Transgrid

People. Power. Possibilities.

Victoria to New South Wales Interconnector West (VNI West) (NSW)

Technical paper 15 – Addendum Air Quality Impact Assessment

Design
for a better
future /

Transgrid

Victoria to New South Wales Interconnector West (VNI West) (NSW)

Technical paper 15 – Addendum air quality impact assessment

July 2026

Question today
Imagine tomorrow
Create for the future

Victoria to New South Wales Interconnector West (VNI West) (NSW)
Technical paper 15 – Addendum air quality impact assessment

Transgrid

WSP
Level 27, 680 George Street
Sydney NSW 2000
GPO Box 5394
Sydney NSW 2001

Tel: +61 2 9272 5100
Fax: +61 2 9272 5101
wsp.com

Rev	Date	Details
Final	06/07/2026	Final

	Name	Date	Signature
Prepared by:	Leigh Crilley, PhD	06/07/2026	*Held on file*
Reviewed by:	Dave Claughton, CAQP; Jarryd Barton	06/07/2026	*Held on file*
Approved by:	Dave Claughton, CAQP	06/07/2026	*Held on file*

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

This document may contain confidential and legally privileged information, neither of which are intended to be waived, and must be used only for its intended purpose. Any unauthorised copying, dissemination or use in any form or by any means other than by the addressee, is strictly prohibited. If you have received this document in error or by any means other than as authorised addressee, please notify us immediately and we will arrange for its return to us.

Table of Contents

Abbreviations iii

Glossary v

Executive summary vii

1 Introduction 1

1.1 Background 1

1.2 The project as exhibited 3

1.3 Overview of the proposed amendments and refinements 4

1.4 Purpose and structure of this report 8

2 Legislative and policy context 9

3 Methodology 10

3.1 Study area 10

3.2 Pollutants of interest 10

3.3 Assessment approach 12

4 Existing environment 14

4.1 Sensitive receivers 14

5 Assessment of potential impacts 17

5.1 Construction 17

5.2 Operational assessment 21

6 Cumulative impacts 22

6.1 Projects considered 22

6.2 Assessment of cumulative impacts 26

7 Management and mitigation 33

7.1 Environmental management 33

7.2 Mitigation measures 33

8 References 35

CONTENTS (Continued)

9 Limitations 36

9.1 Permitted purpose 36

9.2 Qualifications and assumptions 36

9.3 Use and reliance 36

9.4 Disclaimer 37

List of tables

Table 1.1 Overview of proposed amendments and refinements 4

Table 5.1 Step 1 of the IAQM screening assessment of proposed amendments and refinements 17

Table 6.1 Projects with the potential for cumulative impacts 22

Table 6.2 Projects considered in the cumulative impact assessment 26

Table 7.1 Revised and additional air quality mitigation measures 33

List of figures

Figure 1.1 Location of the amended project 2

Figure 1.2 Overview of amended VNI West (NSW) 7

Figure 3.1 Overview of the study area 11

Figure 4.1 Sensitive receivers within the amended study area 15

Figure 6.1 Cumulative impact projects 24

Figure 6.2 Cumulative impact projects 25

Abbreviations

Term/acronym	Description
Air NEPM	National Environment Protection (Ambient Air Quality) Measure 2021
AQMS	Air Quality Monitoring Stations
AWS	Automatic Weather Station
BoM	Bureau of Meteorology
CASANZ	Clean Air Society of Australia and New Zealand
CO	Carbon monoxide
EPA	NSW Environment Protection Authority
HGV	Heavy duty vehicles defined as vehicles with a gross weight greater than 3.5 tonnes
IAQM	Institute of Air Quality Management
the IAQM guidance	Guidance on the Assessment of Dust from Demolition and Construction
NEPM	National Environment Protection Measures
NO_2	Nitrogen dioxide
NOx	Oxides of Nitrogen
NPI	National Pollutant Inventory
NSW	New South Wales
O_3	Ozone
PAHs	Polycyclic Aromatic Hydrocarbons
PM	Particulate Matter
$PM_{2.5}$	Particles with an aerodynamic of 2.5 micrometres or less
PM_{10}	Particles with an aerodynamic of 10 micrometres or less
RH	Relative humidity
SO_2	Sulphur dioxide
TSP	Total suspended particulates
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds
WSP	WSP Australia Pty Limited

Term/acronym	Description
Units of measurement	
°C	degree Celsius
km	kilometre
km/h	kilometre per hour
m	metre
m^2	square metre
m^3	cubic metre
mm	millimetres
$\mu g/m^3$	microgram per cubic metre

Glossary

Term	Definition
Access routes	Roads providing the access to and from the amended project footprint.
amended project (the)	The VNI West (NSW) project, as described in the Amendment Report, inclusive of the proposed amendments and refinements to the EIS project.
amended project footprint (the)	The area that has been assumed for the purpose of the Amendment Report to be directly affected by the construction and operation of the amended project. It includes the indicative location for project infrastructure, the area that would be directly disturbed during construction and easement requirements for operation. The amended project footprint has been developed to achieve a level of flexibility for future design refinement.
Amendment	A change in what the proponent is seeking approval for following public exhibition of the EIS. It requires changes to the project description in the EIS and amendments to the associated infrastructure application.
Early works	Early works (also referred to as Stage 1a) includes limited site establishment, fencing and commencing the import of fill material for the Dinawan substation expansion, including heavy vehicle movements to and from local quarries and stockpiling at the future Dinawan substation site.
EIS project (the)	The project as described in the EIS (publicly exhibited in August 2025)
EIS project footprint (the)	The area that was assumed for the purpose of the EIS project to be directly affected by the construction and operation of the project. It includes the indicative location of project infrastructure, the area that would be directly disturbed during construction and any easement required during operation.
Interconnector	An electricity interconnector is a connection that allows power to flow in both directions between regions in the national electricity market (NEM), in this case between NSW and Victoria, providing access to a larger number of electricity generators and a greater ability to meet varying demand where and when it is needed most.
Transgrid (or 'the proponent')	The manager and operator of the high voltage electricity transmission network in New South Wales and the Australian Capital Territory with connections to Victoria and Queensland. Transgrid manages the network that is the backbone of the National Energy Market, which enables energy trading between Australia's three largest States along the east coast.
Amended study area (the)	The amended study area for the air quality assessment is a 250 m buffer around the amended project footprint and includes the project amendments and refinements
Project transmission line corridor	A generally 200 m wide corridor along the length of the transmission line within which the transmission line, structures and easement would be located (sub set of the project footprint).

Term	Definition
Transmission line easement	The area surrounding and including the transmission lines that allows access, construction and maintenance work to take place. The easement grants a right of access and for the construction, maintenance and operation of the transmission line and other operational assets. The easements for the new 500 kV transmission line between the Victorian border and the expanded Dinawan substation would typically be 70 m wide. However, transposition locations would require wider easements up to 110 m wide. The replacement of the 330 kV transmission line generally between Ivydale Road (south of the existing Wagga 330 kV substation) and the future Gugaa 500 kV, Livingstone Gully Road substation would occur within the existing 60 m wide easement.
Transmission line alignment	The location of the transmission line structures along the middle of the transmission line easement.
Transmission line structure	Proposed free standing structures to support the transmission lines.
Transposition	Transposition is the periodic swapping of positions of the conductors of a transmission line to maintain transmission reliability.
VNI West	An interconnector of about 480 kilometres between the power grids of NSW and Victoria. Specifically, VNI West would connect the EnergyConnect (NSW Eastern section) project (at the Dinawan substation in NSW) with the Western Renewables Link proposal (at Bulgana in Victoria) via a new substation near Kerang (in Victoria).
VNI West NSW (‘the amended project')	The NSW component of VNI West includes: — a new 500 kV transmission line connection between the NSW/Victorian border and Transgrid’s Dinawan substation (currently under construction as part of the EnergyConnect (NSW – Eastern section) project) — replacement of a section of existing single circuit 330 kV transmission line to a double circuit 330 kV line generally between Ivydale Road in Gregadoo and Transgrid’s future Gugaa 500 kV substation (which is subject to a separate planning approval as part of the HumeLink project) — expansion of the Dinawan 330 kV substation to include a new 500 kV switchyard, modifications to the existing 330 kV switchyard, including new 330 kV switch bays to accommodate the South West REZ expansion works — installation of new shunt reactors at the existing Wagga 330 kV substation — connection and transmission line diversion works at both the existing Wagga 330 kV substation and the future Gugaa 500 kV substation to connect the new transmission line infrastructure — ancillary activities to support construction and operation of the project.

Executive summary

Project overview

Transgrid and VicGrid 'VNI West' (formerly Transmission Company Victoria) are jointly developing a new electrical connection between NSW and Victoria called the Victoria to NSW Interconnector West project (VNI West). Transgrid is responsible for seeking the required planning approval and delivering the NSW component of VNI West (referred to as 'the project' or 'VNI West (NSW)') in the Riverina Region of NSW.

An Environmental Impact Statement (EIS) was prepared to support Transgrid's application for approval of VNI West (NSW) (EIS project) in accordance with the requirements of Part 5, Division 5.2 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS was placed on public exhibition by the NSW Department of Planning, Housing and Infrastructure (DPHI) for a period of 28 days between 1 August 2025 and 29 August 2025.

Transgrid has identified several proposed amendments and refinements to the EIS project that reflect functional improvements to the design and construction methodology. The amendments and refinements have been made in response to feedback received from landholders and other key stakeholders; ongoing discussion with EnergyCo regarding infrastructure requirements to support the South West Renewable Energy Zone (REZ) and greater clarity regarding the announced delay to the VNI West (Victoria) project in July 2025.

This addendum technical paper has been prepared to support and inform the Amendment Report, and it assesses the potential impacts to air quality resulting from the amendments and refinements to the EIS project. This addendum technical paper is an addendum to *Technical paper 15 – Air quality impact assessment.*

The additional air quality impacts have been assessed in accordance with the Secretary's Environmental Assessment Requirements (SEARs) issued by DPHI and against the relevant legislation and guidelines as they apply to air quality. Specifically, this addendum addresses changes to the footprint, inclusion of construction compounds and accommodation facilities and vehicle movements.

Legislative and policy context

Impacts to air quality from the construction and operation of the project have been assessed in accordance with the relevant legislation and guidelines as they apply to air quality. Key policies considered as part of this assessment include:

- National Environment Protection (Ambient Air Quality) Measure 2021 (Air NEPM)
- *Protection of the Environment Operations Act 1997* (NSW) (POEO Act).

Methodology

The same method applied in *Technical paper 15 – Air quality impact assessment* prepared for the EIS was used to assess the potential impacts of dust and gaseous emissions associated with the construction of the amended project.

Existing environment

The existing air quality was found to be typical for rural NSW and found to be good based on typical levels of PM_{10}, $PM_{2.5}$ and NO_2 according to NSW Government air quality categories.

Assessment of impacts of the amended project

Construction impacts

When compared to *Technical paper 15 – Air quality impact assessment* prepared for the EIS, the air quality impacts of the amended project are consistent with the outcomes presented in the EIS for:

1. NSW/Victorian border to Dinawan substation
2. Dinawan substation
3. Amended network augmentation works
4. Construction haulage access routes.

