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Solar Renewable Energy Facility

Murray Valley Highway Barnawartha North

Visual Impact Assessment

Date: 5 July 2023 Revision B

Prepared for Bison Energy by

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Project: Barnawartha North Solar Farm - Visual Impact Assessment

Commissioned by: Bison Energy

Prepared by Yonder Landscape Architecture, PO Box 1198, Albury NSW 2640 Australia ABN 68 437 343 209

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STATUS	DATE	BY	REVISION
Client Review	27.04.22	LL	A
Review	05.07.23	FS	B

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Introduction

Purpose

Yonder Landscape Architecture has been commissioned by Bison Energy to undertake a visual impact assessment for a proposed 5 megawatt (MW) Solar Photo Voltaic Generation (SPVG) facility, at Murray Valley Highway, Barnawartha North. The proposal covers an area of approximately 22 hectares (Ha), in the Local Government Area (LGA) of Wodonga City Council in Barnawartha North Victoria.

This visual impact assessment delivers an objective statement of the probable impacts on the visual environment resulting from the construction of the proposed development. The report outlines the results from site assessment undertaken in May 2022, describing the present landscape character. It documents the assessment of visual impact resulting from the proposal and provides an indication for suitable mitigation measures.

Statutory Framework

The DRAFT Solar Energy Facilities - Design and Development Guidelines prepared by Victorian Government Department of Environment, Land, Water and Planning outlines the assessment and development process for large scale solar energy facilities in Victoria. The guidelines address landscape values and visual amenity and include using best practice design will help minimise impacts on visual amenity for surrounding land users, with specific consideration of:

- ▶ screening the site using vegetation or other barriers.
- ▶ implementing methods to reduce the impact of glint, glare and light spill, such as screening and panel row orientation.
- ▶ designing fencing and other security measures to reduce impacts on surrounding
- ▶ land use
- ▶ designing the height, siting and layout of panel arrays and related infrastructure to minimise visibility from surrounding viewpoints
- ▶ choosing materials with colours and textures that provide minimal contrast with the landscape
- ▶ using the topography of the site and the surrounding landforms to reduce visibility.

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Methodology

The visual impact assessment involved the following activities:

- ▶ Desktop review using aerial photography to confirm the extents of the proposed development on the site and check for any prominent land features and vegetation in and around the site.
- ▶ Investigation of possible viewsheds along Murray Valley Highway, Old Barnawartha Road, Richardsons Road and Margerys Road where the proposed development may be seen from and document the views with photos as well as descriptions. The views will be documented according to the sensitivity and if the proposed development is visible will be recorded. The nature of the visual impact and rating will also be carried out.
- ▶ Describing and evaluating the existing landscape character and visual environment in order to establish a baseline for the visual assessment.
- ▶ Mapping the visual envelope based on field studies and data while identifying sensitive visual receivers. Sensitive visual receivers are individuals or people who have the potential to be visually affected by the proposal.
- ▶ Undertaking a visual impact assessment using the grading matrix, considering visual sensitivity and the magnitude of the visual change. This report considers the visual impact of the development from Murray Valley Highway, Fleggs Road and Barnawartha Road.
- ▶ Preparation of photomontages depicting the proposal as well as recommended mitigation measures where the visual impact is moderate or high. This reduces the subjectivity of the visual impact assessment and to provide sufficient data to allow for third party verification of results.

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Visual Impact Assessment Method

The methodology adopted in this Landscape Character and Visual Impact Assessment is based on the NSW Government Roads and Maritime Service Environmental Impact Assessment Guidance Note (2013): Guidelines for landscape character and visual impact assessment. The methodology has been modified to align with the features and requirements of this particular proposal.

The method to measure impact is based on the combination of:

- ▶ the sensitivity of the existing area or view to change.
- ▶ the magnitude (scale, contrast, quality, distance) of the proposal on that area or view.

Sensitivity

Sensitivity refers to the qualities of an area, the number and type of receivers and how sensitive the existing character of the setting is to the proposed nature of change.

Visual sensitivity is a measure of how critically a change to the existing landscape is viewed by people from different areas. The assessment is based on the number of people affected, land use, and the distance of the viewer from the proposal (EDAW, 2000).

