



Dinawan Wind Farm

Addendum to Landscape and Visual Impact Assessment

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Prepared for
EMM

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2648

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1.0 Introduction

1.1 Purpose of this Report

The purpose of this Addendum report is to provide additional information relevant to the Landscape and Visual Impact Assessment (LVIA) prepared by Moir Landscape Architecture Pty Ltd (now trading as Moir Studio) for the Dinawan Wind Farm Project (SSD-50725708) referred to hereafter as ‘the Project’.

The LVIA was prepared for the Project by Moir Studio, forming part of the Environmental Impact Statement (EIS) prepared by EMM and lodged in March 2024. The EIS was public exhibited from Friday 12th July 2024 until Thursday 8th August 2024 by the NSW Department of Planning, Housing and Infrastructure (DPHI).

Since the public exhibition of the EIS, 67 potential wind turbine generator (WTG) locations have been removed from the project and the development footprint has been reduced by approximately 18% to 1,095 hectares (ha). Amendments to the development footprint in Stage 1 (east) have also been made in response to feedback from Transgrid (as proponents for Victoria to NSW Interconnector (VNI) West) and Origin Energy (as proponents for Yanco Delta Wind Farm). These refinements are described in detail in the amendment report (AR).

This Addendum Report provides an updated assessment of the revised project layout (referred to as the ‘Revised Layout’). The project layout presented in the EIS is referred to as the ‘EIS Layout’.

2.0 Project Amendments

2.1 Overview of Project Amendments

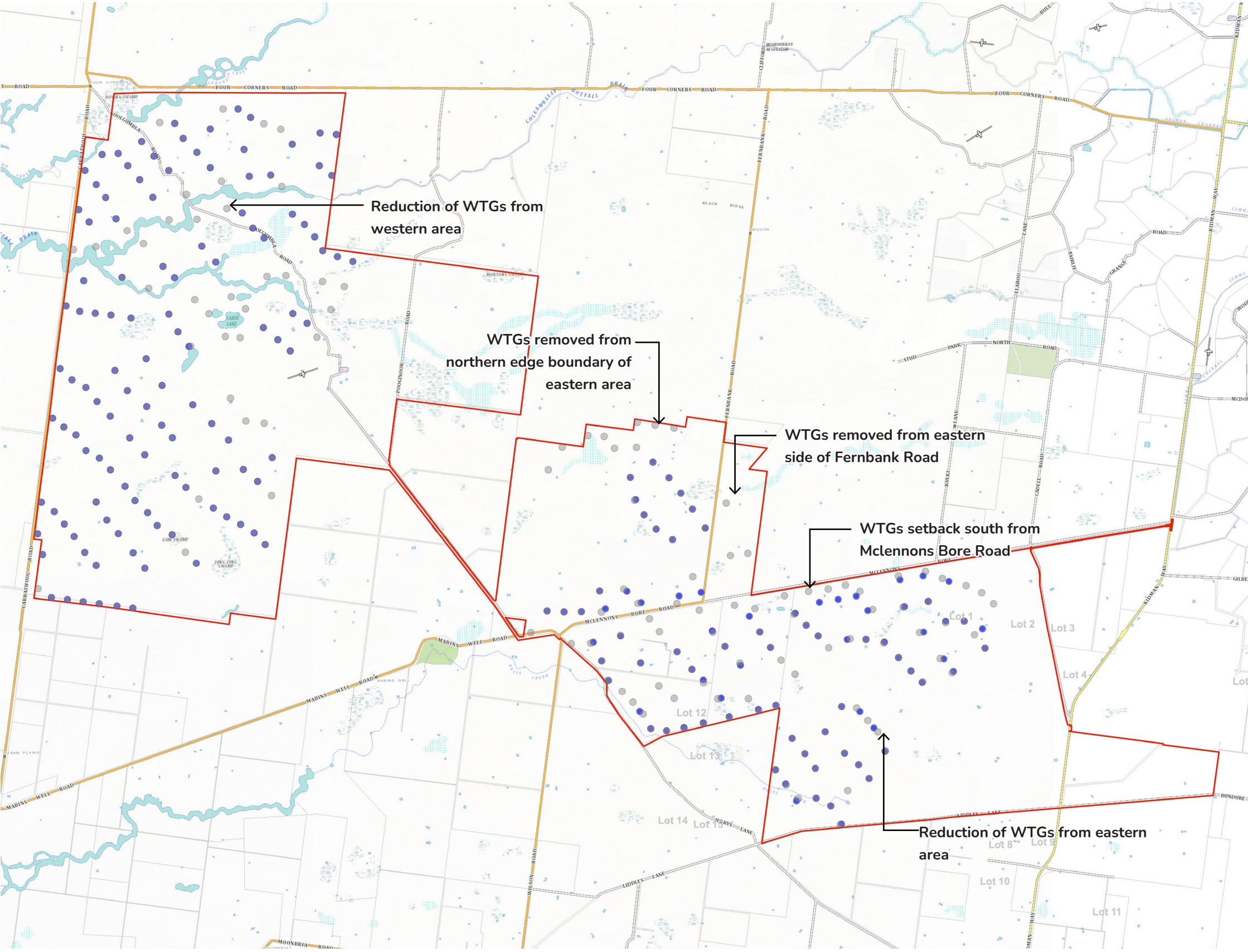
The LVIA for the Project was undertaken based on a proposed layout which included a total of 267 WTGs. The Revised Layout has been reduced by 67 WTGs to 200 WTGs.

