URBIS

TWIN HILLS WIND FARM ARROWSMITH EAST, KADATHINI & ENEABBA

VISUAL IMPACT ASSESSMENT

PREPARED FOR

TWIN HILLS WIND FARM PTY LTD

MARCH 2026

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1.0 INTRODUCTION

1.1 BACKGROUND

Urbis was engaged by Wind Prospect on behalf of Twin Hills Wind Farm Pty Ltd to conduct a Visual Impact Assessment (VIA) for Twin Hills Wind Farm development. The wind farm, is to be constructed approximately 260km northwest of Perth, and approximately 20km northeast of Eneabba within the Shire of Three Springs local government area.

Based on our initial discussions, we understand that the project team requires both a Visual Landscape Evaluation (VLE) and a Visual Impact Assessment (VIA) for the development proposal.

The development comprises the installation of up to 93 wind turbines with each turbine to be up to 300m tall (up to 100m blade length + up to 200m hub height = 300m). The project will have a number of associated ancillary features, including, internal substation, grid connection terminal station, and Battery Energy Storage System (BESS). Existing vegetation will be retained where possible.

The final make and model of the turbines and associated ancillary features which comprise the wind farm are not yet finalised and would be subject to commercial and procurement processes following approval of the project.

The report evaluates the visual impact of the proposed development from various viewpoints in the surrounding area. The development land lies across both Kadathinni and Arrowsmith East and is currently zoned 'Rural' under the Shire of Three Springs Scheme No. 2 (LPS2) and there are no applicable structure plans for the development site.

One of the key objectives for the Rural zone is “to provide for the sustainable use of land for the agricultural industry and other uses complimentary to sustainable agricultural practices, which are compatible with the capability of the land and retain the rural character and amenity of the locality”. The VIA has been prepared in this context to assess the visual impact of the proposal and its management strategies (Refer **Figure 1 Extent of Visual Assessment Study Area**).

1.2 VISUAL ASSESSMENT SCOPE

The visual impact assessment, including photomontages, is prepared from representative viewpoints surrounding the project site. This assessment will help to describe the likely visual change resulting from the proposed development. Visual impact assessment has been undertaken from publicly accessible locations only.

Photomontages are required to demonstrate the impact of development under consideration. The photomontages examine the area affected by the proposed development, the appearance of the development proposal from the surrounding context, and the resultant visual impacts.

The purpose of the report is to assess the landscape character of the surrounds, potential visual impact of the development proposal and assess any mitigation strategies to reduce impact.

1.3 DATA SET

Urbis obtained data from Wind Prospect with respect to the proposed concept plan, site levels and proposed structures at the development site (both existing and proposed) and ground surface lidar surveys. Additionally Urbis sourced supporting GIS data to ensure that the data set is appropriate for the modelling exercise. The Data Set accurately illustrates the surrounding site context including topography/ terrain, access roads,and built form.

The data set provides us with the expected viewshed and a reference showing the required viewing locations to assess surrounding the site.

Following review of the dataset, Urbis selected 20 locational points within the study area from which the impact assessment should be undertaken. The identified points were selected from accessible public areas with the potential to be impacted.

Of the 20 viewpoints, five prominent viewpoints were selected for photomontage review to compare any visual impacts demonstrated by the three dimensional (3D) model with the on-site photography.

Additionally, to ensure concerns surrounding clarity are limited, photographic imagery was taken from each of the 20 viewpoints in order to ensure all impacts on the wider viewshed are taken into account.

1.4 VISUAL IMPACT ASSESSMENT OBJECTIVES

The visual impact assessment will help to determine whether the proposed development will create an impact on views from its surrounding context.

The objectives of this visual assessment are to:

- identify locations from where views to the proposed development area may be visible,
- assess the potential visual impacts from the identified locations; and,
- propose solutions to help mitigate any identified impacts upon those identified viewing locations.

1.5 REPORT COMPLIANCE

The Western Australian Planning Commission (WAPC) develops the state planning strategy responsible for conserving landscapes of aesthetic value to the community. The Department of Planning and the Western Australian Planning Commission have developed a manual for visual landscape evaluation and visual impact assessment. This manual contains guidelines for protecting landscape values when planning development.

