

Appendix H

Supplementary Visual Assessment



Mallee Wind Farm

SSD-53293710

Landscape & Visual Impact Assessment

Addendum

Revision	Date	Author	Checked	Comment
A	02.02.26	AR	-	Draft for Discussion
B	03.02.26	AR	-	Revised Addendum
C	23.03.26	AR	-	Revised Addendum
D	09.03.26	AR	-	Finalised Addendum

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1.0 Introduction

Moir Landscape Architecture Pty Ltd (t/a Moir Studio) prepared a Landscape and Visual Impact Assessment (LVIA) for the proposed Mallee Wind Farm (SSD-53293710) in November 2024. The LVIA formed part of the Environmental Impact Statement (EIS) which was publicly exhibited from Wednesday 13th November 2024 until Tuesday 10th December 2024 by the NSW Department of Planning, Housing and Infrastructure (DPHI).

The purpose of this LVIA Addendum is to provide additional assessment in response to submissions made during the exhibition period specific to the LVIA.

2.0 CASA Submission - Obstacle Lighting

2.1 Overview of Obstacle Lighting Requirements

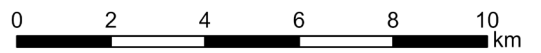
At the time of preparing the EIS, the Aviation Impact Assessment for the Project determined obstacle lighting of turbines was not a requirement for the Project. During the exhibition phase of the Project, Civil Aviation Safety Authority (CASA) reviewed the Project and provided a recommendation that the obstacle lighting be installed on the nacelle of turbines (WTGs) and Wind Monitoring Towers (WMTs) with a 200 candela intensity. Below is an excerpt from CASA's submission (dated 11/11/2024):

CASA considers the proposed wind farm will be a hazard to aviation safety and recommends that the wind farm is obstacle lit with steady medium-low intensity red obstacle lighting in accordance with the National Airports Safeguarding Framework Guideline D 'Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation'

International standards require 2,000 candela lighting intensity on the nacelle (also recommended in the NASF guideline) and 200 candela at the mid-point of the turbine mast. CASA recommends that 200 candela as a minimum intensity lighting on the nacelle would suffice (due mainly to the lack of background lighting in the vicinity of the turbines). The obstacle lighting should be monitored to alert the wind farm operator of any outage and some of the obstacle lights remain on during an outage. CASA is prepared to review a lighting plan that indicates which turbines are proposed to be lit.

As the Aviation Safety regulator, CASA does not consider the visual impact of obstacle lighting on neighbours / homesteads / the dark sky. However, there are mitigations for visual impact such as baffling and intensity control (as described in the Aviation Impact Assessment Table 10 / Page 49 'Effect of obstacle lighting on neighbours' and page 7 of Annexure 3 'Regulatory Requirements – Lighting and Marking').

Aviation Projects have prepared an Aviation Obstacle Lighting Plan in response to CASA's advice on the EIS. The plan proposes a total of 43 WTGs and seven (7) WMT's to be lit with obstacle lighting. WTGs and WMTs identified for lighting are generally on the outer edge of the Project.



LEGEND

- Project Boundary
- WTG without Obstacle Lighting
- WTG with Obstacle Lighting
- WMT with Obstacle Lighting

Figure 01 Proposed Obstacle Lighting
 Basemap Source - ESRI, 2025

3.0 Overview of Obstacle Lighting Impact on Visual Amenity

The proposed obstacle lighting has been designed in accordance with the principles outlined in the NSW Department of Planning, Housing and Infrastructures (DPHI) Wind Energy Guideline:

To mitigate negative impacts on visual amenity, consider:

- *minimising the number of turbines that need to be lit to clearly indicate the general height and extent of the development – high-risk turbines at high elevations must be lit*
- *using the lowest intensity turbine light suitable for the site*
- *where fixed lighting is proposed (instead of being controlled through detection systems), turning on all turbine lighting simultaneously, using a steady medium-intensity red light, and to not have flashing lights*
- *directing ancillary lighting below the horizontal to avoid unnecessary impact on residences.*

The visibility of an obstacle light depends on various factors, including distance, environmental conditions (e.g., darkness, fog, or atmospheric clarity), the observer's vision, and the angular position of the light. It is acknowledged that lighting impacts can extend beyond the light source itself (i.e. through glow and light spill). Aviation obstacle lighting is intentionally designed to ensure visibility for aircraft rather than ground-level observers. The focus on airspace visibility aligns with regulatory safety requirements and minimises unnecessary light spill or pollution toward the ground. While it is acknowledged that light spill and glow can extend beyond the immediate area of the light source, the intensity of these effects diminishes rapidly with distance.

It is important to note that:

- aviation obstacle lighting is designed to focus their intensity toward the sky and areas visible to aircraft
- Spark Renewables will consider the need for shielding of obstacle lighting during detailed Project design.

The CASA Advisory Circular AC 139.E-05 v1.1 Obstacles (including Wind Farms) outside the vicinity of a CASA certified aerodrome (October 2022) provides a clear benchmark for visibility distances of aviation lights. It specifies that a 2,000 candela light, which is ten times the intensity of the CASA recommended 200 candela light for the Project, has a visibility range of approximately 4,900 m. Given that the proposed obstacle lighting is one tenth of this intensity, its visibility range would be significantly shorter.