The following components of the proposed amendments and refinements were screened as having potential material change with respect to dust impacts and were considered further in this addendum report. The outcomes of the assessment indicated:

1. Combined temporary worker accommodation facilities and construction compounds. The numbers and locations of temporary worker accommodation facilities and construction compounds have been revised in the proposed amendments and refinements. The risk deemed to be **negligible** for dust soiling, human health and/or ecological impacts due to the proposed construction works at the temporary construction compounds and temporary worker accommodation facilities as there were no sensitive receivers identified within 250 m of these sites.
    a. The Deniliquin compound and Tarcutta temporary accommodation facility (AC03) are amendments to the EIS project. As these existing facilities they have been assessed separately qualitatively as there is no construction at these locations associated with the proposed amendments and refinements.
        i. Deniliquin compound the expected additional traffic is low and its location in an industrial area, consequently the expected impact on air quality is **negligible to low**.
        ii. Tarcutta temporary accommodation facility (AC03) the expected additional traffic is low, consequently the expected impact on air quality is **negligible**.
2. Construction access road upgrades (e.g., Robb Road, Fisher Lane etc) are new to the amended project. The risk was deemed **negligible** for dust soiling, human health and/or ecological impacts due to the proposed construction road upgrade and intersection works as there are no sensitive receivers nearby.
    a. The exception was the proposed intersection work at Swan Hill Road and Kaylock Road where sensitive ecological receivers (farmland: cropping) were identified within 50 metres of the proposed intersection work. The risk is deemed **low** for ecological impacts at to the proposed intersection works at Swan Hill Road and Kaylock Road, Mallan.

Operational impacts

As the amendments do not change the operation of the project, the operational air quality impacts described in *Technical paper 15 – Air quality impact assessment* are unchanged.

Management and mitigation

Site-specific mitigation measures proposed in *Technical paper 15 – Air quality* are unchanged for the amended project.

1 Introduction

This chapter provides the background to VNI West NSW, a description of the key features of the project as amended since the public exhibition of the EIS and outlines the purpose and structure of this addendum technical report.

1.1 Background

Transgrid and VicGrid 'VNI West' (formerly Transmission Company Victoria) are jointly developing a new electrical connection between NSW and Victoria called the Victoria to NSW Interconnector West project (VNI West). VNI West would form a second transmission link between NSW and Victoria to harness clean, low-cost electricity from Renewable Energy Zones (REZs) in both states and improve the reliability and security of electricity supply. VNI West is a priority project for the Australian Energy Market Operator (AEMO) and the Commonwealth and NSW and Victorian governments.

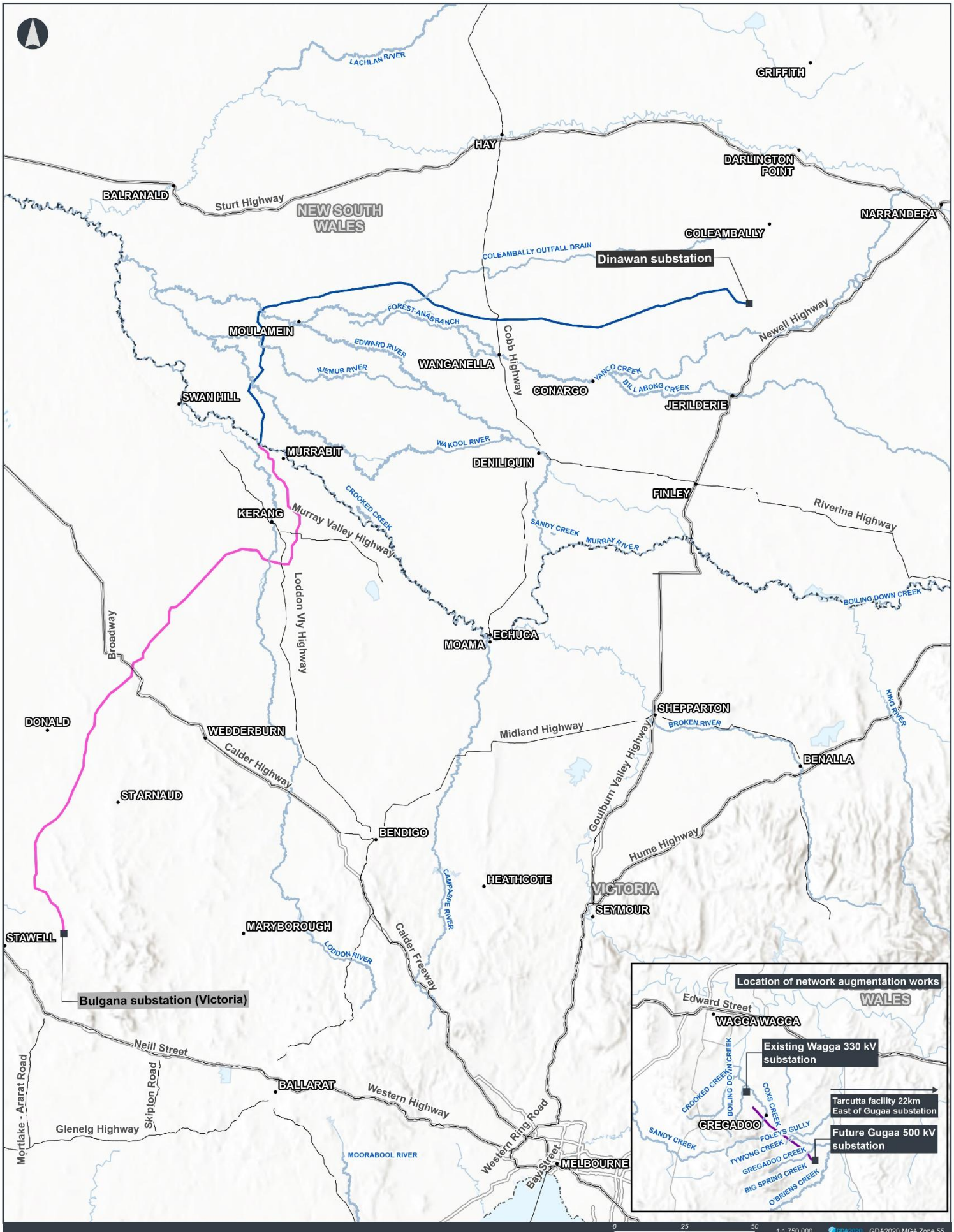
VNI West proposes the construction, operation and ongoing maintenance of a high voltage, 500 kV double circuit overhead transmission line that would connect the high voltage electricity grids in NSW and Victoria. Specifically, VNI West would connect the Western Renewables Link proposal at Bulgana in Victoria with the EnergyConnect (NSW – Eastern section) project (SSI-9172452) at Dinawan substation in NSW. The connection would be made via a new substation near Kerang in Victoria. Transgrid is responsible for seeking the required planning approval and delivering the NSW component of VNI West (referred to as 'VNI West (NSW)').

VNI West (NSW) would be located across four local government area (LGAs) which consist of the following: Edward River, Murray River, Murrumbidgee, and Wagga Wagga LGAs. Figure 1.1 shows the location of the project.

An EIS was prepared to support Transgrid's application for approval of VNI West (NSW) in accordance with the requirements of Part 5, Division 5.2 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS was placed on public exhibition by the NSW Department of Planning, Housing and Infrastructure (NSW DPHI) for a period of 28 days between 1 August 2025 and 29 August 2025.

Transgrid has identified several proposed amendments and refinements to the EIS project that reflect functional improvements to the design and construction methodology. The amendments and refinements have been made in response to feedback received from landholders and other key stakeholders; ongoing discussion with EnergyCo regarding infrastructure requirements to support the South West REZ and greater clarity regarding the announced delay to the VNI West (Victoria) project on 30 June 2025 (refer to section 1.3).

The project, inclusive of the proposed amendments and refinements, is referred to as the 'amended project' and is the subject of this revised technical paper.



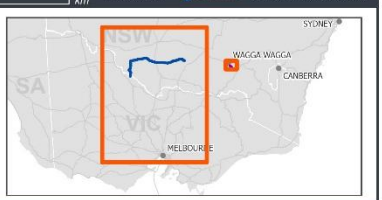
wsp

VNI West (NSW)

Figure 1.1
Location of the amended project

Legend

- Project transmission line corridor (NSW/Victorian border to Dinawan substation)
- Network augmentation between the existing Wagga 330 kV substation and future Gugaa 500 kV substation
- Victorian project transmission line corridor (subject to separate assessment)
- NSW/Victorian border
- Substation
- Watercourse
- Roads



U:\ProjectsAU\PS138xxx\PS138962_VNI_West_EIS_NSW\4_WIP\GIS\00_ArcGIS\Pro\03_EIS\Chapter_01\PS138962_EIS_Ch01_Figures.aprx | Author: C.Mathews | QA: J.Barton

Data sources: NSW EPI, DELWP, WSP, EnergyConnect

1.2 The project as exhibited

The key components of the project, as outlined in the EIS (referred to as the 'EIS project') included:

- transmission line works comprising:
  - a new 500 kV double circuit overhead transmission line, around 240 kilometres in length between the NSW/Victorian border near Murrabit, and the Dinawan substation
  - replacement of around nine kilometres of an existing 330 kV single circuit overhead transmission line (Line 51) generally between Ivydale Road (south of the existing Wagga 330 kV substation) and the future Gugaa 500 kV substation, Livingstone Gully Road with a new 330 kV double circuit overhead transmission line
- substation works comprising:
  - connection and line diversion works at the Dinawan substation to allow for connection of the proposed 500 kV switchyard
  - expansion of the Dinawan substation to include a new 500 kV switchyard and two new 330 kV transformer bays
  - connection and line diversion work at the existing Wagga 330 kV substation and at the future Gugaa 500 kV substation to allow for connection to the newly replaced Line 51
- ancillary activities comprising:
  - new and upgraded temporary and permanent access tracks
  - construction of utilities infrastructure and power supply
  - installation and operation of two telecommunication facilities (optical repeater sites) along the transmission line between the NSW/Victorian border and Dinawan substation including connections to the local power supply
  - temporary facilities required for construction of the project including temporary construction compounds, combined temporary worker accommodation facilities and construction compounds, laydown and staging areas, stockpiling areas, concrete batching plants, brake and winch sites, site offices, parking areas, and utilities supplies.

Tarcutta temporary worker accommodation facility (AC03)

It should be noted that Transgrid had, through the development of the Amendment Report and this addendum technical paper, proposed to re-use the Tarcutta temporary worker accommodation facility (AC03) established as part of the HumeLink project (SSI-36656827) for works within the Wagga Wagga LGA.

However, in response to more recent stakeholder and community feedback, it will no longer be carried forward as an accommodation option for the amended project. The project is actively considering alternative temporary worker accommodation options, which may include the use of existing facilities where suitable. The potential adaptive use of construction compounds will also be considered. Any such facilities, that have not been assessed, would be subject to further assessment, as per the approach described in Chapter 25 (Environmental Management) of the EIS.

As such, references to the Tarcutta temporary worker accommodation facility (AC03) should be disregarded throughout the Amendment Report and *Technical paper 15 – Addendum air quality impact assessment.*

1.3 Overview of the proposed amendments and refinements

Since the public exhibition of the EIS, several amendments and refinements to the project have been proposed, these are described in Table 1.1 below. Further information is provided in Chapter 3 (Description of the amended project) of the Amendment Report.