The methodology used in this report was developed to comply with the Western Australian Planning Commission Visual Landscape Planning Manual (DPI 2007) with reference to the following:

- Best practice guidelines for implementation of wind energy projects in Australia (Clean Energy Council, June 2018);
- WAPC – Planning Position Statement – Renewable Energy Facilities;
- Shire of Three Springs Scheme No. 2 (LPS2).

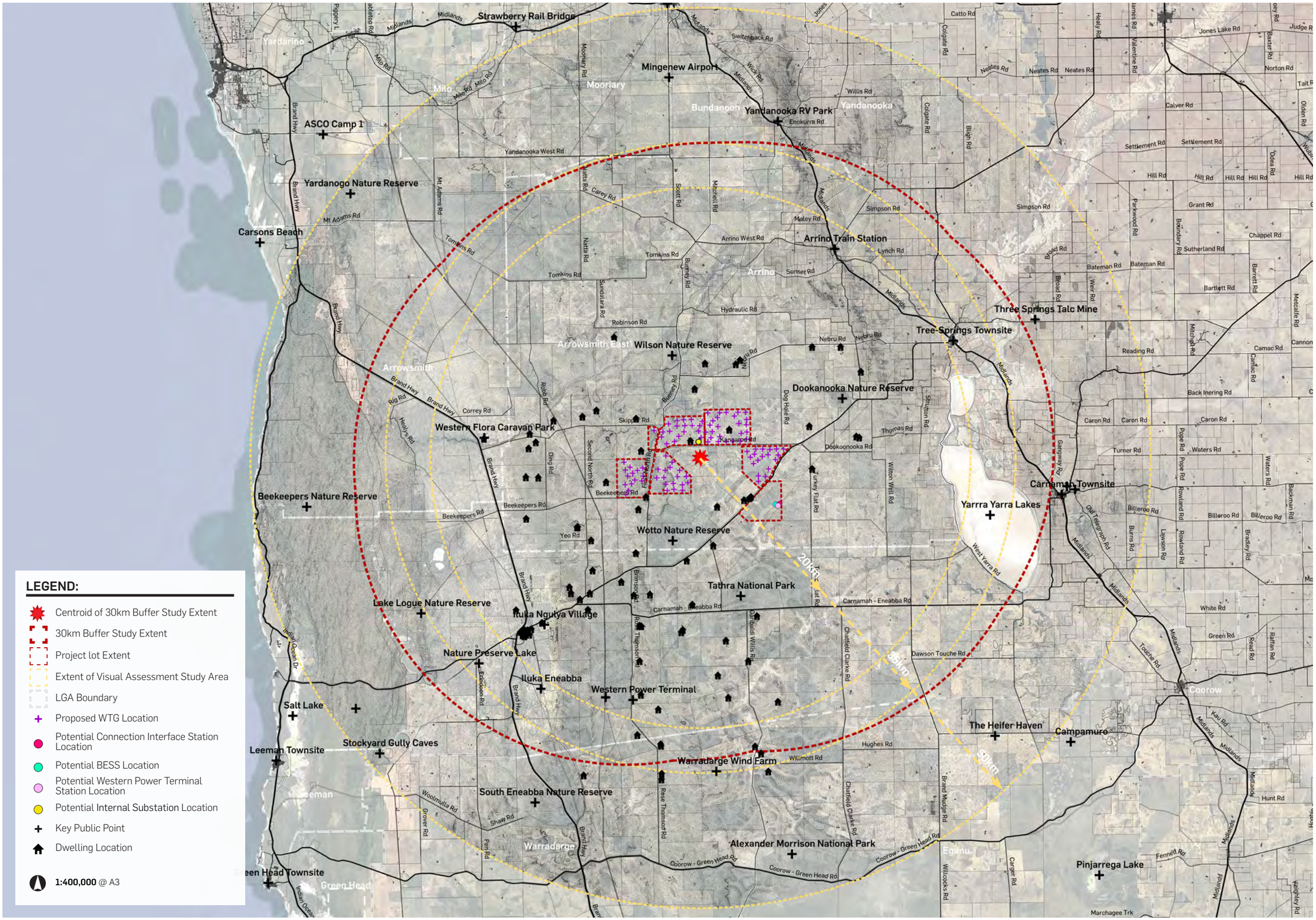


Figure 1 Extent of Visual Assessment Study Area

2.0 SITE CHARACTERISTICS

2.1 PROPOSED DEVELOPMENT

The development site is located on both Kadathini and Arrowsmith East, covers 1204 Kangaroo Rd, Kadathini (Lot 101), 750 Kangaroo Rd, Kadathini (Lot 10910), 3691 Eneabba-Three Springs Rd, Kadathini (Lot 10909), 934 First North Rd, Kadathini (Lot 11), 258 Beekeepers Rd, Arrowsmith East (Lot 10211), Lot 100, Arrowsmith East, and 3282 Eneabba-Three Springs Rd, Kadathinni (Lot 10895). The site is situated within and area zoned as 'Rural', along First North Rd, Kangaroo Rd and Three Springs - Eneabba Rd, southwest of the Three Springs townsite. The existing properties are farmlands that contain livestock with grass covered pasture and pockets of remnant vegetation.

Bordered by strips of roadside vegetation and surrounded by bushland reserves, the location offers a mix of agricultural, rural and endemic vegetation elements in close proximity.

The proposed development encompasses the following:

- Up to 93 wind turbines, with a height up to 300m,
- Internal substation, within a cross-sectional area of approximately 18ha,
- Battery Energy Storage System (BESS), within a cross-sectional area of approximately 16ha and a height of approximately 2.75m, and,
- Western Power Terminal Station within a cross-sectional area of aprroximately 7ha and associated Interface Connection Station within a cross-sectional area of approximately 4ha.

The proposed elements are detailed in **Figure 2 Project site Context**.

Visual elements

Design elements which have the potential to affect the surrounding landscape and its visual character for the proposed wind farm include:

- Siting and layout of the wind farm;
- Design of the turbines, including rotor size, blade rotational speed, height, colour and reflectivity;
- Ancillary features including associated access roads, buildings, signage, telecommunications,infrastructure and transmission lines; and
- Construction procedures, including any temporary construction areas which are to be rehabilitated following construction.

