Other

SSD/SDI energy projects within the Wentworth LGA
Project EnergyConnect
Mallee Wind Farm
Euston Wind Farm



Sources: Aurecon, WestWind, Spatial Services (DCS), Esri Basemap

1:1,900,000
0 25 50 km

Projection: GCS GDA 1994

Project No: P522028 Map Author: VR Revision: A Export Date: 6/11/2023 9:17 AM File Path: C:\Users\Virgil.Robinson\Aurecon Group\P522028 Special Operations Facilities Program (SOFP) - GIS\P522028_EST4507\Pro\P522028_SOFP_EST1508Pt2.aprx

Figure 6: Related development

7 Preliminary social impact assessment

The social and economic impact assessment approach used for this preliminary SIA follows DPE's SIA guidance on evaluating the likely significance of positive and negative impacts. Refer to Appendix A for the risk assessment criteria.

This preliminary assessment has identified a range of key social impacts of relevance to near neighbours, local community residents, and other key stakeholders concerning the Project. Additionally, mitigation and management measures have been recommended.

The identified potential impacts must be ground-truthed and reviewed against any changes associated with further design development after issuing the Project SEARs.

The mitigation measures that are recommended to be implemented to avoid, manage, or mitigate potential social impacts are outlined in Table 7-1 and Table 7-2. In addition to this, mitigations identified in the following technical reports for this Project would address (to varying degrees) some of the social impacts identified in this preliminary SIA report.

- Preliminary Landscape Character and Visual Impact Assessment (Appendix C to the Scoping Report)
- Preliminary Biodiversity Assessment (Appendix D to the Scoping Report)
- Preliminary Noise and Vibration Assessment (Appendix E to the Scoping Report).

Further stakeholder engagement is being conducted to assess the economic landscape, engage stakeholders in developing priorities, and analyse the Project's potential to create jobs and support community benefit funds opportunities.

When implemented, and in combination with other management plans which may include an Environmental Management Plan, Traffic Management Plan, Workforce Management Plan, Social Impact Management Plan, etc.. It is considered that the Community Benefits Fund can help mitigating some of the identified social impacts while delivering further positive outcomes to the community in the social locality.

Table 7-1 Preliminary impact evaluation – Potential negative (N) impacts

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N1	Community	Negative perceptions regarding Project opportunities and increased risk of distributive inequity perceptions	Differing perceptions on renewable energy and Project benefits, added to the population changes due to the construction workforce influx, can create distributive inequity perceptions where stakeholders believe that landholders who host turbines are compensated while neighbouring landholders must experience the Project impacts with no compensation provided. Additionally, nearby towns may perceive inequity if they feel negative impacts due to the Project, particularly in towns that already have lower average income and employment (i.e. Dareton and Wentworth).	Construction and Operation	Medium	Develop and implement a Communication and Stakeholder Management Plan to outline approach to engage with council, landholders, community groups in service communities, emergency services and the broader community, and complaint handling processes. Continue stakeholder engagement to highlight the Project benefits and proactively address the potential for negative community perceptions around perceived distributive inequity of project benefits and impacts. Continue stakeholder engagement to co-design benefit sharing initiatives and address negative perceptions around perceived distributive inequity. Continue establishing Community Benefits Sharing Programs to ensure that Project benefits are fairly and consistently distributed across landholders and across the community. Continue active involvement with the community to provide opportunities to improve social outcomes and manage perceived and real negative impacts due to the influx of transient workforces within the region. Assess opportunities for long term investment in the social locality.	Detailed