For example, a significant change that is not frequently seen may result in a low visual sensitivity although its impact on a landscape may be high. Generally the following principles apply:

- ▶ Visual sensitivity decreases as the viewing time decreases.
- ▶ Visual sensitivity decreases as the number of potential viewers decreases.
- ▶ Visual sensitivity can also be related to viewer activity (e.g. A person viewing an affected site whilst engaged in recreational activities will be more strongly affected by change than someone passing a scene in a car travelling to a desired destination).

Magnitude

Magnitude refers to the physical scale of the project, how distant it is and the visual contrast it presents to the existing condition. Magnitude will also need to consider cumulative impact, which is a consideration of the result of the incremental impact of the proposal when added to other past, current and known likely future activity. Magnitude is also called visual effect.

- ▶ Low level: occurs when a proposal blends in with its existing viewed landscape due to a high level of integration of one or several of the following: form, shape, pattern, line, texture or colour. It can also result from the use of effective screening ie. Topography and vegetation.
- ▶ Moderate level: occurs where a proposal is visible and contrasts with its viewed landscape however, there has been some degree of integration (e.g. Good siting principles employed, retention of significant existing vegetation, provision of screen landscaping, appropriate colour selection and/or suitably scaled development).
- ▶ High level: results when a proposal has a high visual contrast to the surrounding landscape with little or no natural screening or integration created by vegetation or topography.

Visual Impact Rating

Visual impact refers to the change in appearance of the landscape as a result of development. (EPHC, 2010). Visual impact is the combined effect of visual sensitivity and visual effect. Various combinations of visual sensitivity and visual effect will result in high, moderate and low overall visual impacts as suggested in Table below.

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High-Moderate	Moderate	Negligible
	Moderate	High-Moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

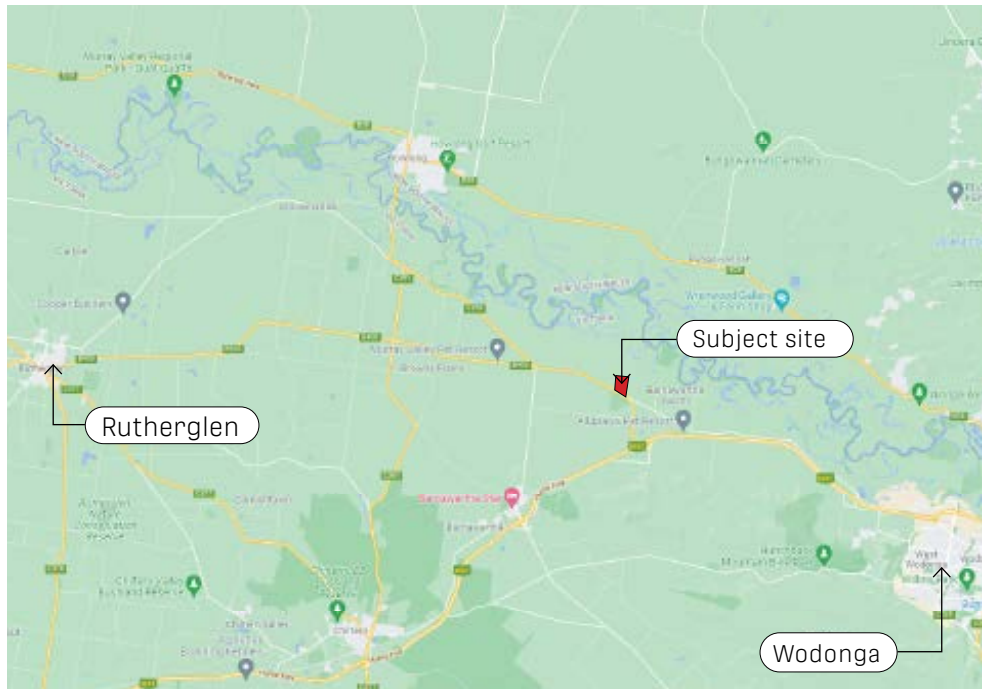
Grading matrix

Source: Roads and Maritime Service Environmental Impact Assessment Guidance Note (2013): Guidelines for landscape character and visual impact assessment

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The site

The development site is located approximately 25km east from Rutherglen and approximately 20km west from Wodonga on the Murray Valley Highway. The site is directly adjacent to the Northern Victoria Livestock Exchange and Wodonga TAFE Driver Training Complex to the south of the site on Murray Valley Highway.