Table 1 provides a comparison of the EIS Layout and Revised Layout. **Figure 1** illustrates the Project Layout Amendments.

The amended project is now seeking approval for a maximum turbine tip height of 250 metres, which is a reduction from the 280 metres originally considered in the Environmental Impact Statement (EIS). For consistency with the EIS, this addendum considers a conservative 280 m tip height, with the exception of the photomontage prepared for Dwelling R019 (Appendix A) as it has been identified as the only location where an updated visual impact assessment is warranted to reflect the amended design and actual construction parameters.

Summary of Project Changes		
Project Element	EIS Layout	Revised Layout
Project Area	39,061 ha	34,510 ha
WTGs	267 WTGs Hub height up to 180 m Tip height up to 280 m	200 WTGs Hub height up to 180 m Tip height up to 280 m
Development Footprint	1,339 ha	1,095 ha
Ancillary Infrastructure	EIS layout: As described in Chapter 3 of the EIS (EMM 2024).	Revised layout: Amendments to the location of: - collector substation and switchyard options - construction compounds, laydown areas and O&M facilities - electricity transmission line infrastructure connecting the collector substations to the Dinawan Substation site - permanent meteorological monitoring masts - worker accommodation facilities.

Table 01 Summary of Project Changes



Comparison of EIS and Revised WTG Layout

- Legend
- Project Boundary
 - EIS Layout WTG Location
 - Revised Layout WTG Location