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N2	Community	Influx of workforce causing changes in the composition and character of the community	A worker accommodation facility would potentially be established as part of the Project. However, the influx of workforce for construction activities may increase anxiety and stress regarding scale of development and change, including added pressure to access community services (including medical facilities) due to the temporary increase in population. It is expected that the increase in construction workforce may provide a positive impact to the local economy. However, the influx of people on higher wages can drive up commodity prices beyond the reach of the residents. While there is an existing transient population in the Project's social locality due to Project EnergyConnect, this is a relatively recent project (accommodation camps began operating in 2022). Therefore, it is anticipated that the influx of workers due to the Project may have an impact, or contribute to cumulative impacts, on community dynamics and social networks. Other projects that are planned for the region (refer to Chapter 6) may further add to the potential for cumulative impacts.	Construction and Operation	Medium	Consider targeted engagement with Council to assess opportunities associated with potential population growth in the area due to cumulative construction activities. Continue investigating appropriate size and location of temporary workforce accommodation to support the Project. Coordinate efforts and liaise with key stakeholders to coordinate provision of accommodation and other services and suppliers. Develop and implement a Worker Accommodation management plan for the construction workforce during the construction period.	Detailed
N3	Community	Increased concerns due to environmental impact of wind turbines	Stakeholders may be concerned that decommissioning activities may result in noise, dust, traffic impacts, and waste production, resulting in environmental impacts. Noise, dust, and traffic impacts are anticipated to be minimal given the isolated location of the Project. The land used for the Project would then be rehabilitated back to previous use in consultation with the relevant landholder.	Construction and Operation and Decommissioning	Medium	An Environmental Management Plan would be prepared for the EIS. Continue stakeholder engagement and assess opportunities for sustainable solutions at turbines end-of-life.	Detailed

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N4	Surroundings	Temporary reduction in social amenity during construction which could have greater health impacts on the elderly or those living with illness or disability	There is varied economic advantage and disadvantage across the Project's social locality. Dareton has the highest unemployment rate; Dareton and Wentworth have the lowest median weekly household income; and Wentworth has a significantly older population as well as a high proportion of population with long-term health conditions. Perceptions of the Project may differ for vulnerable groups, particularly those who are unemployed, have low income, are elderly or have long-term health conditions. There may be cumulative impacts due to other projects in the region (refer to Chapter 6), however impacts are anticipated to be minimal given the isolated location of the Project.	Construction	Low	Continue stakeholder engagement and development of Community Benefits Sharing Program including financial compensation to support identified vulnerable groups. Further assess property impacts and relevance of mitigation measures to address stakeholder issues on a case-by-case basis. Engage stakeholders to inform the construction management controls and ensure minimal disturbance associated with Project construction activities. Engage health service providers to better understand vulnerable communities and opportunities to reduce impacts.	Standard
N5	Surroundings	Impacted amenity and visual aesthetics due to construction activities, increased traffic, potential hoarding on access roads	The construction of the Project would involve the establishment of WTGs, the BESS facility and temporary construction compounds and facilities. Refer to Section 1.4 of this preliminary SIA. Due to the distance of the nearest sensitive receivers, vibration and noise impacts during construction are expected to be minimal.	Construction	Low	Engage stakeholders to inform the construction management controls and ensure minimal disturbance associated with Project construction activities.	Detailed

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N6	Surroundings	Impacts to visual amenity in operations	Potential impacted visual aesthetics due to wind turbines as part of landscape and reduced local amenity with changes in how people experience their surroundings. The Project Preliminary Landscape Character and Visual Impact Assessment. (PLCVIA) identifies four non-associated private receivers and sensitive public viewpoints identified within the visual magnitude threshold with potential high to moderate magnitude of visual change. Specifically, the PLCVIA identified that there are potentially moderate visual impacts from three private receivers (R05, R06 and R23) and one public viewpoint (Anabranch Community Hall), Impacts to visual amenity may cause stakeholder distress or can affect the way they perceive and attach to places through use, i.e. their sense of place.	Operation	High to moderate	A detailed LCVIA is to be prepared as part of the Project EIS. These landowners should be further consulted, with additional investigation of visual impacts assessed from viewpoints within their property during the EIS process. Mitigation of potential visual impacts should be considered, along with ongoing design and location of turbines. The PLCVIA highlights that mitigation of potential visual impacts should be considered, along with ongoing design and location of turbines as warranted through the assessment. Continue engagement with Barkandji Traditional Owner Group to identify further areas or views that are of cultural and local value, which should be addressed regarding the potential visual impacts because of the Project.	Detailed
N7	Surroundings	Cumulative visual impacts due to other renewable energy projects in the social locality	The closest built or approved wind farm (Mallee wind farm) is approximately 61 km 51 km southeast of the Project and another (Euston wind farm) is 99 km southeast. Per the PLCVIA, at this distance, there is not expected to be any cumulative views of the Project and the two other wind farms. There is, however, potential for localised cumulative impacts due to the new HV transmission line and the Project introducing increased large-scale electrical infrastructure, to the following areas. ■ Motorists along Renmark Road – very low cumulative impact. ■ Rural dwelling on Renmark Road – very low cumulative impact.	Operation	Low	Coordinate efforts with nearby developers to discuss and plan future community consultation engagement to reduce engagement fatigue and misinformation. Continue stakeholder engagement with the broader community to further identify sensitive viewpoints and stakeholder concerns around potential for cumulative impacts. Per the PLCVIA is recommended to further ground-truth the visual conditions for private dwellings up to 8,000 m (within middle ground) from a turbine, and not able to be closely accessed through adjacent public roads.	Detailed