3.1 Summary of Obstacle Lighting Impacts on Visual Amenity

The Project is located in a relatively isolated location with minimal opportunities to view obstacle lighting. No residences or townships are located within 10 kilometres (km) of the nearest lit WTG. Beyond 10 km, the intensity of a 200 candela obstacle light would be indiscernible. Given the isolated location, the required obstacle lighting will not result in any visual impacts to receptors within the Study Area.

As indicated in Figure 01, WTGs and WMTs along the boundary of the Mallee Cliffs National Park are proposed to be lit. The nearest WTGs are located approximately 800 m from the Mallee Cliffs National Park boundary, while the nearest WMT is located approximately 145 m from the Mallee Cliffs National Park boundary. There are no designated passive recreation areas present within Mallee Cliffs National Park obstacle lighting may be visible however, it is noted that an Asset of Intergenerational Significance (AIS) area [LE1.1] has been established within the National Park and more than 7 km from the nearest lit WTG or WMT. Light intensity is expected to be indiscernible to the human eye within the AIS area.

The Willandra Lakes Region World Heritage Area is located approximately 25 km east of the nearest WTG. Light intensity is expected to be indiscernible to the human eye within the AIS area due to distance.

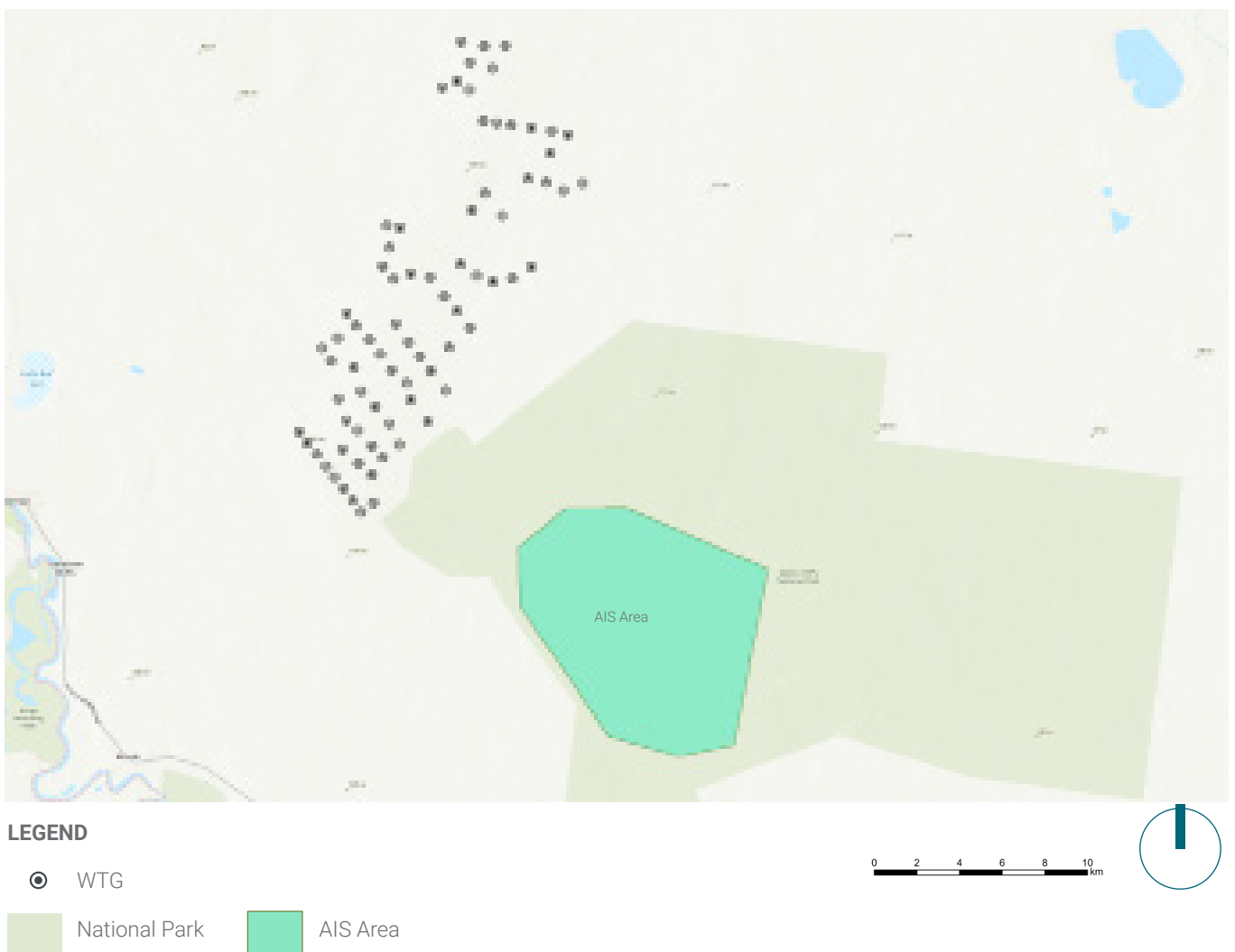


Figure 02 Project Distance to AIS Area
Basemap Source - ESRI, 2025

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