Figure 01 Comparison of EIS and Revised WTG Layout
Base Map Source - ESRI, 2024

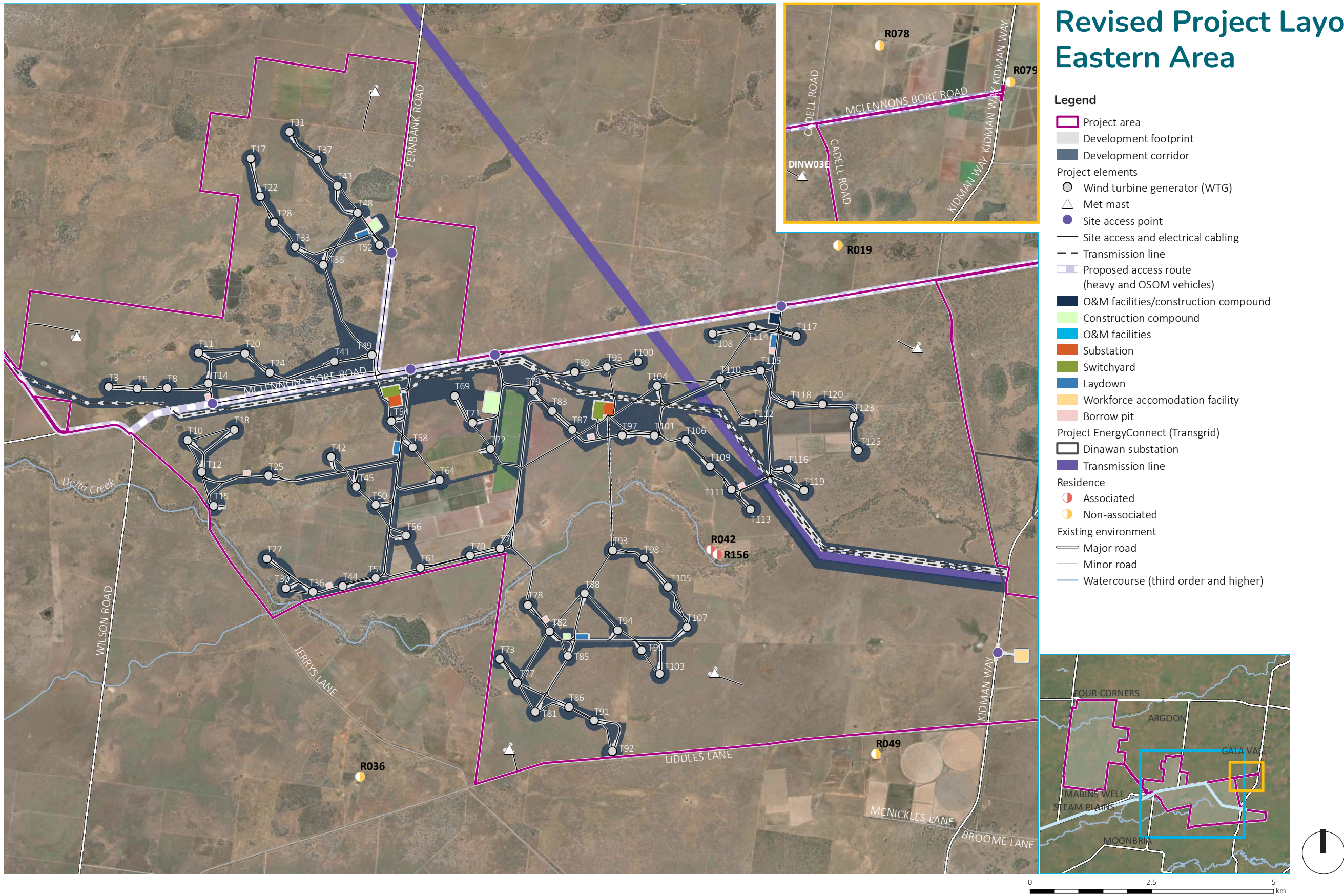
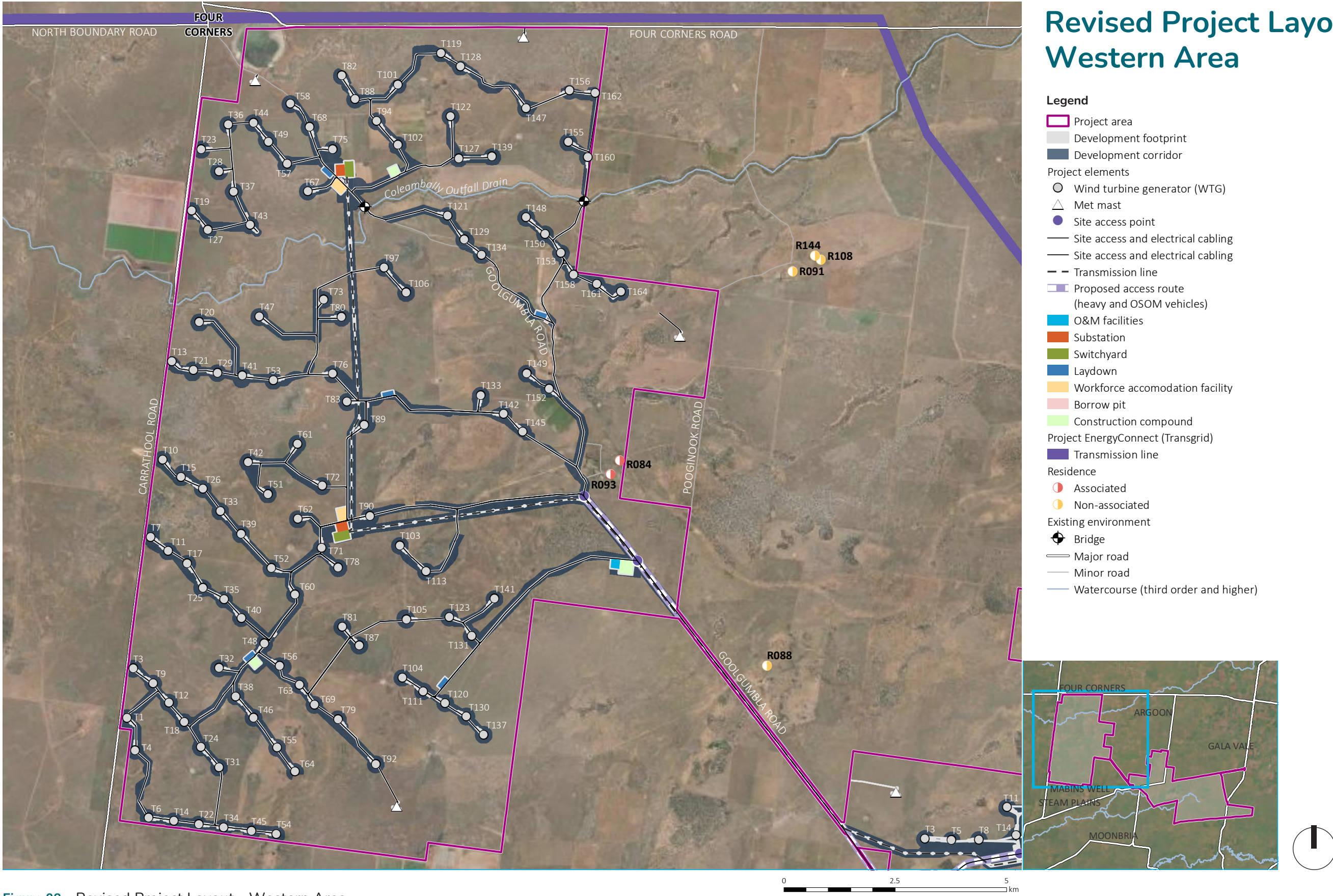