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N8	Surroundings	Impacts to local character	Potential reduced local amenity with changes in how people experience their surroundings. The Project Preliminary Landscape Character and Visual Impact Assessment. (PLCVIA) indicates that the Project will have low to negligible landscape character impacts.	Operation	Low	A detailed LCVIA is to be prepared as part of the EIS. It is recommended to continue stakeholder engagement to proactively identify and manage stakeholder concerns around potential impacts to local rural character. Assess opportunities to create added social value by enhancing social locality, e.g. by improving local roads, telecommunications reception, and laying bitumen along Anabranch Mail Road to support the Project and improve community connectivity, as suggested by community members during consultation.	Detailed
N9	Surroundings	Increased public safety risks due to increased heavy vehicles on the local road network and changed road conditions	With a car-reliant community, increased road hazards may have significant effects. The Project would likely include a worker accommodation facility, which would be located close to the Project area. Traffic impacts would likely occur due to construction related deliveries. There may be cumulative impacts due to other projects in the region (refer to Chapter 6).	Construction	Low to medium	A traffic and transport impact assessment would be prepared for the EIS.	Detailed
N10	Surroundings	Impacts to sense of place and community	Perceived impacts and concerns about changes to rural amenity due to new infrastructure development impacting people's sense of place.	Construction	Medium	Continue stakeholder engagement and development of Community Benefits Sharing Program to support community initiatives. Engage key stakeholders to co-design a local employment and procurement plan. Assess opportunities to create a legacy in the community by investing in housing, education, road upgrades, and adding social value to the local community.	Standard

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N11	Surroundings	Perceived impacts on local biodiversity	Increased potential of and perceived impacts on local biodiversity values, threatened species, native flora, vegetation and hollow-bearing trees and fauna (birds and bats) due to construction activities, operational wind turbines and change in land use.	Construction and Operation	Medium	Proactively engage key stakeholder groups in the development of environmental plans and to support and protect local environmental values. Maintain community stakeholders informed about biodiversity assessments outcomes. Undertake a detailed biodiversity assessment for the EIS. Develop and implement an Environmental Management Plan, Bird and bat utilisation surveys across multiple seasons, Bird and Bat Strike Management Plan. Consider engaging Project Landholders and Neighbours to implement a community landscaping program, as suggested by community stakeholders during consultation.	Detailed
N12	Access	Impacted social infrastructure and availability of services due to increased population/ demand for services	It is estimated that 375 full time equivalent workers would be required during the peak construction phase. A worker accommodation facility would potentially be established as part of the Project. However, the temporary increase in population, construction workers, may add strain to the existing availability of services.	Construction	Medium	Continue investigating appropriate size and location of temporary workforce accommodation to support the Project. Engage local service providers to develop a strategy for addressing increasing demand on services e.g. accommodation, health, recreation etc. As part of a detailed Social Impact Assessment, undertake a social infrastructure audit to determine existing availability and capacity to accommodate upcoming workforce.	Detailed