Table 1.1 Overview of proposed amendments and refinements

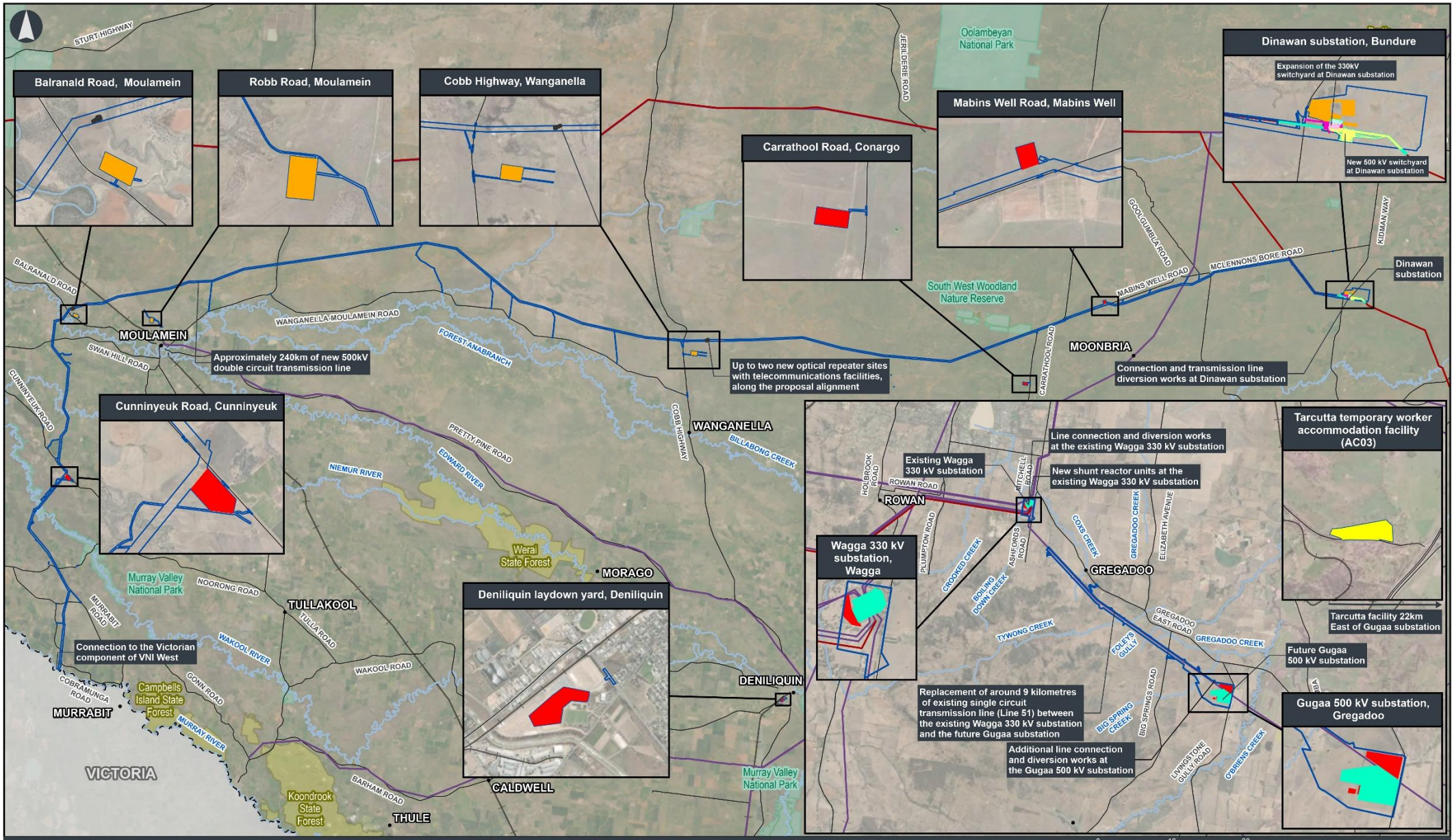
Amendment/refinement	Description
Amendments	
Inclusion of additional substation elements at the Dinawan substation to allow connection with the South West REZ	The amended project would expand the 500 kV switchyard area described in the EIS to include an additional 500/330 kV transformer, and an additional expansion of the Dinawan 330 kV switchyard, to support connection of generators in the South West REZ to the transmission network, noting that the transmission lines to connect the generators would be subject to separate planning approvals by others. The additional infrastructure to connect the South West REZ 330 kV generator transmission lines would include new 330 kV switchbays, and other high voltage switchgear and supporting infrastructure.
Installation of new shunt reactors at the existing Wagga 330 kV substation	The amended project includes the installation of two new shunt reactors at the existing Wagga 330 kV substation. Construction of the shunt reactors would require a new internal access road including an additional connection to Ashfords Road, earthworks associated with the extension of the substation bench and foundations, additional drainage works to integrate into the existing site drainage, modification of the existing spill containment system and reconfiguration of existing security fencing.
Inclusion of additional road and intersection improvements/upgrades along construction access routes	The amended project would include a number of local road and intersection improvements including: — minor road widening at Fisher Lane, Wetuppa, Robb Road, Moulamein and McLennons Bore Road, Argoon — intersection work at: — Sturt Highway and Maude Road, Maude — Cobb Highway and Wanganella-Moulamein Road — Kidman Way and Cadell Road, Bundure — Kidman Way and Newell Highway, Bundure — Murrabit Road and Cobramunga Road, Cobramunga — Noorong Road and Nacurrie Road South, Wetuppa — Cunninyeuk Road and Wood Lane, Cunninyeuk — Swan Hill Road and Kaylock Road, Mallan — Berambong Railway Road and Balranald Road, Moulamein — Wanganella-Moulamein Road and Maude Road, Moulamein — McLennons Bore Road and Cadell Road, Argoon — upgrades and/or replacement of existing cattle grids along Wanganella-Moulamein Road and Willurah Road.

Amendment/refinement	Description
Revision to the number and location of combined temporary worker accommodation facilities and construction compounds	The proposed amendments and refinements would include a series of changes to the combined temporary worker accommodation facilities and construction compounds required to construct the project. The proposed changes include: — an additional combined temporary worker accommodation facility and construction compound option along Robb Road, Moulamein — combining the two Cobb Highway, Wanganella temporary worker accommodation facilities and construction compounds into one site within a reduced overall area — expansion of the Dinawan substation combined temporary worker accommodation facility and construction compound to allow for integration with the EnergyConnect (NSW – Eastern section) project temporary construction facilities — removal of the three previously identified combined temporary worker accommodation facilities and construction compound options along Gregadoo East Road and Livingstone Gully Road, Gregadoo previously proposed to accommodate workers for the network augmentation works component of the project, with construction workers proposed to be accommodated within available accommodation options within Wagga Wagga. However, the proposed amendments and refinements would also include the potential use of the Tarcutta temporary accommodation facility (AC03) – established as part of the HumeLink project – as an option for temporary worker accommodation for the network augmentation works. The proposed amendments and refinements would also include a series of changes to the temporary construction compound-only sites from those described and assessed in the EIS including: — removal of the Fisher Lane, Wetuppa construction compound as a potential option — inclusion of an additional option for a temporary construction compound along Carrathool Road, Conargo — relocation of the Mabins Well Road, Mabins Well construction compound around five km east of its previously proposed location — minor expansion of the proposed construction compound along Cunninyeuk Road Cunninyeuk — inclusion of a new temporary construction compound along Livingstone Gully Road, Gregadoo adjacent to the future Gugaa 500 kV substation — inclusion of an additional temporary construction compound adjacent to the existing Wagga 330 kV substation site — use of an existing construction storage compound in Deniliquin to allow for the storage and staged provision of construction materials such as transmission line components and transmission line cabling.

Amendment/refinement	Description
Refinements	
Refinement of the EIS project footprint and the indicative disturbance footprint	Further design refinements have resulted in refinements to the project footprint and indicative disturbance footprint. These changes include: — minor changes to the transmission line structure locations — minor adjustment to the location of the two telecommunication facilities — refinement to the size of the transmission line structure construction pads and locations of some brake and winch sites — inclusion of areas for the proposed 'hurdle' structures during construction (noting the use of hurdles was identified in the EIS, however the indicative areas required was not included in the EIS indicative disturbance footprint).
Updates to construction staging	The proposed amendments and refinements is proposed to be delivered in two main stages to both better support the ongoing delivery of renewable energy projects associated with the South West REZ as well as reflect the timing of, and connection to, the VNI West (Victoria) project. Stage 1 of the proposed amendments and refinements includes early works, the proposed Dinawan substation expansion and network augmentation works. Stage 1 is expected to commence in mid-2027 and expected to take around 28 months, aiming to be completed by mid-2029. Stage 2 includes the construction of the new 500 kV transmission line between the NSW/Victorian border and the Dinawan substation as well as the proposed new shunt reactors at the existing Wagga 330 kV substation. Stage 2 is proposed to commence in mid-2028 and expected to take around 35 months. Completion is targeted to occur in late 2030 to align with the timeframe for VNI West (Victoria).
Rationalisation of access tracks for both the 500 kV and 330 kV (network augmentation works) components of the project	A number of previously proposed access tracks presented in the EIS have been rationalised for the proposed amendments and refinements. A small number of new access tracks have also been proposed. The rationalisation of access tracks has typically included moving a number of tracks that were located outside the 200 m transmission line corridor to within the amended transmission line corridor, parallel to the existing transmission line and ultimately within the proposed final transmission line easement for the project.
Updates to construction traffic routes and over-size over-mass (OSOM) haulage routes	A number of construction traffic routes have been removed or replaced where the nominated road was considered to be unsuitable for the proposed volume of construction vehicles, or where an alternative route would provide a more suitable option. Similarly, a review of the OSOM routes proposed to be used for the proposed amendments and refinements has resulted in changes to the OSOM routes proposed as part of the EIS. New OSOM routes to the existing Wagga 330 kV substation are also proposed to support delivery of the new shunt reactors.

The project, inclusive of the proposed amendments and refinements, is referred to as the 'amended project'. A detailed description of the amended project is provided in Appendix A (Updated project description) of the Amendment Report.

Figure 1.2 shows the key components of the amended project.



wsp

VNI West (NSW)

Figure 1.2
Overview of amended VNI West (NSW)

Legend

- Rail line
- Main road
- Named waterway
- National park
- State forest
- NSW/Victorian border
- Existing transmission line
- Approved Project EnergyConnect
- Dinawan substation works - existing 330 kV
- Dinawan substation works - proposed 500 kV
- Proposed modifications to existing 330 kV infrastructure
- Proposed 330 kV infrastructure
- Proposed 500 kV infrastructure and connections
- Amended project footprint
- Substation
- Telecommunication facility
- Temporary worker accommodation facility
- Combined temporary worker accommodation facility and construction compound
- Construction compound

Data sources: NSW EPI, DELWP, WSP, EnergyConnect

1.4 Purpose and structure of this report

The purpose of this report is to support the VNI West (NSW) Amendment Report through an assessment of the potential air quality impacts of the proposed amendments and refinements and to respond to submissions received during the exhibition of the EIS. This addendum also considers whether the proposed amendments and refinements would result in any changes to the predicted air quality impacts described in the EIS for the EIS project, and whether any changes to mitigation measures are required. This addendum technical paper supplements the information provided in *Technical paper 15 – Air quality impact assessment* exhibited as part of the EIS. This addendum technical report should be read in conjunction with the EIS for the EIS project and specifically *Technical paper 15 – Air quality impact assessment*.

The structure and content of this addendum technical paper is as follows:

- Chapter 1 – Introduction: provides an introduction to this technical paper (this chapter)
- Chapter 2 – Legislative and policy context: identifies the relevant legislation, guidelines and plans applicable to the assessment of air quality impacts from the proposed amendments and refinements
- Chapter 3 – Methodology: outlines the methodology adopted for this air quality assessment addendum
- Chapter 4 – Existing environment: describes the existing air quality environment of the amended air quality study area
- Chapter 5 – Assessment of potential impacts: describes the potential air quality impacts associated with the construction and operation of the proposed amendments and refinements
- Chapter 6 – Cumulative impacts: considers the potential cumulative air quality impacts of the amended project against other known projects
- Chapter 7 – Management and mitigation: identifies mitigation and management measures to avoid, minimise and manage any potential impacts to air quality from construction and/or operation of the amended project
- Chapter 8 – References: identifies the relevant references used to support this addendum
- Chapter 9 – Limitations: explains the limitations of this addendum.

2 Legislative and policy context

The legislative and policy context presented in *Technical paper 15 – Air quality impact assessment* prepared for the EIS remains unchanged for the amended project.

3 Methodology

This section describes the methodology used to assess the proposed amendments and also notes where the methodology is consistent with the methodology used for the EIS project.