Landscape character

Key site characteristics of the regional and local landscape character include:

- ▶ Gently undulating landform with a mix of open and lightly wooded areas.
- ▶ Rural land-use, mainly cropping and livestock grazing defined by unsealed roads, landscape buffers or tree plantings and fencing.
- ▶ Houses, sheds and other rural buildings.
- ▶ Vegetated creek-lines and wind-breaks.
- ▶ Northern Victoria Livestock Exchange (NVLX), with its screen-planted boundary to the west of the site on Murray Valley Highway and Margerys Road.
- ▶ Wodonga Tafe Driver Training Complex to the south of the site on Murray Valley Highway.



Open paddocks with occasional paddock trees



NVLX screen planting on Margerys Road



Rural buildings and sheds

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The Proposal

The Barnawartha North Solar Farm is a proposed 5 megawatt (MW) solar photo voltaic generation (SPVG) facility.

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Visual Impact Assessment

Viewshed 1	Sensitivity	Magnitude	Impact
340m north of site on Margerys Road.	Negligible	Moderate	Negligible



Distant view to the site, obscured by farm infrastructure and existing vegetation.

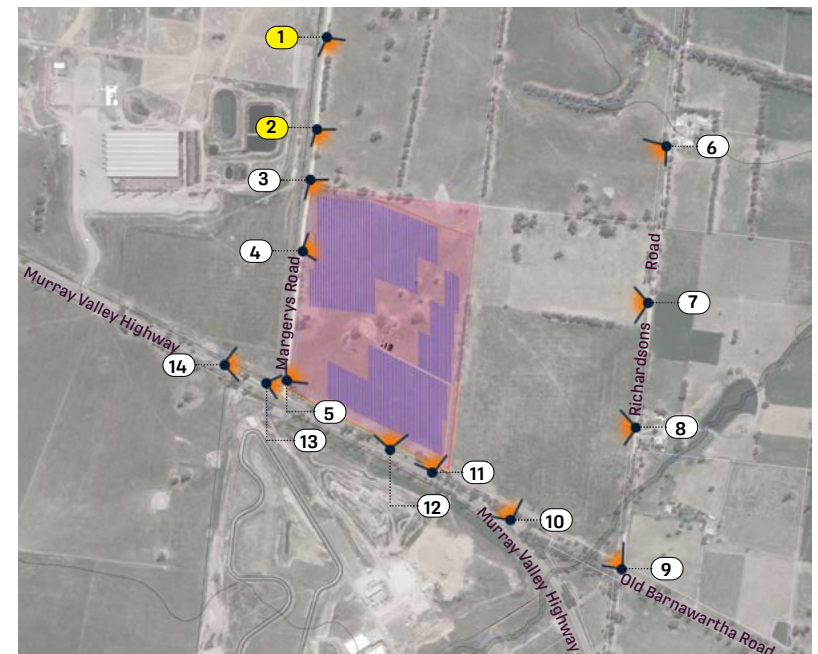
Viewshed 2	Sensitivity	Magnitude	Impact
130m north of site on Margerys Road.	Negligible	Moderate	Negligible



Distant view to the site, obscured by farm infrastructure and existing vegetation.