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N13	Access	Increased travel times causing day-to-day disruption due to increased traffic and potential road closures or detours	The transportation of WTG components would result in a temporary increase in the number of heavy vehicles on Renmark Road and Silver City Highway. These heavy vehicles would need to access Renmark Road via the Wentworth town centre, meaning minor delays for vehicles using main and local roads would be experienced. Impacts would be minor given the low existing traffic levels in the Wentworth town centre. However, with a car-reliant community, drivers and passengers may be easily frustrated with increased travel times.	Construction	Low	Pending assessment of construction activities and generated traffic volumes, haulage routes and distribution of construction traffic, and the impact of activities on road network performance, road access and safety, public and active transport, a traffic, and transport impact assessment would be prepared for the EIS.	Standard
N14	Access	Access disruptions	Site access would be off Nulla Road, with the potential for access to also be off Anabranch Mail Road and Tooperoopna Road. There would be a minor increase in the number of heavy and light vehicles accessing the site, which would be associated with the delivery of equipment and workers accessing the site.	Construction	Low	A traffic and transport impact assessment would be prepared for the EIS	Standard

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N15	Culture	Increased perceived impacts to Aboriginal cultural heritage items due to the Project	The preliminary assessment of Aboriginal cultural heritage impacts for the Project indicates a low risk of heritage impacts as a result of the Project construction. The construction of the Project would involve soil disturbance for the establishment of WTG foundations, collector systems and the BESS, as well as temporary construction infrastructure.	Construction	Low	Undertake detailed assessment to proactively identify potential for differential social impacts for Aboriginal people. Continue stakeholder engagement with First Nations peoples and communities in the Project's social locality, including representatives from the Barkandji Traditional Owner Group for matters concerning the social impact assessment and the Cultural Heritage Assessment to help identify the likelihood for the Project to cause intangible harm through 'cultural or spiritual loss'. Continue engagement with Barkandji Native Title Group Aboriginal Corporation to explore opportunities for further involvement, upskilling and employment. Assess opportunities to develop and implement a First Nations Recruitment and/or Procurement and Engagement Plan. Clean Energy Council's *Leading Practice Principles: First Nations and Renewable Energy Projects* guide is highly recommended to be used throughout the engagement process (refer to Chapter 3). Undertake further assessment of cultural heritage and proactively communicate outcomes to relevant stakeholders.	Detailed

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N16	Livelihoods and Way of life	Influx of workforce and potential impacts to existing community dynamics in the local community and social networks, and livelihoods	The impact of new-comers – including potentially from overseas – is an important social consideration, in relation to services capacity, as well as local social cohesion, and community sensitivities about what this means for the long-term composition and cohesiveness of their community. While there is an existing transient population in the Project's social locality due to Project EnergyConnect, this is a relatively recent project (accommodation camps began operating in 2022). Therefore, it is anticipated that the influx of workers due to the Project may have an impact, or contribute to cumulative impacts, on community dynamics and social networks. Other projects that are planned for the region (refer to Chapter 6) may further add to the potential for cumulative impacts. With an increase in employment in the renewable energy sector, there may be a negative shift impacting the community livelihoods. There are opportunities for sourcing local employment as Labourers and Technicians and Trades Workers accounting for 26.8% of employment across the Project's social locality.	Construction and Operation	Medium	Engage key stakeholders to co-design a local employment and procurement plan. Engage community stakeholders to establish programs that encourage and incentivise reskilling and upskilling of local workers to remain in the region. Foster social procurement and employment opportunities for women, Aboriginal and Torres Strait Islander people and people with disabilities. Engage key stakeholders to provide training and education opportunities through sourcing of local employment. Carry out a Workforce Supply Assessment to confirm extent of potential influx of workforce into the region. Develop and implement a Local Industry Participation Plan to guide local job opportunities during construction. Develop and implement a Workforce Accommodation strategy. Undertake a review of existing housing and accommodation capacity relative to the Project workforce needs.	Detailed
N17	Livelihoods	Impacts to telecommunications, navigation and radar services	Increased potential of and perceived impacts to telecommunications, navigation and radar services due to operation of wind turbines.	Operation	Low	A Signal Strength Survey will be completed by independent specialists to help inform the planning and detailed Project design.	Standard