Figure 02 Revised Project Layout - Eastern Area

Source - EMM, 2025



3.0 Overview of Visual Impacts

3.1 Overview of Assessment Method

The LVIA for the Project was prepared in accordance with the requirements of the *Visual Assessment Bulletin* (2016). Since the EIS was lodged, the Department of Planning, Housing and Infrastructure have released Wind Energy Guidelines and Technical Supplement for Landscape Character and Visual Impact Assessment (referred to hereafter as the 'Technical Supplement'). The Technical Supplement provides guidance for the assessment of visual impacts of State Significant Wind Energy Developments. For consistency, a comparison of the results of the assessment tools from the Visual Assessment Bulletin (referred to hereafter as 'the Bulletin') has been prepared in this report to provide a like for like assessment between the two project layouts. Refer to **Section 3.2**.

As there is no methodology for determining the level of visual impact in the Visual Assessment Bulletin, assessments of the Revised Layout has been undertaken in accordance with the Technical Supplement (2024). Refer to **Section 3.3**.

3.2 Preliminary Assessment Tools (Visual Assessment Bulletin 2016)

The following provides an overview of the application of the Visual Magnitude Tool on the Revised Layout in comparison to the EIS Layout. **Figure 03** demonstrates the application of the Preliminary Assessment Tools on the EIS Layout, **Figure 04** presents the results of the application of the Preliminary Assessment Tools on the Revised Layout. **Table 02** and **Table 03** provide an overview of the comparison in results from all non-associated dwellings within 5,500 metres (blue line of visual magnitude) of the EIS layout.

3.2.1 Application of the Visual Magnitude Tool

The proposed wind turbines (WTGs) for the Project are based on a worst case scenario with a tip height of 280 metres (m). The 'black line' intersects at a distance of 3,750 m, and the 'blue line' intersects at 5,500 m on the visual magnitude graph (*refer to Figure 5 in the Visual Assessment Bulletin*).

3.2.2 Overview of Amendments to Visual Magnitude Results:

The EIS Layout had four (4) non-associated dwellings located within the black line of visual magnitude (within 3,750 m from the nearest WTG). The Revised Layout has two (2) non-associated dwellings

within the black line of visual magnitude. As a result of the reduction in the number of WTGs, R088 and R143 are now located outside of the black line of visual magnitude.

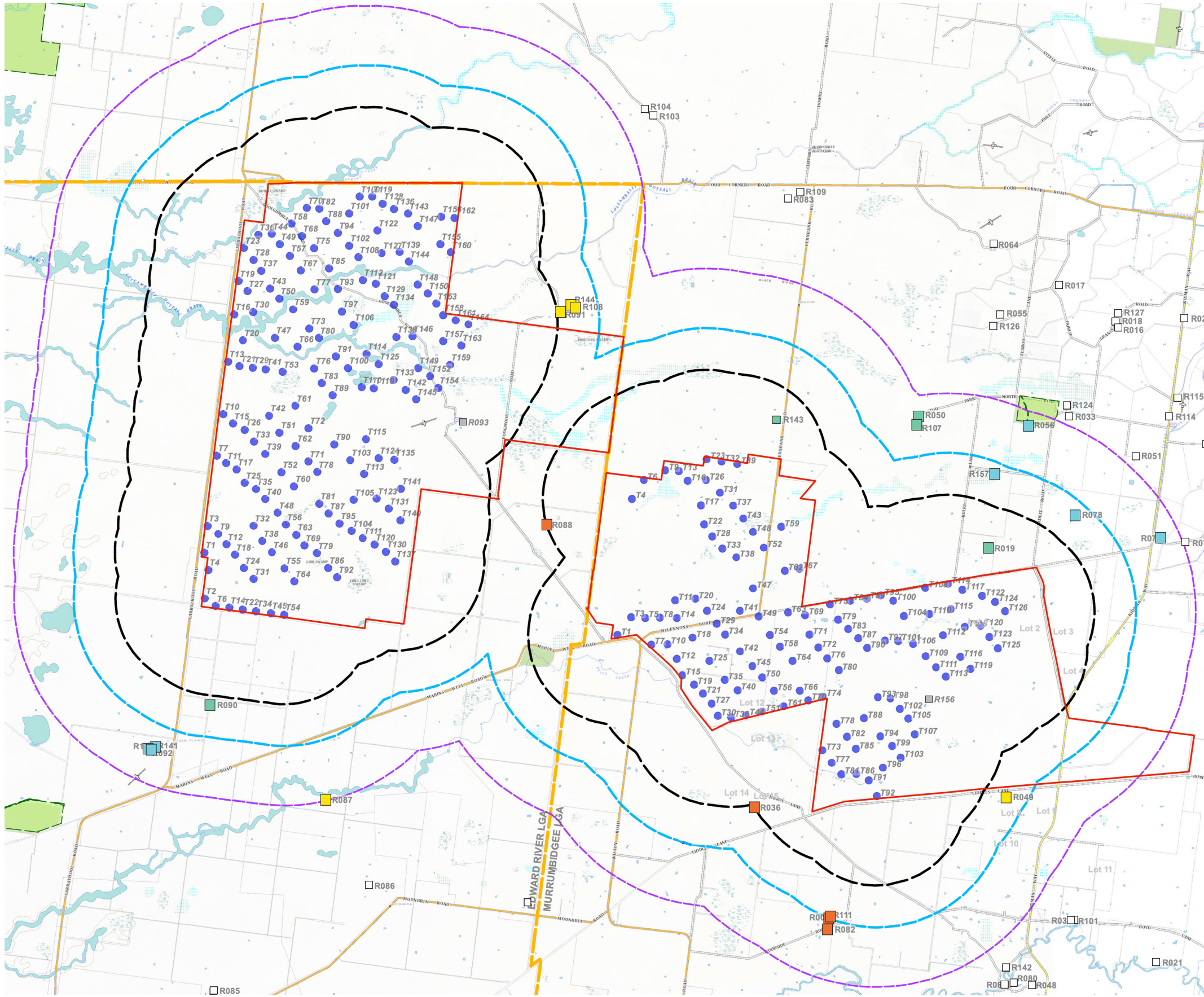
The EIS Layout had nine (9) non-associated dwellings located between the black and blue line of visual magnitude (3,750 - 5,550 m from the nearest WTG). The Revised Layout has ten (10) non-associated dwellings between the black and blue line of visual magnitude, this has increased by one (1) dwelling as the distance from the nearest WTG has increased for two (2) dwellings previously within the black line (R088 and R143) and one previously located within the blue line (R078 - which is no longer located within 5,550 m of a WTG).