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Viewshed 3	Sensitivity	Magnitude	Impact
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North-east corner of site on Margerys Road.	Negligible	High	Negligible
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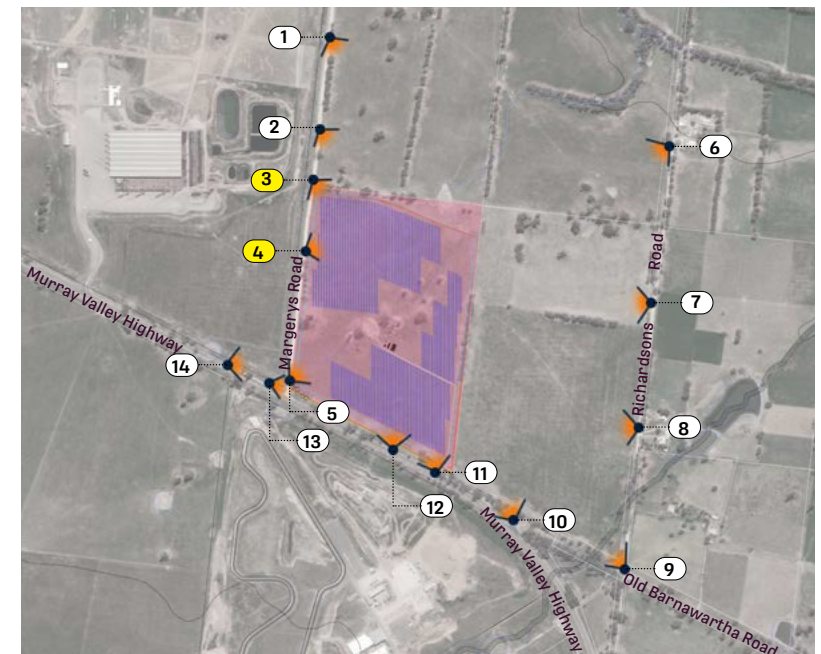
View to the proposed development from low traffic unsealed road, adjacent to dense screening at NVLX.

Viewshed 4	Sensitivity	Magnitude	Impact
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Along western boundary of site.	Negligible	High	Negligible
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View to the proposed development from low traffic unsealed road, adjacent to dense screening at NVLX.



Viewshed 5	Sensitivity	Magnitude	Impact
South-west corner of the site on Margerys Road.	Moderate	High	High-moderate



View to the proposed development from low traffic unsealed road, adjacent to dense screening at NVLX.

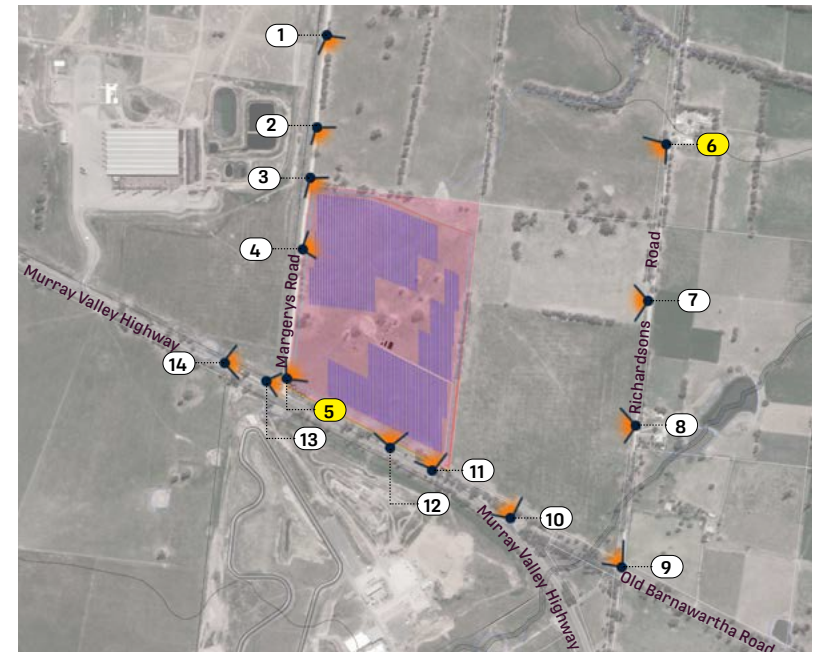
Viewshed 6	Sensitivity	Magnitude	Impact
480m north of site on Richardsons Road.	Moderate	Moderate	Moderate



Distant view to the site from rural residence, some obscuring by vegetation. Potential visual impact.

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Viewshed 7	Sensitivity	Magnitude	Impact
400m east of the site on Richardsons Road.	Low	Low	Low