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N18	Livelihoods	Concerns about reduced availability of land for agricultural purposes due to change in land use and increased fear of property devaluation, due to the presence of the Project	The Project area does not contain any Biophysical Strategic Agricultural Land or State Significant Agricultural Land (although there is some State Significant Agricultural Land in the Project's social locality adjacent to the Murray and Darling Rivers). However, stakeholders might be concerned that the Project would compete with current land use with agriculture and cause potential fragmentation of farming practices and/or restricted access to farming land.	Construction and Operation	Medium	It is recommended that the EIS assess the potential interactions of the Project with other land uses, including agricultural land uses. It is recommended to continue engagement with host landowners. Project construction and operational management controls to be developed in consultation with host landowners to ensure maintained access across the Project area with minimal disturbance associated with construction activities.	Detailed
N19	Health and wellbeing	Increased anxiety and stress regarding scale of development and impacts to local community's future	Community members may experience increased levels of stress and anxiety due to a fear of the unknown and feelings of uncertainty about how the Project may affect people.	Construction and Operation	Medium	Continue stakeholder engagement and maintain stakeholders informed about Project activities. Continue to proactively engage with the community and promptly respond to any stakeholders concerns. Establish a community consultation program including mechanisms to respond to complaints, breaches and grievances or to inform the community. Assess and implement culturally appropriate engagement and training opportunities for Aboriginal and Torres Strait Islander people. Foster opportunities for local employment and procurement.	Standard
N20	Health and wellbeing	Perceived impacts on health and wellbeing	Increased potential of and perceived impacts on health and wellbeing, including electromagnetic interference (EMI), shadow flicker, blade throw and noise due to operation of wind turbines.	Operations	High	Detailed impact assessments (e.g. noise, visual) would be required as part of the EIS to assess impacts to sensitive receivers. Consider detailed LVIA and EMI, Shadow Flicker assessments to assess potential visual impacts and health issues and risks associated with EMI produced by the Project and its associated electrical infrastructure within and near the Project area.	Detailed

No.	Social impact category	Impact	Description	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
N21	Decision-making systems	Limited social licence to operate due to the perceived tokenistic character of community engagement	There may be concerns that people who do not support the Project will have little influence on the planning process.	Construction and Operation	Medium	Continue stakeholder engagement and consistently inform stakeholders about negotiables and non-negotiable, including elements of Project design. Ensure all groups (especially vulnerable or marginalised groups) participate in the detailed social impact assessment process. Foster opportunities for people to have a say in the Project's community investment decisions and benefit sharing program. Provide accessible and effective complaint and remedy procedures.	Standard

Table 7-2 Preliminary impact evaluation – Potential positive (P) impacts

No.	Social impact category	Impact	Description of impact	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
P1	Community	Improved sustainability and enhanced resilience due to community investment initiatives as part of the Project	The Project would expand the growing renewables industry in the Wentworth LGA and social locality and would contribute to the emissions reductions required to support those being affected by climate change, including in Far West NSW.	Operation	High	Design and implement a Consultation Program that fosters opportunities to gather stakeholder feedback on benefit sharing initiatives to support the local community e.g. sponsorship of a local sporting groups	Detailed
P2	Community and Way of Life	Intergenerational equity	Improved intergenerational equity due to wind farms being used as an alternate energy source and community cohesion and positive changes to the way the community functions due to increased job opportunities and renewable energy solutions.	Operation	High	Consider opportunities to highlight the Project's economic benefits. Consider increasing opportunities for community feedback to co-design Community Benefits Schemes that increase the Project's social licence.	Detailed
P3	Livelihoods	Improved livelihoods of local business owners due to increased economic activity from temporary increase in population	The Project would expand the growing renewables industry in the Wentworth Shire LGA and would potentially provide opportunities for increased local employment in the renewable energy sector. The Project would increase opportunities for small local businesses to increase services and flow on economic benefits during construction and operation.	Construction and Operation	Medium	Design and implement a Consultation Program that highlights Project opportunities, anticipated impacts and mitigations and proactively engage stakeholders to design and deliver the Project.	Detailed
P4	Livelihoods	Sustainable and resilient communities	With an increase in employment in the renewable energy sector, there may be a positive shift towards a more sustainable and resilient community which may change the way the community interacts.	Construction and Operation	Low	Consider opportunities to increase training and upskilling of the local workforce pool. Continue stakeholder engagement to highlight the Project benefits.	Detailed
P5	Livelihoods	Community wellbeing associated with local employment, procurement, and training opportunities.	It is expected that approximately 70 workers will be needed during the Project's operation phase. Job creation and increased opportunities for vulnerable groups can have a positive impact on community wellbeing and cohesion.	Operation	Low	Consider opportunities to upskill and employ local workforce during operation, specifically stakeholders from vulnerable groups. This would be identified as part of the Workforce Supply Assessment.	Detailed