3.2.3 Overview of Amendments to Multiple Wind Turbine Tool Results:

In accordance with the requirements of the Bulletin, the EIS Layout had 22 non-associated dwellings located within the 8 km Study Area requiring an assessment using the Multiple Wind Turbine Tool (MWTT). The application of the MWTT takes into account proposed and approved wind energy projects within 8 km of the Project (Bullawah Wind Farm, Yanco Delta Wind Farm and Argoon Wind Farm).

When applied to the EIS Layout, the MWTT identified nine (9) non-associated dwellings with turbines occupying three (3) or more 60 degree sectors. The remaining 13 non-associated dwellings had WTGs in two (2) or less 60 degree sectors, which is deemed acceptable in accordance with the Bulletin.

The Revised Layout has 22 non-associated dwellings located within the 8 km Study Area requiring an assessment using the Multiple Wind Turbine Tool (MWTT). The number of 60 degree sectors occupied by WTGs has been reduced for four (4) non-associated dwellings as a result of the Revised Layout.



Preliminary Assessment Tools: EIS Layout

Legend

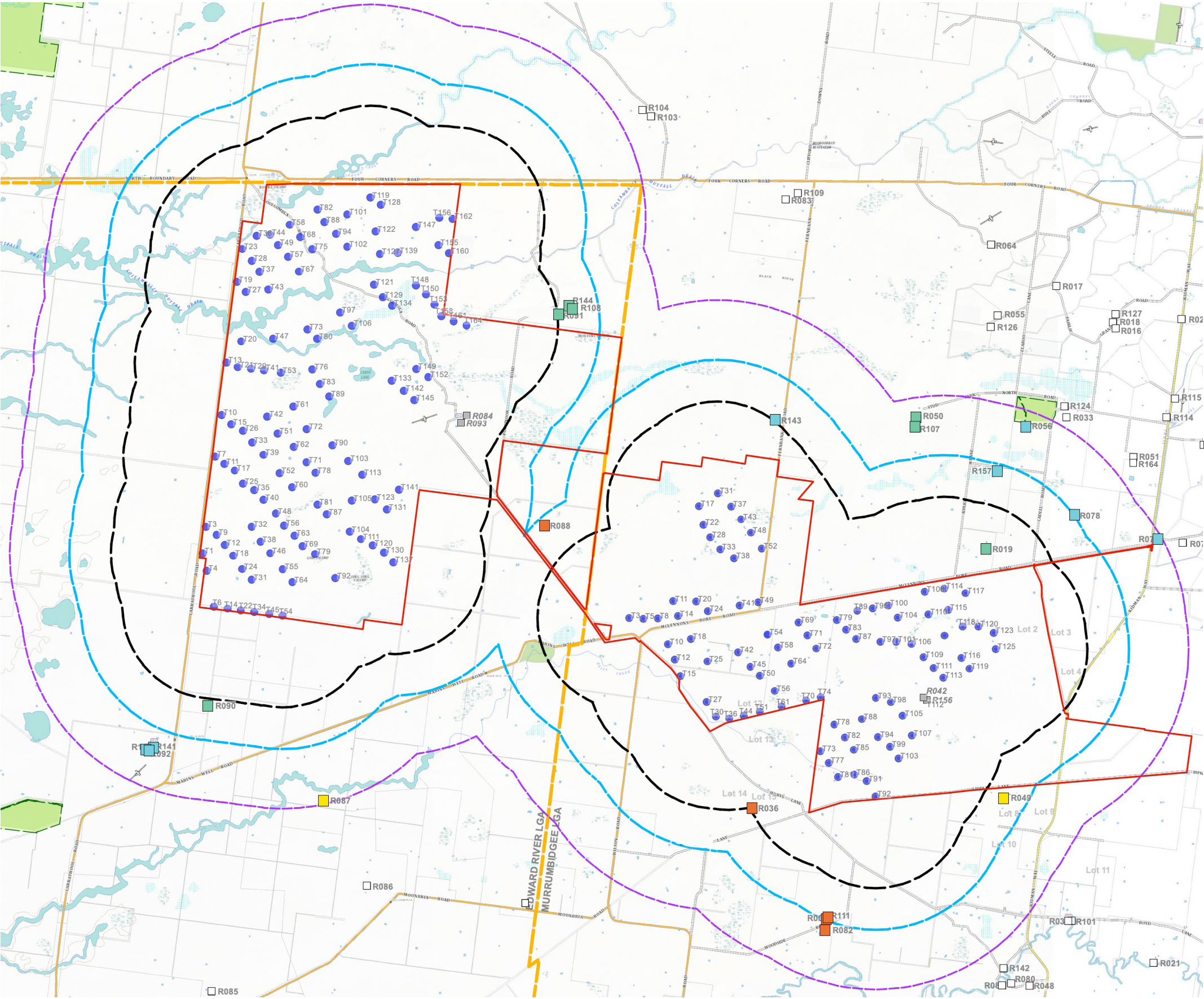
- EIS Layout Black Line of Visual Magnitude (3,750 m from nearest WTG)
- EIS Layout Blue Line of Visual Magnitude (5,500 m from nearest WTG)
- EIS Study Area (8,000 m from nearest WTG)
- EIS Layout WTG Location
- Project Boundary
- Associated Dwelling Location
- Non-associated Dwelling located outside of 8,000 m Study Area

Results of MWTT:

- One (1) 60° Sector with WTGs
- Two (2) 60° Sectors with WTGs
- Three (3) 60° Sectors with WTGs
- Four (4) + 60° Sectors with WTGs

Figure 04 EIS Layout Preliminary Assessment Tools
Base Map Source - ESRI, 2024

Preliminary Assessment Tools: Revised Layout



Legend

- Revised Layout Black Line of Visual Magnitude (3,750 m from nearest WTG)
- Revised Layout Blue Line of Visual Magnitude (5,500 m from nearest WTG)
- Revised Study Area (8,000 m from nearest WTG)
- Revised Layout WTG Location
- Project Boundary
- Associated Dwelling Location
- Non-associated Dwelling located outside of 8,000 m Study Area

Results of MWTT:

- One (1) 60° Sector with WTGs
- Two (2) 60° Sectors with WTGs
- Three (3) 60° Sectors with WTGs
- Four (4) + 60° Sectors with WTGs

Figure 05 Revised Layout - Preliminary Assessment Tools
Base Map Source - ESRI, 2024

Comparison of Application of Preliminary Assessment Tools (Visual Assessment Bulletin 2016)							
Distance to Nearest WTG:			WTGs within black line of visual magnitude (3,750 m):		Number of 60° Sectors		Notes:
Dwelling ID:	EIS Layout	Revised Layout	EIS Layout	Revised Layout	EIS Layout	Revised Layout	
R019	2.03 km	2.05 km	11	8	2	2	Distance to nearest WTG has increased by 20 metres. There has been a reduction of 3 WTGs from within the black line of visual magnitude from this dwelling.
Variation:	Increased by 20 metres		Reduced by 3		No variation		
R143	2.49 km	3.88 km	3	0	2	1	Distance to nearest WTG has increased by 1.39 km. Dwelling is now outside of the black line of visual magnitude. The application of the MWTT results in a reduction of the number of 60 degree sectors occupied by WTGs.
Variation:	Increased by 1.39 km		Reduced by 3		Reduced by one (1) 60 degree sector		
R036	3.75 km	3.75 km	2	1	4	4	No variation to the results of the application of the preliminary assessment tools.
Variation:	No variation		No variation		No variation		
R088	3.75 km	5.26 km	1	0	4	4	Distance to nearest WTG has increased by 1.39 km. Dwelling is now outside of the black line of visual magnitude.
Variation:	Increased by 1.51 km		Reduced by 1		No variation		