3.1 Study area

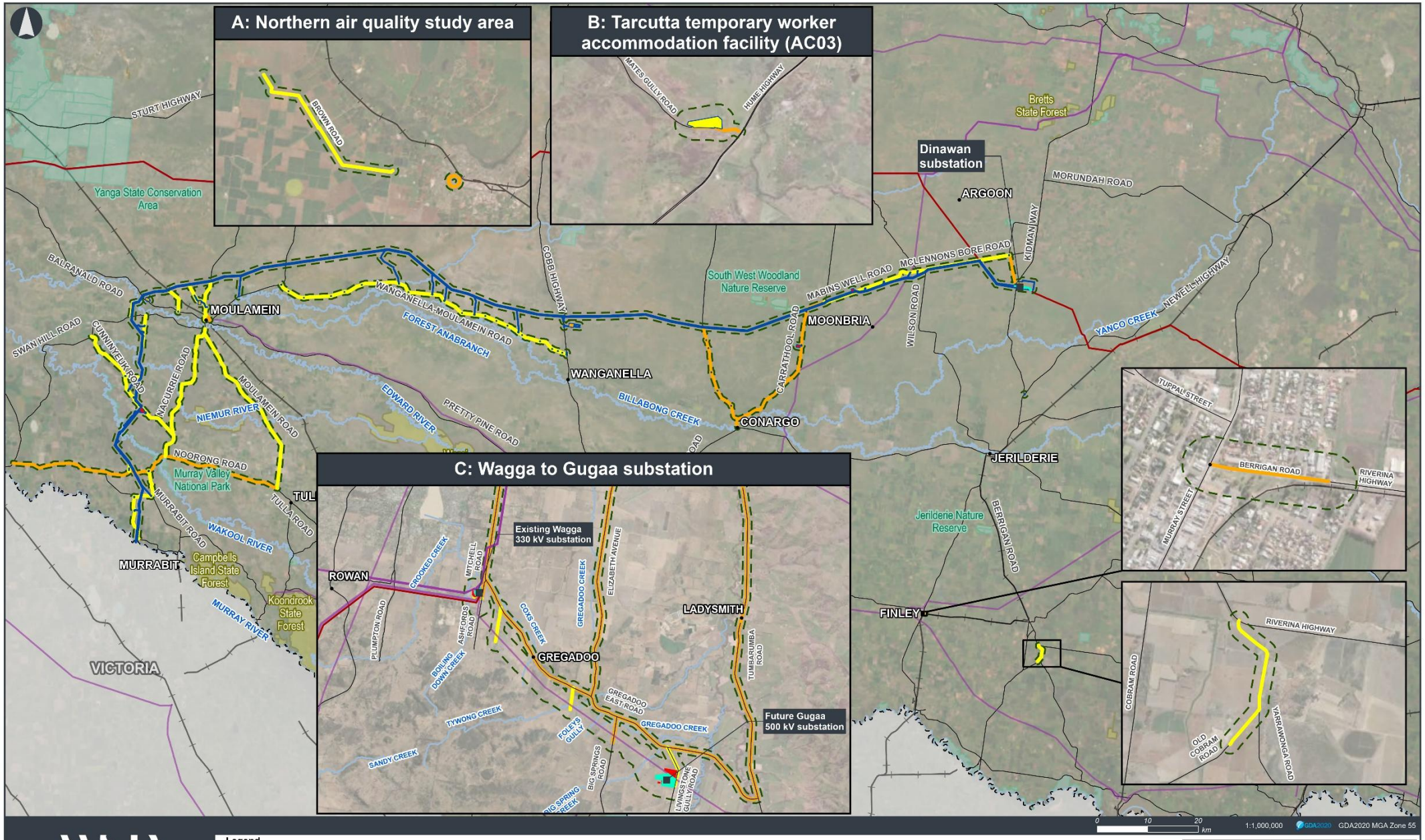
The amended study area used for this assessment is shown in Figure 3.1. The study area has been developed using a risk-based approach, adopted from, and consistent with the IAQM and CASANZ guidance.

The amended study area for the air quality assessment was a 250 m buffer around the amended project footprint and includes the project amendments and refinements.

Amended proposed construction haulage routes to be used by construction vehicles on public roads extend beyond the defined study area (i.e. greater than 250 metres from the amended project footprint). Accordingly, potential impacts associated with construction traffic operating outside the study area, including dust-related amenity impacts, have been assessed qualitatively. For the purposes of this assessment, buffer distances of up to 100 metres for sealed roads and up to 200 metres for unsealed roads were applied to construction haulage routes to identify sensitive receivers and evaluate potential impacts.

3.2 Pollutants of interest

The pollutants of interest are unchanged from those presented in *Technical paper 15 – Air quality impact assessment* (section 3.2).



wsp

VNI West – Technical Paper
Air Quality

Figure 3.1
Overview of the study area

Legend

- Rail line
- Main road
- Named waterway
- Existing transmission line
- Approved Project EnergyConnect
- Amended air quality study area
- Temporary worker accommodation facility
- Combined temporary worker accommodation facility and construction compound
- Construction compound
- Amended project footprint

Construction traffic routes (local)

- Sealed
- Unsealed

- Substation
- National park
- State forest
- NSW/Victorian border

U:\Projects\AU\PS138xxx\PS138962_VNI_West_EIS_NSW\4_WIP\GIS\00_ArcGIS\Pro\04_TechnicalPapers\13_Airquality\PS138962_TP13_AirqualityFigures.aprx | PS138962_TP13_AQ_F0301_Overview_r1v2 | Author: C.Mathews | QA:

Data sources: NSW EPI, DELWP, WSP, EnergyConnect

3.3 Assessment approach

A desktop assessment was carried out to assess the project amendments and refinements.

3.3.1 Construction

The construction impacts for the proposed amendments and refinements were assessed as per IAQM guidance as outlined in Section 3.3 of *Technical paper 15 – Air quality impact assessment.* Briefly, the assessment approach was

- identification of the amended study area and activities during construction
- identification of sensitive human receivers within the amended study area and ecological receivers (e.g. national parks, farmland) within 50 metres of the proposed amendments and refinements footprint
- undertake risk-based assessment in accordance with the IAQM guidance as follows:
  - Step 1: screen the requirement for a more detailed assessment (refer to Table 5.1)
  - Step 2: assess the risk of dust impacts. This is done separately for each of four activities including demolition, earthwork, construction, and trackout (see section 5.1.1)
  - Step 2A: determine the potential dust emission magnitude
  - Step 2B: determine the sensitivity of the area
  - Step 2C: assess the risk by combining the factors in Step 2A and Step 2B
  - Step 3: determine the site-specific mitigation
  - Step 4: examine the residual effects and determine whether or not these are significant.

For construction works screened out for a detailed risk assessment (in Step 1), the IAQM guidance indicates that it can be concluded that the level of risk is 'negligible' and any effects would not be of significance. To minimise the impacts on the environment from the project construction activities and implement best practices:

- qualitatively address gaseous emissions generated from vehicles and fugitive sources
- develop site-specific mitigation measures for the construction of the project
- assess the residual impacts after the implementation of mitigation measures.

The outcomes from this assessment were compared to the outcomes from *Technical paper 15 – Air quality impact assessment.*

Amended construction haulage routes used by construction vehicles on public roads were assessed using the same methodology as outlined in *Technical paper 15 – Air quality impact assessment*.

The Deniliquin laydown area and Tarcutta temporary accommodation facility (AC03) are existing facilities and therefore were assessed separately to the other temporary compounds as there would be no construction activity as part of the amended project. The potential impacts due to construction vehicles using these facilities were assessed qualitatively with reference to the IAQM and CASANZ guidance.

Construction access roads and intersection upgrades were assessed in accordance with CASANZ guidance for road projects. The CASANZ guidance uses a similar methodology to the IAQM guidance as outlined in *Technical paper 15 – Air quality impact assessment.* The CASANZ and IAQM guidance recommend that a risk assessment of potential dust impacts from construction activities is undertaken when sensitive human receivers are located within:

- 250 metres of the project footprint
- 50 metres of the routes used by construction vehicles on a public highway, up to 250 metres from the site entrances.

And for ecological receivers within:

- 50 metres of the project footprint
- 50 metres of the routes used by construction vehicles on a public highway, up to 250 metres from the site entrances.

In cases where no sensitive receivers were identified within these locations, the need for a more detailed assessment was 'screened out'.

3.3.2 Operation

The method for assessing operation impacts is unchanged from *Technical paper 15 – Air quality impact assessment.*

4 Existing environment

The existing environment information presented in *Technical paper 15 – Air quality impact assessment* was applied in this addendum assessment including:

1. topography
2. meteorology
3. existing air emissions sources
4. background air quality.

With respect to the sensitivity of the study area based on the existing background air quality, the annual average background PM_{10} mass concentration along the amended project footprint is expected to range between 17 and 21 µg/m^3.

4.1 Sensitive receivers

The main type of sensitive receivers within the air quality study area includes human receivers (residences) and ecological receivers (such as national parks, nature reserves and farmland (cropping)). A review of the number and location of sensitive receivers for the proposed amendments and refinements has been undertaken and the updated sensitive receiver locations are presented in Figure 4.1.

The number of sensitive receivers identified in the *Technical Paper 15 – Air quality impact assessment* has changed as a result of amendments and refinements to the project.

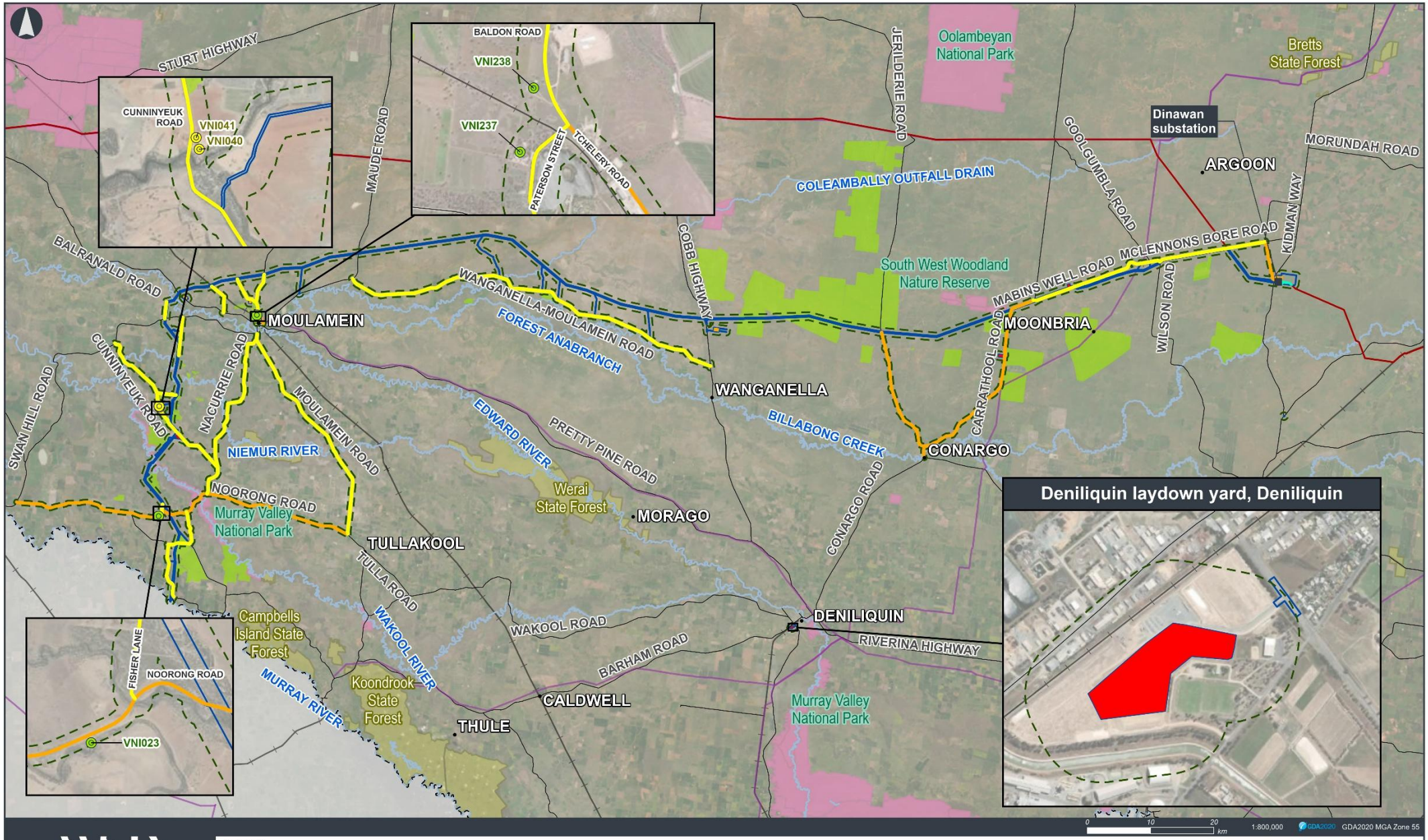
Changes to sensitive receivers include:

- an additional four human receivers have been identified within 250 metres of the Tarcutta temporary accommodation facility (AC03)
- a change in human receivers from nine to twelve within the amended air quality study area associated with the revised construction access routes.