No.	Social impact category	Impact	Description of impact	Timing	Impact significance	Recommended mitigation and benefit optimisation measures	Level of assessment
P6	Livelihoods and Health and wellbeing	Improved livelihoods due to increased job opportunities and training for local workers, including for vulnerable groups.	It is anticipated the Project construction phase will require approximately 375 full time equivalent workers. Unemployment varies across the social locality and is particularly high in Dareton; job opportunities may be beneficial for the locality's vulnerable groups.	Construction Operation	Low	Consider opportunities to offer jobs and training to local workers. Consider opportunities to upskill and employ local workforce during operation. Proactive support for the establishment of programs that encourage and incentivise upskilling of local workers to remain in the region.	Detailed
P7	Livelihoods and Decision-making systems	Community wellbeing associated with co-designed community benefit sharing initiatives	Enhanced wellbeing and community resilience from job opportunities and training, including increased opportunities for vulnerable groups, Potential to enhance the local community ability to participate in the Project decision-making process by fostering opportunities to co-design Community Benefits Schemes and potential participation agreements for nearby dwellings.	Construction Operation	Medium	Consider increasing opportunities for community feedback to co-design Community Benefits Schemes that increases the Project's social licence.	Detailed

8 Conclusion

This Preliminary Social Impact Assessment (preliminary SIA) report has identified and profiled the social locality and has documented preliminary social impacts and opportunities associated with the Lake Victoria Wind Farm (the Project).

The preliminary SIA is part of a suite of technical investigations supporting the Scoping Report for the Project. It will inform the issue of SEARs by DPE.

This preliminary SIA has included the compilation of a social baseline profile for the Project, a summary of outcomes of early community and stakeholder consultation to inform the scoping of Project-related social impacts and opportunities, and preliminary social impact prediction and evaluation.

The initial assessment of social impacts will inform and support the refinement of the Project design to reduce negative project impacts and enhance positive project benefits.

A detailed assessment of social impacts would be required as part of the EIS and must be informed by stakeholder consultation.

As part of the EIS, future stages of the socio-economic impact assessment for this Project would include a detailed prediction and assessment of positive and negative impacts. Informed by stakeholder consultation, a detailed social impact assessment would identify relevant strategies to mitigate the Project's negative impacts and opportunities to enhance its positive impacts.

Further stakeholder engagement and technical and environmental studies would provide evidence to inform the detailed assessment of the Project's positive and negative impacts.

This preliminary SIA aims to inform the Project Communications and Stakeholder Engagement Plan so Westwind can further engage with community members and key stakeholders on critical social impact areas.

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Appendix A
SIA Guideline Risk Matrix

The *NSW Social Impact Assessment Guideline for State Significant Projects 2023* (SIA Guideline) sets out a structured assessment framework to scope social impacts and determine the proposed level of assessment for the SIA report. This considers information gathered through the social baseline analysis, along with community perspectives gained through consultation and other evidence, to assess the relative impacts of a project according to each specified assessment social category (refer to Table 2-1).