Table 02 – Comparison of Preliminary Assessment Tools (Visual Assessment Bulletin, 2016) - Non-associated Dwellings within Black Line of EIS Layout

Comparison of Application of Preliminary Assessment Tools (Visual Assessment Bulletin 2016)

Distance to Nearest WTG:		WTGs within black line of visual magnitude (3,750 m):		Number of 60° Sectors		Notes:	
Dwelling ID:	EIS Layout	Revised Layout	EIS Layout	Revised Layout	EIS Layout		Revised Layout
R091	3.88 km	3.88 km	0	0	3	2	No variation to the distance to the nearest WTG. The number of 60 degree sectors occupied by WTGs has reduced by one (1) 60 degree sector.
Variation:	No Variation		No Variation		Reduced by one (1) 60 degree sector		
R090	4.16 km	4.16 km	0	0	1	1	No variation.
Variation:	No Variation		No Variation		No variation		
R144	4.43 km	4.43 km	0	0	3	2	No variation to the distance to the nearest WTG. The number of 60 degree sectors occupied by WTGs has reduced by one (1) 60 degree sector.
Variation:	No Variation		No Variation		Reduced by one (1) 60 degree sector		
R108	4.54 km	4.55 km	0	0	3	2	Distance to nearest WTG has increased by 10 metres. The number of 60 degree sectors occupied by WTGs has reduced by one (1) 60 degree sector.
Variation:	Increased by 10 metres		No Variation		Reduced by one (1) 60 degree sector		
R049	4.67 km	4.67 km	0	0	3	3	No variation.
Variation:	No Variation		No Variation		No variation		
R078	4.98 km	5.58 km	0	0	1	1	Distance to nearest WTG has increased by 600 metres. The dwelling is now outside of the blue line of visual magnitude.
Variation:	Increased by 600 metres		No Variation		No variation		
R157	5.17 km	5.28 km	0	0	1	1	Distance to the nearest WTG has increased by 110 metres. No variation to the results of the application of the preliminary assessment tools.
Variation:	Increased by 110 metres		No Variation		No Variation		
R111	5.38 km	5.41 km	0	0	3	3	Distance to the nearest WTG has increased by 30 metres. No variation to the results of the application of the preliminary assessment tools.
Variation:	Increased by 30 metres		No Variation		No variation		
R008	5.47 km	5.50 km	0	0	3	3	Distance to the nearest WTG has increased by 30 metres. No variation to the results of the application of the preliminary assessment tools.
Variation:	Increased by 30 metres		No Variation		No variation		

Table 03 – Comparison of Preliminary Assessment Tools (Visual Assessment Bulletin, 2016) - Non-associated Dwellings between Black and Blue Line of EIS Layout

3.3 Comparison of Visual Impact

For the EIS submission, the LVIA included a detailed assessment for all non-associated dwellings within 8,000 m of the nearest WTG . The assessments determined that due to intervening vegetation, all dwellings would have negligible, low or no visual impact, with the exception of dwelling R019 which had the potential for a high visual impact.

As the Revised Layout has a reduction in the number of WTGs and the distance to the nearest WTG has been increased from eight (8) of the 13 non-associated dwellings located within 5,500 m of the nearest WTG (refer to **table 02 and 03**), it is assumed that the visual impacts would be consistent with or lower than assessed in the EIS.

A revised assessment of the Revised Layout has been prepared from R019 in accordance with the Technical Supplement (2024). As discussed in Section 2.1, the amended project is now seeking approval for a maximum turbine tip height of 250 metres, which is a reduction from the 280 metres originally considered in the Environmental Impact Statement (EIS). An updated photomontage has been prepared for Dwelling R019 (Appendix A) as it has been identified as the only location where an updated visual impact assessment is warranted to reflect the amended design and actual construction parameters.

The assessment determined that the Revised Layout will have a low visual impact rating from Dwelling R019. In accordance with the requirements of the Technical Supplement, this is deemed acceptable level of impact and therefore there is no requirement for mitigation measures at Dwelling R019.