In total, there are now 16 human sensitive receivers located within the amended air quality study area footprint, of which 10 are additional human receivers.

There is no change to the identified ecological receivers previously identified and assessed in *Technical paper 15 – Air quality impact assessment*, and includes national parks and farmland (cropping).

Sensitive receivers identified for the proposed amendments and refinements are shown on Figure 4.1.



wsp

VNI West – Technical Paper Air Quality

Figure 4.1a
Sensitive receivers within the amended study area

Legend

- Rail line
- Main road
- Named waterway
- Existing transmission line
- Approved Project EnergyConnect
- Amended air quality study area
- Combined temporary worker accommodation facility and construction compound
- Construction compound
- Amended project footprint

Air quality sensitve receiver

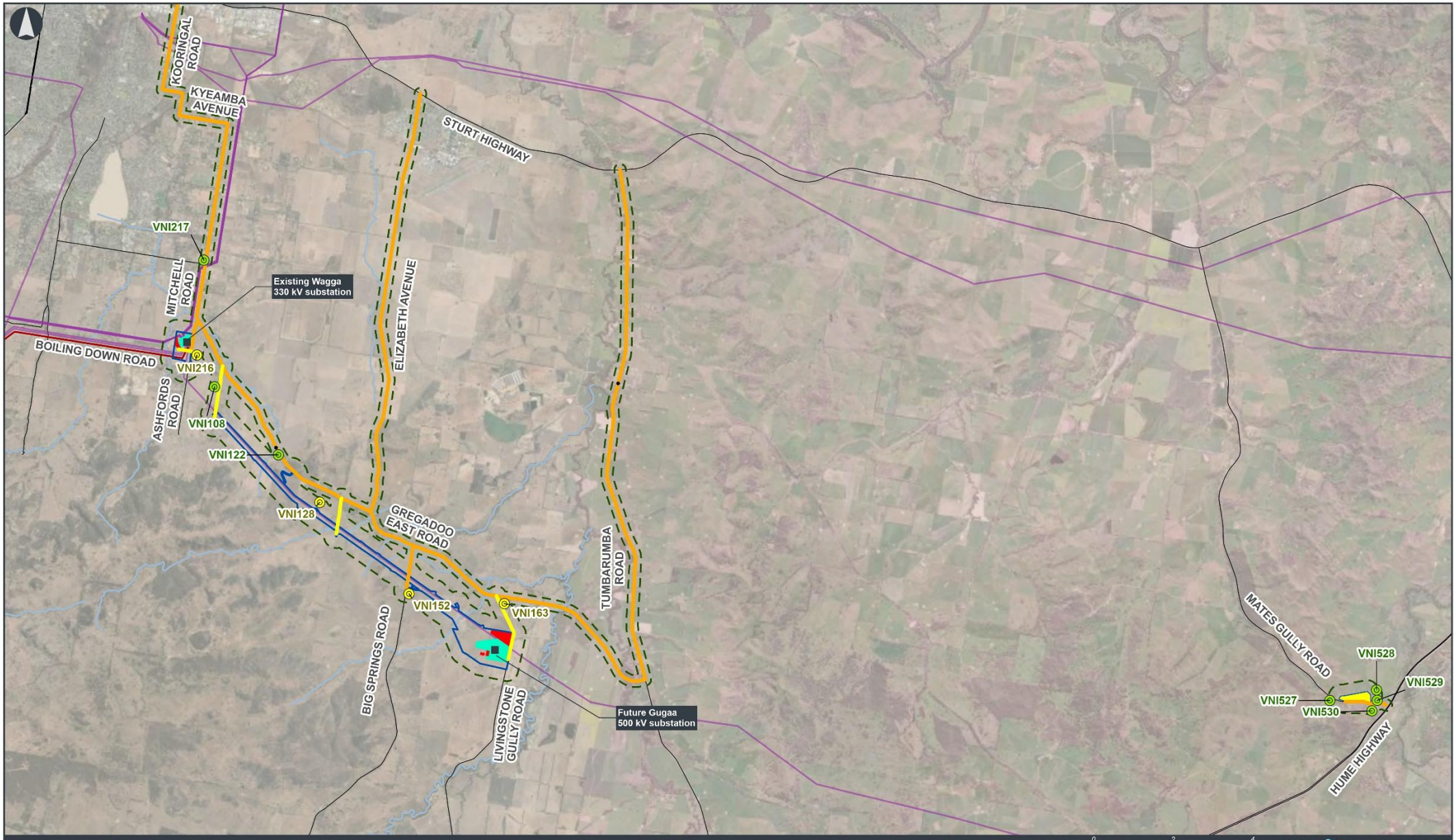
- Residential
- Residential - Additional receivers

Construction traffic routes

- Sealed
- Unsealed

- National park within 250m of the project corridor
- Agriculture and farming land within 250m of the project corridor
- State forest
- NSW/Victorian border

Data sources: NSW EPI, DELWP, WSP, EnergyConnect



wsp

VNI West – Technical Paper Air Quality

Figure 4.1b
Sensitive receivers within the amended study area

Legend

- Main road
- Named waterway
- Existing transmission line
- Approved Project EnergyConnect
- Amended air quality study area
- Temporary worker accommodation facility
- Construction compound
- Amended project footprint

Air quality sensitve receiver

- Residential
- Residential - Additional receivers

Construction traffic routes

- Sealed
- Unsealed

Data sources: NSW EPI, DELWP, WSP, EnergyConnect

5 Assessment of potential impacts

Chapters 5 and 6 of *Technical paper 15 – Air quality impact assessment* of the EIS assessed the potential impacts of the construction and operation of the project on air quality. Additional assessment has been undertaken to identify changes to potential air quality impacts associated with the proposed amendments and refinements. The findings of the additional assessment are reported in this section.

5.1 Construction

5.1.1 Dust impacts of the amendments and refinements

As described in section 5.1.1 of *Technical paper 15 – Air quality impact assessment,* step 1 of the IAQM includes a screening assessment to determine if there are any sensitive receivers that would trigger the need for detailed risk assessment. The IAQM recommends a detailed risk assessment where:

- sensitive human receivers are located within 250 metres of the project footprint; 50 m from a proposed haulage route on a public highway or 250 m from a site entrance
- sensitive ecological receivers are located within 50 m of the project footprint, 50 m from a proposed haulage route on a public highway or 250 m from a site entrance.

In cases where no sensitive receivers are identified, the need for a more detailed assessment is 'screened out'. It can be concluded that the level of risk for human receivers is 'negligible', and any impacts would not be of significance.

Table 5.1 presents the screening assessment of the proposed amendments and refinements to determine if further detailed risk assessment is required as per the IAQM and CASANZ guidance.

Table 5.1 Step 1 of the IAQM screening assessment of proposed amendments and refinements

Amendment/refinement	Screening assessment of amendment/refinement	Dust impact assessment outcomes
Amendment		
Inclusion of additional substation elements at the Dinawan substation to allow connection with the South West REZ	While there are material changes to the amended construction method and scale of proposed works, a detailed risk assessment of the dust impacts is screened out as there are no sensitive residential and/or ecological receivers within 250 m of Dinawan substation.	Risk deemed negligible. Risk of dust impacts presented in *Technical paper 15 – Air quality impact assessment* unchanged. No further assessment is required as per IAQM guidance.
Installation of new shunt reactors at the existing Wagga 330 kV substation	There are material changes to the amended construction method and scale of proposed works. Sensitive residential and/or ecological receivers are within 250 m of the existing Wagga 330 kV substation, indicating the need for a detailed assessment.	Although additional construction activities are proposed at the existing Wagga 330 kV substation, the potential dust emission magnitude is unchanged when compared to the EIS project, and therefore the risk of dust impacts presented in *Technical paper 15 – Air quality impact assessment* are unchanged. No further assessment is required as per IAQM guidance.

Amendment/refinement	Screening assessment of amendment/refinement	Dust impact assessment outcomes
Revision to the number and location of combined temporary worker accommodation facilities and construction compounds including — Robb Road, Moulamein — Cobb Highway, Wanganella — Dinawan substation, Bundure — Tarcutta temporary accommodation facility (AC03). New and/or revised temporary construction compounds are also proposed at: — Mabins Well Road, Mabins Well — Carrathool Road, Mabins Well — Cunninyeuk Road, Cunninyeuk — Wagga 330 kV substation — Future Gugaa 500 kV substation — Deniliquin laydown yard, Deniliquin.	The Deniliquin laydown area and Tarcutta temporary accommodation facility (AC03) are existing facilities and are assessed separately. No sensitive human receivers are located within 250 m of the Deniliquin laydown yard. An additional four human receivers have been identified within 250 metres of the Tarcutta temporary accommodation facility (AC03). A detailed risk assessment of the dust impacts for other combined temporary worker accommodation facilities and construction compounds and stand-alone temporary construction compounds is screened out as there are no new sensitive receivers identified within 250 m of these sites.	See sections 5.1.1.1 and 5.1.1.2 for further discussion on the Deniliquin laydown yard and Tarcutta temporary accommodation facility (AC03). Risk deemed negligible at other combined temporary worker accommodation facilities and construction compounds. Risk of dust impacts presented in *Technical paper 15 – Air quality impact assessment* unchanged. No further assessment required as per IAQM guidance.
Inclusion of additional road and intersection improvements/upgrades along construction access routes	A detailed risk assessment of dust impacts is required as there are sensitive ecological receivers within 50 m of some proposed road and intersection upgrades.	Further assessment of road/ intersection upgrades is provided in section 5.1.1.3.
Refinements		
Refinement of the EIS project footprint and the indicative disturbance footprint	The minor changes to the amended construction method (including earthwork cut and fill volumes) and revised footprint for the transmission line corridor and access tracks are deemed to be immaterial as there is no change to the number of nearby residential and ecological sensitive receivers within the amended study area of these components. Other refinements to the project footprint such as changes to the locations of temporary accommodation facilities and construction compounds and road/ intersection upgrades are addressed elsewhere in this table.	The proposed refinements to the transmission line corridor are immaterial. Risk of dust impacts presented in *Technical paper 15 – Air quality impact assessment* unchanged. No further assessment required as per IAQM guidance. Other refinements to the project footprint such as changes to the locations of temporary accommodation facilities and construction compounds and road/intersection upgrades are addressed elsewhere in this table.