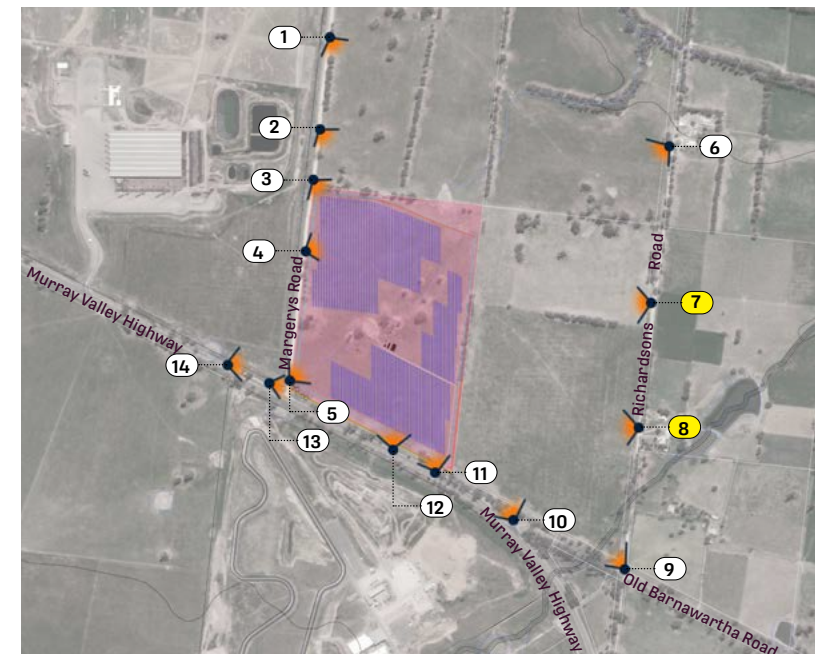


Distant view to the site, obscured by existing vegetation.

Viewshed 8	Sensitivity	Magnitude	Impact
420m east of the site on Richardsons Road.	Moderate	Moderate	Moderate



Distant view to the site from rural residence, potential visual impact.



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Viewshed 9	Sensitivity	Magnitude	Impact
440m east of the site, at the intersection of Old Barnawartha Road and Richardsons Road.	High	Moderate	High-moderate

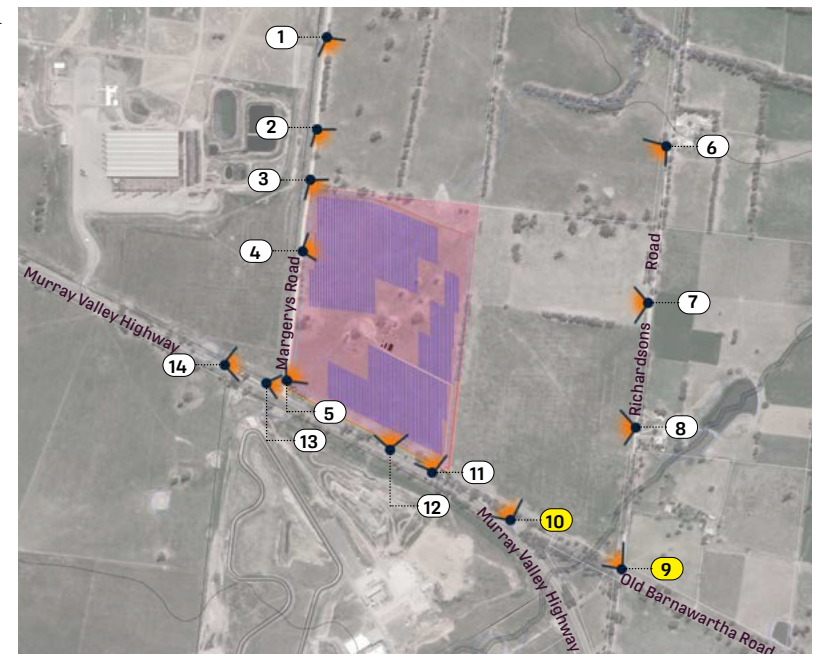


Potential visual impact.

Viewshed 10	Sensitivity	Magnitude	Impact
200m east of the site, at the intersection of Old Barnawartha Road and Murray Valley Highway.	High	Moderate	High-moderate



Distant view to site from high traffic road.