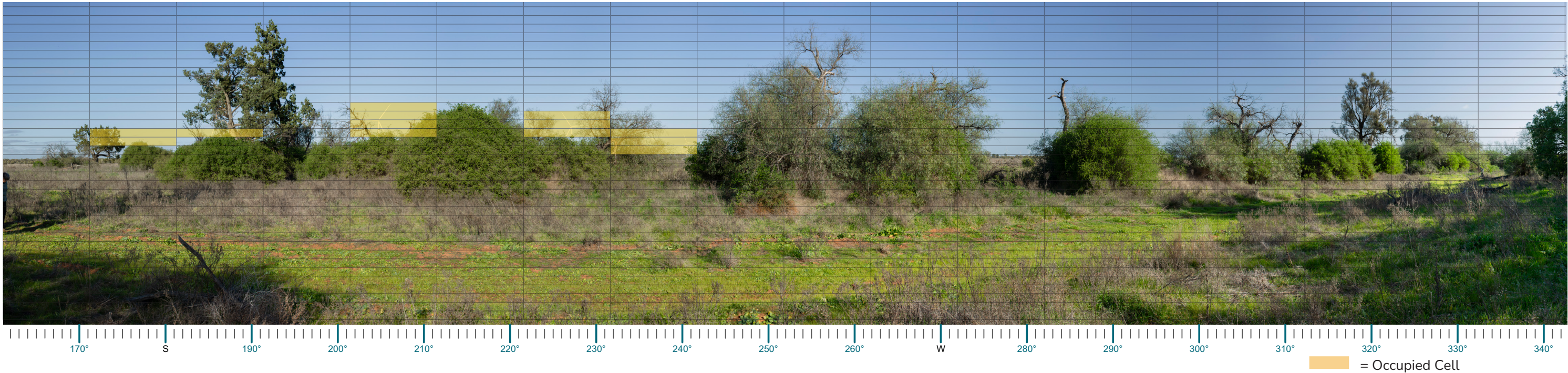
Appendix A

Revised Detailed Assessment - Dwelling R019

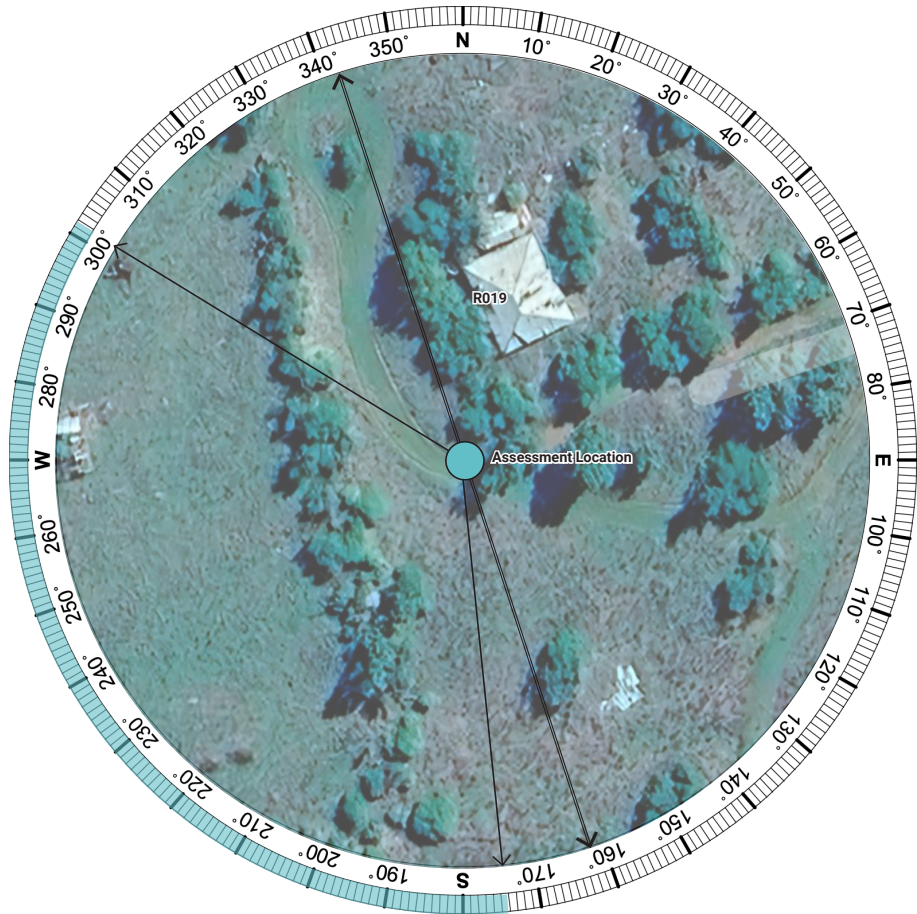
Dwelling ID:

R019

Detailed Dwelling Assessment (Based on a 250 m Turbine Height)



Dwelling Location



Sensitivity:

	Viewpoint Type: Secondary View (Low)
	Scenic Quality: Very Low

Overall Potential Sensitivity: **Low**

Magnitude:

	Number of Occupied Cells: 13

Magnitude Rating: **Low**

Impact Rating:

	Viewpoint within Setback? No
	* Turbine setback for Project = 1,768 metres

Impact Rating: **Low**

* If a dwelling is located within the setback distance, it will trigger a high visual impact unless topography or vegetation largely screens the turbines

Detailed Assessment Results:

The detailed assessment prepared from R019 indicates intervening vegetation to the south west of the dwelling will reduce the extent of visual magnitude. The sensitivity of the viewpoint has been assessed as low based on being a secondary view and having a very low scenic quality rating. The visual magnitude rating has been assessed as low due to 13 cells being occupied by WTGs.