Amendment/refinement	Screening assessment of amendment/refinement	Dust impact assessment outcomes
Updates to construction staging	Updates to the construction staging, specifically in relation to cumulative impacts to air quality are assessed in Chapter 6.	See Chapter 6 for cumulative impact assessment.
Rationalisation of access tracks for both the 500 kV and 330 kV (network augmentation works) components of the project	The minor changes to the amended footprint are deemed to be immaterial as there is no change to the number of nearby sensitive receivers.	Changes to the project are immaterial. Risk of dust impacts presented in *Technical paper 15 – Air quality impact assessment* unchanged. No further assessment required as per IAQM guidance.
Updates to construction traffic routes and over-size over-mass (OSOM) haulage routes	An additional six human receivers are located within 200 metres of revised construction access routes (unsealed). While new construction traffic routes and over-size over-mass (OSOM) haulage routes have been included in the proposed amendments and refinements, the changes are deemed to be immaterial.	Although the number of human receivers has increased for the amended project the impacts to the sensitive receivers would be intermittent, of short duration and would likely only impact a small number of receivers at any given time. Changes to the project are immaterial. Risk of dust impacts presented in *Technical paper 15 – Air quality impact assessment* unchanged. No further assessment required.

5.1.1.1 Deniliquin laydown area

The proposed amendments and refinements includes use of an existing construction storage compound in Deniliquin to allow for the storage and staged provision of construction materials such as transmission line components and transmission line cabling. As this is an existing storage compound located in town, this compound was assessed separately. There are no sensitive human receivers within 250 metres of the compound (the closest is around 280 metres from the compound) and therefore the need for a more detailed assessment is 'screened out' and the risk deemed **negligible** for activities within the compound. However, there are potential air quality impacts due to vehicle combustion emissions arising from the additional traffic using the compound and these are assessed qualitatively.

According to the *Technical paper 8 – Traffic and transport impact assessment* (WSP, 2026), the peak construction traffic movements around the Deniliquin storage compound would be around 1 to 7 vehicles per hour. As the compound is already in an industrial area, there are sensitive receivers (i.e., residential properties) located on routes to the compound. Qualitatively, based on the expected low numbers of additional traffic and the compound's location in an industrial area, the expected impact on air quality is **negligible to low** for receivers located on routes to the compound.

The intersection of the site access point with the Cobb Highway is also proposed to be upgraded for the project, and six residential receivers are located within 50 metres of the proposed works (see Figure 4.1). The potential air quality impacts due to the proposed upgrade were assessed using the CASANZ guidance. According to the CASANZ guidance, the area was determined to have a low sensitivity to dust impacts and a medium sensitivity to health impacts, based on the number of receivers (six) within 50 metres of the proposed works. Similarly, as the total length of road to be upgraded is less than one kilometre, the dust emission magnitude for construction works was deemed to be small.

Therefore, according to the CASANZ guidance, the risk is deemed **low** for dust soiling and human health impacts due to the proposed construction upgrade works at this site.

5.1.1.2 Tarcutta temporary accommodation facility (AC03)

As this is an existing facility, the main potential air quality impacts relate to light vehicle traffic movements to/from the proposed amendments and refinements. It is expected that the construction traffic movements during accommodation facility operations for the proposed amendments and refinements would be a peak hourly volume of four light vehicles only. This increase in road traffic volume would be **negligible** in terms of air quality and dust impacts.

5.1.1.3 Construction access road and intersection upgrades

The proposed amendments and refinements includes improvements/upgrades of the following roads and intersections:

- Robb Road, Moulamein. Upgrade and widening of up to around 1.2 kilometres of Robb Road west of the intersection of Robb Road and Baldon Road, Moulamein
- Fisher Lane, Wetuppa. Upgrade and widening of up to around 330 metres of a section of Fisher Lane commencing around 320 metres north of the intersection of Noorong Road and Fisher Lane, Wetuppa
- McLennons Bore Road, Argoon. Upgrade and widening of up to around 550 metres of a section of McLennons Bore Road commencing at the intersection of McLennons Bore Road and Wilson Road, Argoon.

Intersection improvements are also proposed at:

- Kidman Way and Newell Highway, Bundure
- Kidman Way and Cadell Road, Bundure
- Cobb Highway and Wanganella-Moulamein Road
- Wanganella-Moulamein Road and Maude Road, Moulamein
- Cobb Highway and transmission line alignment access point (east), Wanganella
- Cobb Highway and Cobb Highway combined temporary worked accommodation facility access, Wanganella
- Cobb Highway and transmission line alignment access point (west), Wanganella
- Sturt Highway and Maude Road, Maude
- Berambong Railway Road and Balranald Road, Moulamein
- Swan Hill Road and Kaylock Road, Mallan
- Cunninyeuk Road and Wood Lane, Cunninyeuk
- Noorong Road and Nacurrie Road South, Wetuppa
- Murrabit Road and Cobramunga Road, Cobramunga
- McLennons Bore Road and Cadell Road, Argoon.

There are cattle grids to be upgraded on Wanganella-Moulamein Road and Willurah Road but these were deemed to be immaterial with respect to air quality impacts due to the amount of construction work to be undertaken.

Based on a desktop review of the proposed road and intersection upgrade locations above, no sensitive human receivers within the 250 metres of the proposed works were identified. Therefore, the need for a detailed screening assessment is screened out, and the risk deemed **negligible** for dust soiling and human health impacts due to the proposed construction road upgrade and intersection works.

However, as there are sensitive ecological receivers (farmland: cropping) identified within 50 metres of the proposed intersection work at Swan Hill Road and Kaylock Road, a detailed screening assessment is required and has been undertaken as per the CASANZ guidance. The potential dust emission magnitudes were deemed to be **small** for earthworks, construction and trackout due to the small site area (<2,500 m^2) and road length (<1 km). Combined with the high sensitivity of the ecological receivers , the risk is deemed **low** for ecological impacts due to the proposed intersection works at Swan Hill Road and Kaylock Road, Mallan.

For the proposed construction road upgrade and intersection works where there are no ecological receivers within 50 metres, the risk was deemed **negligible** for ecological impacts.

5.1.2 Gaseous emissions during construction

The presented assessment on gaseous emissions in *Technical paper 15 – Air quality impact assessment* of the EIS is still applicable as there are no material changes to the construction methodology that would affect the assessment in the context of gaseous emissions during construction.

5.2 Operational assessment

As there are no changes to the project operational activities, potential air quality impacts of the proposed amendments and refinements during operation would be consistent with the impacts identified in the *Technical paper 15 – Air quality impact assessment* of the EIS.

6 Cumulative impacts

The cumulative impact assessment considers other nearby developments along with the project and assesses the scale and nature of the cumulative impacts the developments on key matters.

Since the exhibition of the EIS, the planning status, environmental assessment documentation and/or estimated construction and operation timeframes of relevant future projects identified in the cumulative impact assessment have been updated as these projects progress through the planning system. A series of additional relevant future projects, in accordance with the Cumulative Impact Assessment Guidelines, has also been identified.

The screening criteria used to identify relevant future projects that have the potential to interact with the project in a manner to create potential cumulative impacts remain consistent with the EIS. Criteria considered relate primarily to location, construction and operational timeframes, and resources. The screening criteria used to identify potentially relevant future projects included approved or yet to be approved projects.

Four additional projects were identified for the assessment, including:

- Riverina Redevelopment Program
- Gregadoo Waste Management Centre Renewal
- Riverina Storage Pipeline (SSI-88716456)
- Booroorban (Saltbush) Wind Farm (SSD-70636459).

Of the four identified projects, Riverina Redevelopment Program is within the study area and is considered for cumulative impacts in Table 6.2.

Further detail on cumulative impact assessment approach is provided in Chapter 7 (Cumulative impacts) of *Technical paper 15 – Air quality impact assessment*.

6.1 Projects considered

The relevant future projects that were considered as having the potential to result in cumulative impacts with the amended project are listed in Table 6.1. The location of the major relevant future projects are shown in Figure 6.1 and Figure 6.2.

Table 6.1 Projects with the potential for cumulative impacts

Related developments		
1. VNI West (Victoria)	2. EnergyConnect (NSW – Eastern Section) (SSI-9172452)	3. HumeLink (SSI-36656827)
Projects currently subject to environmental assessment		
4. Junction Rivers Wind Farm (SSD-30448824)	12. Pottinger Solar Farm (SSD-59254709)	20. Argoon Wind Farm (SSD-64935522)
5. Keri Keri Wind Farm (SSD-38358962)	13. Billabong Creek Environmental Water Regulators (SSI-50831979)	21. Belhaven Battery Energy Storage System (SSD-57575973)
6. Wilan Wind Farm (SSD-51306206)	14. Bullawah Wind Farm (SSD-50505215)	22. Livingstone Solar Farm (SSD-80114208)
7. Baldon Wind Farm (SSD-40138508)	15. Romani Solar Farm (SSD-67105475)	23. Mangoplah Battery Energy Storage System (SSD-77527735)

Projects currently subject to environmental assessment (cont'd)		
8. Tchelery Wind Farm (SSD-59701722)	16. West Nyangay Solar Farm (SSD-74990235)	27. Riverina Redevelopment Program
9. Abercrombie Wind Farm (SSD-77340978)	17. Conargo Wind Farm (SSD-70611708)	28. Gregadoo Waste Management Centre Renewal
10. Wanganella Wind Farm (SSD-78102208)	18. Dinawan Solar Farm (SSD-50725959)	29.Riverina Storage Pipeline (SSI-88716456)
11. Pottinger Wind Farm (SSD-59235464)	19. Dinawan Wind Farm (SSD-50725708)	30. Booroorban (Saltbush) Wind Farm (SSD-70636459)
Approved or changed projects		
24. Yanco Delta Wind Farm (SSD-41743746)	25. Gregadoo Solar Farm (SSD-8825)	26. Inland Rail (Albury to Illabo)

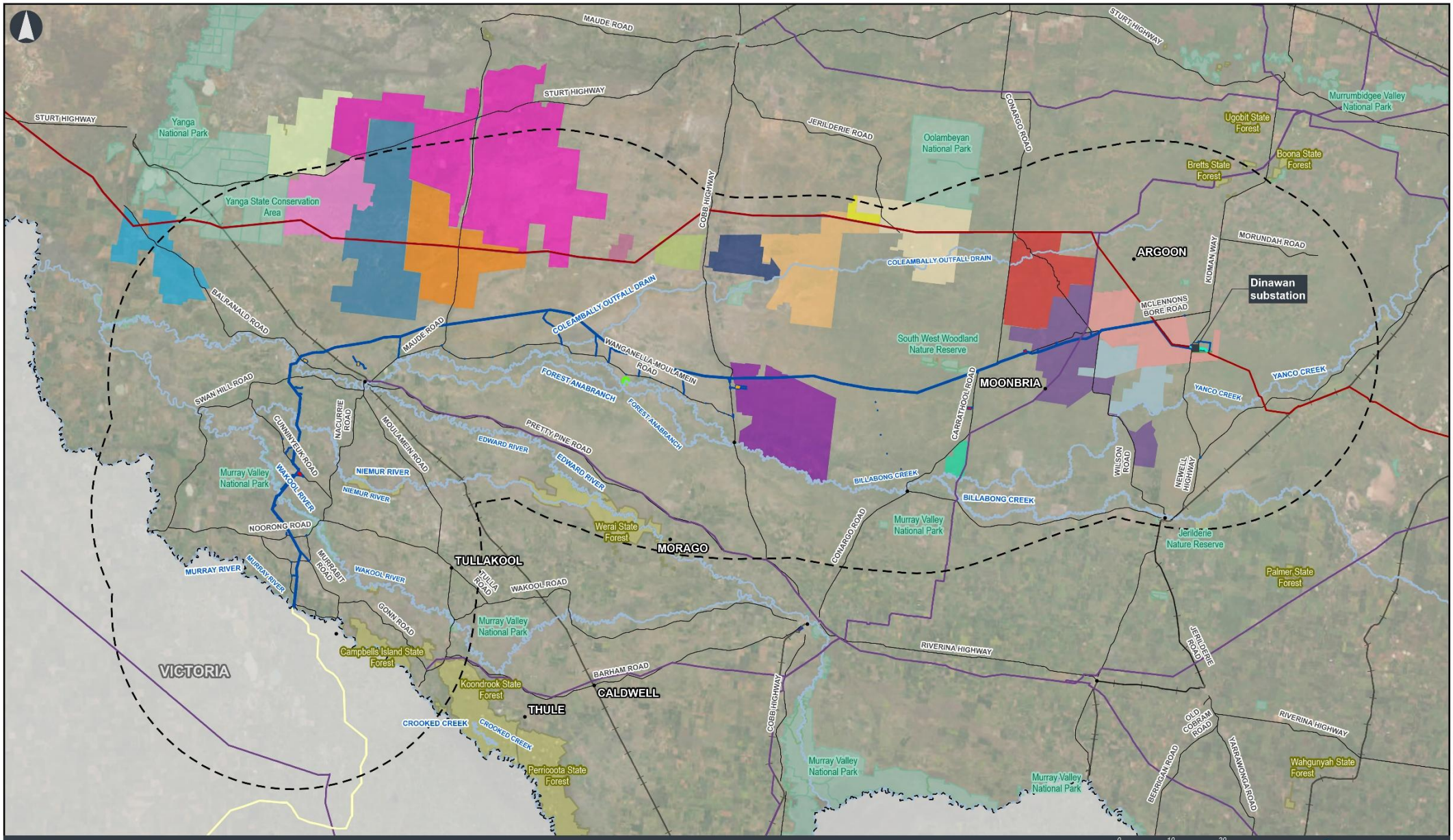
6.1.1 South West Renewable Energy Zone access right agreements