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Viewshed 11	Sensitivity	Magnitude	Impact
South-east corner of the site on Murray Valley Highway.	High	High	High

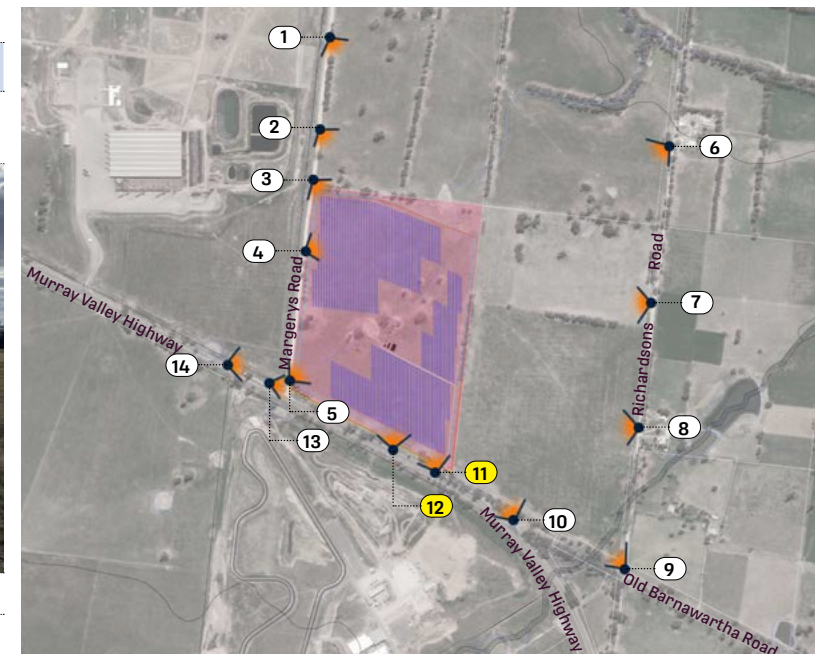


View to the site.

Viewshed 12	Sensitivity	Magnitude	Impact
Along western boundary of the site on Murray Valley Highway.	High	High	High



View to the site.



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Viewshed 13	Sensitivity	Magnitude	Impact
South-west corner of the site, at the intersection of Margerys Road and Murray Valley Highway.	High	High	High

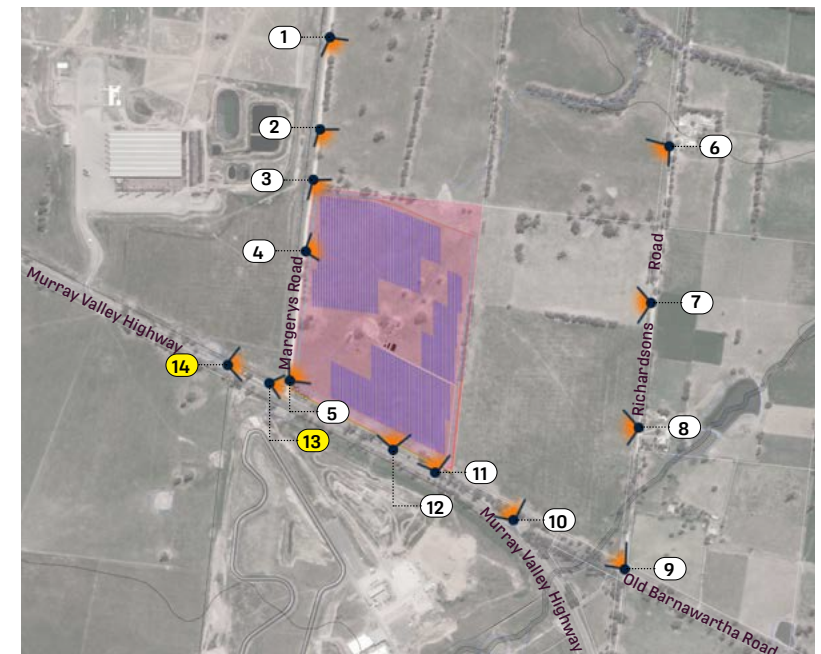


View to the site.

Viewshed 14	Sensitivity	Magnitude	Impact
100m west of the site on Murray Valley Highway.	Moderate	Low	Moderate-low



Distant view to the site, obscured by existing vegetation.



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Findings and recommendations

Findings

The visual assessment findings are summarised below:

Viewshed	Impact
1	Negligible
2	Negligible
3	Negligible
4	Negligible
5	High-moderate
6	Moderate
7	Low
8	Moderate
9	High-moderate
10	High-moderate
11	High
12	High
13	High
14	Moderate-low

Recommendations

- 3m wide screen planting of shrubs
- 5m wide screen planting of shrubs

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