The Social Impact Assessment ultimately results in a Social Significance Rating for each social category, as per the matrix set out within the SIA Guideline. This is based on the consideration of the likelihood (Table A.1) of the impact occurring, and the magnitude (Table A.2) of impact through the assessment of the identified project impact extend, duration, intensity, and the sensitivity (Table A.3) of the potentially affected stakeholder group. The level of assessment (Table 2-2) helps to determine the extent of effort and data required to evaluate the impact during the detailed assessment.

Per the SIA Guideline, when undertaking further assessment of social assessment for the SIA report, the following tables will continue to inform the likely significance of each impact before mitigation or enhancement, and to assess residual social impacts thereby demonstrating the expected effectiveness of the Project proposed mitigation/enhancement measures.

Table A.1 Defining likelihood levels of social impacts

Likelihood Level	Meaning
Almost certain	Definite or almost definitely expected (e.g. has happened on similar projects)
Likely	High probability
Possible	Medium probability
Unlikely	Low probability
Very unlikely	Improbable or remote probability

Table A.2 SIA Guideline defining magnitude levels for social impacts

Magnitude level	Meaning
Transformational	Substantial change experienced in community wellbeing, livelihood, infrastructure, services, health, and/or heritage values; permanent displacement or addition of at least 20% of a community.
Major	Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.
Moderate	Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.
Minor	Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable.
Minimal	Little noticeable change experienced by people in the locality

Table A.3 Dimensions of social impact magnitude

Dimension		Detail
Magnitude	**Extent**	■ Who specifically is expected to be affected (directly, indirectly, and/or cumulatively), including any vulnerable people? ■ Which location(s) and people are affected? (e.g. near neighbours, local, regional, and future generations).
	Duration	■ Who specifically is expected to be affected (directly, indirectly, and/or cumulatively), including any vulnerable people? ■ Which location(s) and people are affected? (e.g. near neighbours, local, regional, and future generations).
	Severity or scale	■ What is the likely scale or degree of change? (e.g. mild, moderate, severe)
	Intensity or importance	■ How sensitive/vulnerable (or how adaptable/resilient) are affected people to the impact, or (for positive impacts) how important is it to them? ■ This might depend on the value they attach to the matter. – whether it is rare/unique or replaceable. – the extent to which it is tied to their identity; and – their capacity to cope with or adapt to change.
	Level of concern/interest	■ How concerned/interested are people? Sometimes, concerns may be disproportionate to findings from technical assessments of likelihood, duration and/or intensity.

Table A.4 Social Impact significance matrix

Magnitude Level						
		1	**2**	**3**	**4**	**5**
Likelihood level		**Minimal**	**Minor**	**Moderate**	**Major**	**Transformational**
A	**Almost certain**	Low	Medium	High	Very High	Very High
B	**Likely**	Low	Medium	High	High	Very High
C	**Possible**	Low	Medium	Medium	High	High
D	**Unlikely**	Low	Low	Medium	Medium	High
E	**Very unlikely**	Low	Low	Low	Medium	Medium

Table A.5 Levels of SIA (SIA Guideline scoping sheet)

LEVEL		**MEANING**
LEVEL OF ASSESSMENT FOR EACH SOCIAL IMPACT	*Detailed assessment*	The project may result in significant social impacts, including cumulative impacts.
	Standard assessment	The project is unlikely to result in significant social impacts, including cumulative impacts.
	Minor assessment	The project may result in minor social impacts.
	Not relevant	The project will have no social impact, or the social impacts of the project will be so small that they do not warrant consideration.