In April 2025, EnergyCo granted access rights to six wind, solar and large-scale battery projects with a combined generation capacity of 3.56 gigawatts[1]. The projects consisted of the following as shown previously in Table 6.1:

- Yanco Delta Wind Farm (project 24)
- Dinawan Energy Hub – consisting of the Dinawan Solar Farm and Dinawan Wind Farm (projects 18 and 19 respectively)
- Pottinger Energy Park – consisting of the Pottinger Solar Farm and Pottinger Wind Farm (projects 11 and 12 respectively)
- Bullawah Wind Farm (project 14).

The combined generation capacity of these proposed or approved projects represents the initial allocation of access rights under the South West Renewable Energy Zone access scheme. In making this decision, the maximum capacity for access rights assigned to each proposed renewable energy project is lower than what has been identified in planning assessment documentation for those projects, and it would alter the likelihood of some of the remaining projects in the South West Renewable Energy Zone proceeding in the short-term. However, for the purposes of this cumulative assessment it is assumed that all identified projects would proceed as described in the relevant planning assessment documentation available at the time of the assessment (in line with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (NSW DPIE, 2022)).

[1] Media Release – South West Renewable Energy Zone powers up



WSP

VNI West – Technical Paper
Air Quality

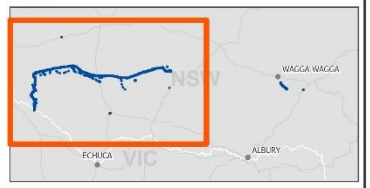
Figure 6.1
Cumulative impact projects

Legend

- Rail line
- Main road
- Named waterway
- Approved Project EnergyConnect
- Existing transmission line
- Dinawan substation works - existing 330 kV
- Dinawan substation works - proposed 500 kV
- NSW/Victorian border
- Cumulative Study area
- Amended project footprint
- VNI West (Victoria)
- Combined temporary worker accommodation facility and construction compound
- Construction compound
- National park
- State forest

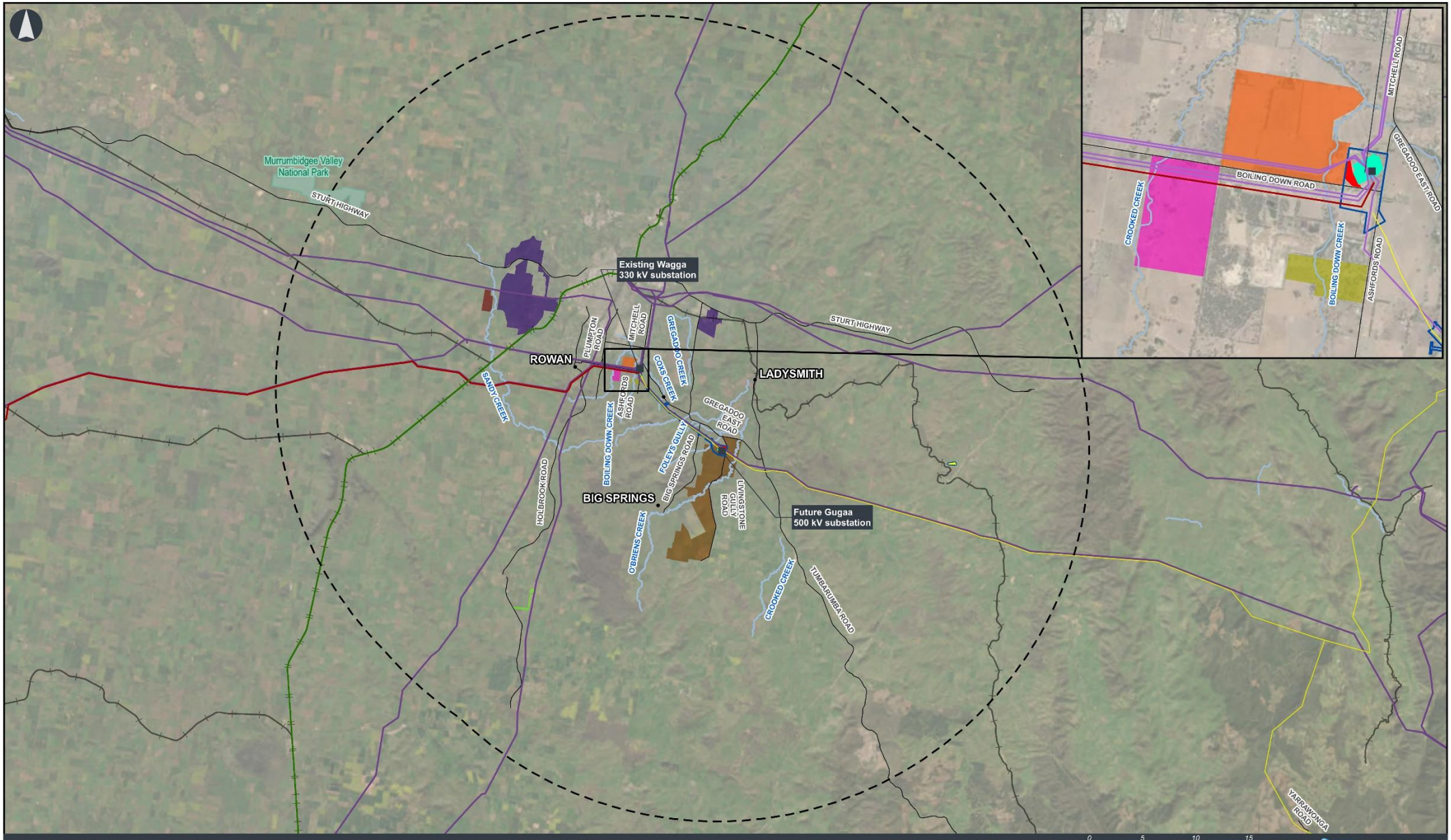
Relevant future projects

- Abercrombie Wind Farm
- Argoon Wind Farm
- Baldon Wind Farm
- Billabong Creek Environmental Water Regulators - Caroonboon
- Dinawan Solar Farm
- Dinawan Wind Farm (East)
- Dinawan Wind Farm (West)
- Pottinger Wind Farm
- Tchelery Wind Farm
- Yanco Delta Wind Farm
- Wilan Wind Farm
- Bullawah Wind Farm
- Junction Rivers Wind Farm
- Keri Keri Wind Farm
- Pottinger Solar Farm
- Romani Solar Farm
- West Nyangay Solar Farm
- Conargo Wind Farm
- Wanganella Wind Farm
- Saltbush Wind Farm



U:\ProjectsAU\PS138xxx\PS138962_VNI_West_EIS_NSW\4_WIP\GIS\00_ArcGIS\Pro\04_TechnicalPapers\13_Airquality\PS138962_TP13_CumulativeImpactsFigures.aprx | PS138962_TP13_AQ_F0603a_CumulativeImpactProjects_r1v4 | Author: CM | QA: -

Data sources: NSW EPI, DELWP, WSP, EnergyConnect



VNI West – Technical Paper
Air Quality

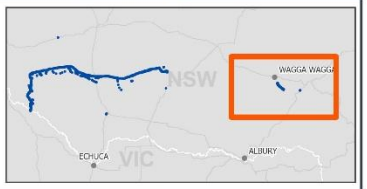
Figure 6.2
Cumulative impact projects

Legend

- Rail line
- Main road
- Named waterway
- Approved Project EnergyConnect
- Existing transmission line
- Albury to Illabo
- HumeLink project transmission line (under construction)
- Cumulative Study area
- Amended project footprint
- Substation
- National park
- Temporary worker accommodation facility
- Construction compound

Relevant future projects NEW

- Gregadoo Waste Management Centre
- Riverina Redevelopment Program
- Riverina Storage Pipeline Project
- Livingstone Solar Farm
- Belhaven Battery Energy Storage System
- Gregadoo Solar Farm
- Mangoplah Battery Energy Storage System



Data sources: NSW EPI, DELWP, WSP, EnergyConnect

6.2 Assessment of cumulative impacts

Since the public exhibition of the EIS, an updated cumulative impact search has been undertaken. The cumulative impact assessment related to air quality was further refined by applying the study area identified in section 3.1 and the proximity and timeframe of relevant projects. The relevant projects are outlined in Table 6.2, and were selected based on expected overlapping construction periods and are within close proximity (i.e., within the study area) of the amended project.

For the purposes of assessing the cumulative impacts, the amended project construction schedule is for construction to occur from mid-2027 to mid-2029 for the Dinawan substation and network augmentation works, and from mid-2028 to late 2030 for 500 kV transmission line.

Table 6.2 Projects considered in the cumulative impact assessment

Relevant future project	Proponent	Scope	Location/distance to project	Status/timeframe	Potential cumulative air quality impacts
Related developments					
1. VNI West (Victoria)	VicGrid (Former Transmission Company Victoria)	Victorian component of the VNI West project. VNI West (Victoria) would consist of around 240 km of new 500 kV transmission line between the connection point with VNI West (Victoria) and Bulgana, Victoria.	VNI West (Victoria) provides a direct connection into the amended project at NSW/Victoria border.	— VicGrid released its 70 m preferred easement alignment for the Victorian component in October 2024 — the project is currently undergoing environmental assessment in accordance with Victorian and Commonwealth planning processes, and is subject to ongoing preparation of an Environment Effects Statement (EES)	Potential cumulative air contaminants include dust and gaseous emissions during potential overlap in construction schedules. Potential impacts from the air emissions include: — risk to human health — amenity impacts (deposited dust). There are no identified sensitive receivers within 250 m of shared project borders. Provided construction mitigation measures are adopted by the project and VNI West (Victoria), the impacts would be minimal.