Appendix B
Demographic indicators

Table B.1 Demographic indicators across Project's social locality in comparison to the Wentworth LGA and state

Indicator	Social locality SALs	Wentworth (LGA18200)	NSW State (1)
Population and age			
Population	14,439	7,453	8,072,163
Median age (years)	44	43	39
Population over 65 years	23.2%	20.7%	17.6%
Diversity			
Aboriginal and Torres Strait Islander population	6.8%	8.3%	3.4%
Overseas born population	9.9%	6.2%	29.3%
Income and wellbeing			
People with need for assistance	7.6%	5.5%	5.8%
People with long-term health conditions	32.8%	29.3%	27.0%
Unemployment rate	5.2%	4.2%	4.9%
Voluntary work	15.1%	16.1%	13.0%
Median weekly household income	$1,238	$1,392	$1,829
Households			
Families	69.2%	75.1%	73.6%
Singles	30.0%	24.8%	25.0%
Group	2.1%	1.6%	3.8%
Housing tenure			
Dwelling occupancy rate	87.6%	84.1%	90.6%
Dwelling tenure (owned outright)	35.9%	39.4%	31.5%
Dwelling tenure (mortgaged)	31.6%	33.3%	32.5%
Dwelling tenure (rented)	26.4%	19.6%	32.6%

Indicator	Social locality SALs	Wentworth (LGA18200)	NSW State (1)
Education			
Bachelor's degree level and above	10.2%	11.1%	27.8%
Advanced Diploma and Diploma level	7.3%	7.9%	9.3%
Certificate level	21.3%	21.7%	18.1%
Vehicles and travel			
Average motor vehicles per dwelling	1.8	2.0	1.8
People who travelled to work by car as driver or passenger	75.4%	70.8%	46.3%

Table B.2 Demographic indicators across the Project's key communities

Indicator	Mildura - Buronga (Buronga Part) (UCL112013)	Wentworth (UCL115156)	Dareton (UCL122048)	Mildura - Buronga (Mildura Part) (UCL212003)	Merbein (UCL215054)	Renmark (UCL415037)
Population and age						
Population	2,400	1,305	456	35,652	2,077	4,703
Median age (years)	38	56	49	39	45	44
Population over 65 years	16.1%	36.3%	26.5%	19.9%	24.9%	26.9%
Diversity						
Aboriginal and Torres Strait Islander population	5.5%	12.1%	26.5%	5.4%	6.0%	4.6%
Overseas born population	6.8%	6.7%	4.8%	16.9%	6.1%	17.7%
Income and wellbeing						
People with need for assistance	4.0%	12.5%	7.2%	8.1%	11.8%	8.9%
People with long-term health conditions	27.4%	40.6%	32.5%	31.6%	40.5%	35.4%
Unemployment rate	4.0%	7.8%	14.4%	5.9%	6.4%	7.1%
Voluntary work	15.0%	17.6%	9.3%	11.9%	12.8%	15.1%
Median weekly household income	$1,722	$898	$823	$1,296	$1,072	$1,018
Households						
Families	79.3%	61.8%	64.4%	66.4%	63.6%	62.4%
Singles	20.4%	37.6%	40.0%	31.3%	35.4%	34.9%
Group	1.6%	2.3%	0.0%	3.8%	2.2%	3.2%
Housing tenure						
Dwelling occupancy rate	89.2%	85.9%	79.2%	91.5%	90.0%	89.8%
Dwelling tenure (owned outright)	33.3%	44.8%	38.1%	29.7%	31.2%	33.3%
Dwelling tenure (mortgaged)	44.7%	21.8%	10.0%	29.1%	36.6%	24.2%
Dwelling tenure (rented)	18.8%	24.5%	40.6%	36.5%	25.8%	36.5%

Indicator	Mildura - Buronga (Buronga Part) (UCL112013)	Wentworth (UCL115156)	Dareton (UCL122048)	Mildura - Buronga (Mildura Part) (UCL212003)	Merbein (UCL215054)	Renmark (UCL415037)
Education						
Bachelor's degree level and above	14.7%	8.1%	6.9%	14.0%	5.7%	10.0%
Advanced Diploma and Diploma level	10.0%	6.0%	5.7%	8.1%	6.1%	6.5%
Certificate level	24.4%	19.9%	11.6%	20.4%	23.9%	19.7%
Vehicles and travel						
Average motor vehicles per dwelling	2.0	1.7	1.5	1.7	1.8	1.6
People who travelled to work by car as driver or passenger	79.7%	65.8%	71.1%	77.4%	79.6%	78.8%

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