Relevant future project	Proponent	Scope	Location/distance to project	Status/timeframe	Potential cumulative air quality impacts
				In July 2025, VicGrid announced a two-year delay to VNI West in Victoria, citing additional time required to complete property and environmental processes in developing the EES. This would result in VNI West in Victoria commencing construction in second half of 2027 and construction being completed by November 2030.	
3. HumeLink (SSI-36656827)	Transgrid	Construction and operation of new transmission lines between the existing substations at Wagga and Bannaby, the future Maragle substation, and at the future Gugaa 500 kV substation, Livingstone Gully Road.	The amended project overlaps the HumeLink project footprint at Gregadoo and connects to the future Gugaa 500 kV substation, Livingstone Gully Road being constructed as part of HumeLink.	— project approved in November 2024 — main construction commenced and is expected to take around 2.5 years to complete — operation is expected to begin in 2027 with an operational life of 50 to 70 years.	Potential cumulative air contaminants include dust and gaseous emissions during potential overlap in construction schedules. Potential impacts from the air emissions include: — risk to human health — amenity impacts (deposited dust). Potential shared sensitive receivers are human receivers (residential properties). Provided construction mitigation measures are adopted by the amended project and Humelink, the impacts would likely be minimal.

Relevant future project	Proponent	Scope	Location/distance to project	Status/timeframe	Potential cumulative air quality impacts
Projects under assessment					
10. Wanganella Wind Farm (SSD-78102208)	Equis Wind Australia Pty Ltd	Development of a proposed 840 MW wind farm comprising around 105 wind turbines (with a maximum tip height of 270 m), BESS and associated infrastructure across an area of around 30,737 ha.	The amended project traverses through the Wanganella Wind Farm	— SEARs issued in November 2024; an EIS is being prepared — construction is proposed to commence in 2027 and is expected to take around two years — operation is expected to begin in 2030 with an operational life of around 30 years.	Potential cumulative air contaminants include dust and gaseous emissions during construction overlap in 2027-2029. Potential impacts from the air emissions include: — risk to human health — amenity impacts (deposited dust). Potential shared sensitive receivers are farming (cropping) land. Provided construction mitigation measures are adopted by the project and Wanganella Wind Farm, the impacts would be minimal.

Relevant future project	Proponent	Scope	Location/distance to project	Status/timeframe	Potential cumulative air quality impacts
18. Dinawan Solar Farm (SSD-50725959)	Spark Renewables	Development of a proposed 800 MW solar farm comprising around PV panels, BESS and associated infrastructure across an area of around 3,257 ha.	Dinawan Solar Farm is located around 100 m south of the amended project	— secured access rights under the South West REZ access rights agreement in April 2025 — EIS exhibited between November and December 2023 — the project was approved by IPC on 2 April 2026 — construction is proposed to begin in 2026 and is expected to take around 18 to 36 months — the project is expected to commence operation in 2028 and would have an operational life of 25 to 35 years.	Potential cumulative air contaminants include dust and gaseous emissions during potential construction overlap in 2027. Potential impacts from the air emissions include: — risk to human health — amenity impacts (deposited dust). Potential shared sensitive receivers are farming (cropping) land. Provided construction mitigation measures are adopted by the project and Dinawan Solar Farm, the impacts would be minimal.

Relevant future project	Proponent	Scope	Location/distance to project	Status/timeframe	Potential cumulative air quality impacts
19. Dinawan Wind Farm (SSD-50725708)	Spark Renewables	Development of a proposed 1,200 MW wind farm comprising around 200 wind turbines (with a maximum tip height of up to 250 m) and associated infrastructure across an area of around 46,000 ha.	Dinawan Wind Farm (west) around 4 km north of the project. The project traverses Dinawan Wind Farm (east).	— secured access rights under the South West REZ access rights agreement in April 2025 — EIS exhibited between July and August 2024; a response to submissions and the amendment report has been completed, and the project is under assessment from DPHI — construction was proposed to begin in 2025 and was expected to take around 60 months. However, no new updates have been made public by the project — operation is expected to begin in 2027/2028 with an operational life of 25 to 35 years.	Potential cumulative air contaminants include dust and gaseous emissions during potential construction overlap in 2027. Potential impacts from the air emissions include: — risk to human health — amenity impacts (deposited dust). Potential shared sensitive receivers are farming (cropping) land. Provided construction mitigation measures are adopted by the project and Dinawan Wind Farm, the impacts would be minimal.

Relevant future project	Proponent	Scope	Location/distance to project	Status/timeframe	Potential cumulative air quality impacts
Approved or project modifications					
24. Yanco Delta Wind Farm (SSD-41743746)	ViRYA Energy	Development of a proposed 1,500 MW wind farm comprising around 208 wind turbines (with a maximum tip height of up to 270 m), BESS and associated infrastructure across an area of around 42,000 hectares.	The project traverses through the Yanco Delta Wind Farm project area	— construction is proposed to begin in 2027 and is expected to take around 48 months — operation is expected to begin in 2028/2029 with an operational life of around 30 years,	Potential cumulative air contaminants include dust and gaseous emissions during construction, should the schedules overlap. Potential impacts from the air emissions include: — risk to human health — amenity impacts (deposited dust). Potential shared sensitive receivers are farming (cropping) land. Provided construction mitigation measures are adopted by the project and Yanco Delta Wind Farm, the impacts would be minimal.

Relevant future project	Proponent	Scope	Location/distance to project	Status/timeframe	Potential cumulative air quality impacts
Project identified as a part of the Amendment Report					
28. Gregadoo Waste Management Centre Renewal	Wagga Wagga City Council	Upgrades to an existing Wagga Wagga Council waste management centre	Adjacent to the amended project (within around 300 metres) south of Wagga Wagga 33 kV substation	The Gregadoo Waste Management Centre Renewal occurs within an existing Council waste management site already in use for waste management. The project includes the construction of new waste cells, the rehabilitation of an access road, and new plant and storage shed. The project is being delivered on stages and is subject to funding availability this stage of construction works are currently underway with the works expected to be completed in mid-2026.	Potential cumulative air contaminants include dust and gaseous emissions during construction, should the schedules overlap. Potential impacts from the air emissions include: — risk to human health — amenity impacts (deposited dust). Potential shared sensitive receivers are human receivers (residential properties) Provided construction mitigation measures are adopted by the amended project and Gregadoo Waste Management Centre Renewal, the impacts would likely be minimal.

Air quality impacts during construction are expected to be relatively localised and low impact for each relevant future project in Table 6.2. Therefore, cumulative emissions of air contaminants that would result in an increased risk to air quality values such as human health or amenity impacts are not expected.

7 Management and mitigation

7.1 Environmental management

This chapter describes how the amended project would be managed to reduce potential environmental impacts throughout detailed design, construction and operation. These are unchanged from the measures proposed in *Technical paper 15 – Air quality impact assessment.*

The approach to environmental management and mitigation of potential air quality impacts for the construction of the project would be carried out through the development of a project specific Construction Environmental Management Plan (CEMP) for the main construction works.

The approach to managing potential air quality impacts during construction in the CEMP would and incorporate the following components as a minimum:

- identification of sensitive receivers with 250 metres of the project footprint
- management measures to reduce potential impacts during construction
- mechanisms to review and update the air quality management measures at regular intervals or based on site inspections, with corrective measures implemented when required.

Operation of the project would be managed through Transgrid's EMS, which is accredited to ISO 14001 requirements. The EMS includes an *Environmental Assessment Framework*, which contains checklists, procedures, guidance notes and an *Environmental Handbook* (Transgrid, 2021d) to assess and manage the potential impacts of maintenance activities.

7.2 Mitigation measures

Revised and additional mitigation measures are provided in Table 7.1. The new mitigation measures and additions to the mitigation measures included in the` EIS are shown in **bold blue** coloured text, and where a measure or text has been deleted, it appears as ~~**strike through**~~ text.

Table 7.1 Revised and additional air quality mitigation measures

ID	Impact	Identified mitigation measure	Timing	Applicable location(s)
AQ1	Dust emissions during construction	Measures to prevent or minimise dust generation will be implemented during construction. This will include (but is not limited to): — using water carts, water sprays or dust suppression surfactants as required for dust suppression — adjusting the intensity of activities based on observed dust levels and weather forecasts — minimising the amount of materials stockpiled and positioning stockpiles away from surrounding receivers — covering, seeding or fencing stockpiles to prevent wind whipping	Construction	All locations

ID	Impact	Identified mitigation measure	Timing	Applicable location(s)
		— ~~limiting~~ vehicle movements are to be strictly limited to designated entry/exit routes and parking areas — covering of loads — minimising the extent of disturbance as far as practicable and stabilising disturbed areas as soon as practicable, including new access routes — ensuring access tracks are maintained and appropriate speed limits are enforced — stabilising site access points and/or using rumble grids as to minimise the tracking of material onto sealed roads. The effectiveness of the controls will be monitored ~~through site inspections~~, and additional controls implemented as required to address any performance issues identified.		
AQ5	Air emissions from the use of helipads	Helipads established at temporary worker accommodation facilities will be located as far as practical from sensitive **receivers.** ~~receptors.~~	Construction	Temporary worker accommodation facilities

8 References

IAQM. (2024). Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management.

CASANZ. (2023). Good practice guide for the assessment and management of air pollution from road transport projects. Clean Air Society of Austrlaia and New Zealand.

NSW DPIE (2021). *New South Wales annual compliance report 2019.* New South Wales Department of Planning, Industry and Environment.

NSW DPIE (2021). *New South Wales annual compliance report 2020.* New South Wales Department of Planning, Industry and Environment.

EPA Victoria (2013). *Recommended separation distances for industrial residual air emissions.* Publication number 1518, Environment Protection Agency Victoria.

9 Limitations

This Report is provided by WSP Australia Pty Limited (*WSP*) for Transgrid (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 26 June 2023 and agreement with the Client dated 20 October 2023 (*Agreement*).

9.1 Permitted purpose

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

9.2 Qualifications and assumptions

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and/or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the report (*Information)*, those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

9.3 Use and reliance

This Report should be read in its entirety and must not be copied, distributed or referred to in part only. The Report must not be reproduced without the written approval of WSP. WSP will not be responsible for interpretations or conclusions drawn by the reader. This Report (or sections of the Report) should not be used as part of a specification for a project or for incorporation into any other document without the prior agreement of WSP.

WSP is not (and will not be) obliged to provide an update of this Report to include any event, circumstance, revised Information or any matter coming to WSP's attention after the date of this Report. Data reported and Conclusions drawn are based solely on information made available to WSP at the time of preparing the Report. The passage of time; unexpected variations in ground conditions; manifestations of latent conditions; or the impact of future events (including (without limitation) changes in policy, legislation, guidelines, scientific knowledge; and changes in interpretation of policy by statutory authorities); may require further investigation or subsequent re-evaluation of the Conclusions.

This Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose. The Report does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise. It is the responsibility of the Client to accept (if the Client so chooses) any Conclusions contained within the Report and implement them in an appropriate, suitable and timely manner.

In the absence of express written consent of WSP, no responsibility is accepted by WSP for the use of the Report in whole or in part by any party other than the Client for any purpose whatsoever. Without the express written consent of WSP, any use which a third party makes of this Report or any reliance on (or decisions to be made) based on this Report is at the sole risk of those third parties without recourse to WSP. Third parties should make their own enquiries and obtain independent advice in relation to any matter dealt with or Conclusions expressed in the Report.

9.4 Disclaimer

No warranty, undertaking or guarantee whether expressed or implied, is made with respect to the data reported or the Conclusions drawn. To the fullest extent permitted at law, WSP, its related bodies corporate and its officers, employees and agents assumes no responsibility and will not be liable to any third party for, or in relation to any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of profit, loss of revenue, loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, site depredation costs, business interruption or economic loss) of any kind whatsoever, suffered on incurred by a third party.

About Us

WSP is one of the world's leading engineering professional services consulting firms, bringing together approximately 65,000+ talented people around the globe. We are technical experts who design and provide strategic advice on sustainable solutions and engineer Future ReadyTM projects that will help societies grow for lifetimes to come. wsp.com