2.2 STUDY AREA

The study area identifies a radius buffer of 30 km from each proposed wind turbine, as shown in Figure 1. This radius was selected based on a desktop review of key potential viewing locations in the surrounding area with reference to the Western Australian Planning Commission's (WAPC) Visual Landscape Planning in Western Australia (WAPC, 2007) which states that wind farms should be encouraged to be more than 15 km away from major viewpoints.

2.3 SURROUNDING LANDSCAPE

The proposed development is located on the border of both Kadathini and Arrowsmith East along the First North Rd, Kangaroo Rd and Three Springs - Eneabba Rd within the Shire of Three Springs, approximately 123 km southeast of Geraldton and approximately 35km southwest of Three Springs Townsite. The proposed site is in a rural zone, situated to the north of the Wotto Nature Reserve and to the south of the Wilson Nature Reserve.

The site is located within the Shire of Three Springs in the Mid West Region of Western Australia, an area known for its gently undulating sand plains and low hills. The landscape of the study area varied from bushland, farmland, wetland, and hills and valleys. The site itself features undulating terrain, with low hills and valleys. Relatively flat plains extend to both the west and east of the site. The elevation of the study area increases from west to east.

The development site is bordered to the south by Wotto Nature Reserve and Tathra National Park. The landscape within the reserve typically features natural bushland, including a mix of woodlands and shrublands. In addition to these nature reserves, patches of bushland are interspersed with farmlands to the south of the site.

The landscape transitions from farmlands to a variety of nature reserves and conservation areas to the west of the site. Large areas of farmland, primarily dedicated to crop production, border the immediate west of the development area. Beyond the farmlands, are Lake Logue Nature Reserve, a seasonal wetland, and Beekeepers Nature Reserve.

Large patches of farmland and remnant bushland are situated to the north of the development site. Further north, Wilson Nature Reserve, a protected area within the Shire of Three Springs, along with other environmental conservation reserves, are interspersed with the farmlands. These reserves play a crucial role in preserving the ecological balance and natural heritage of the area.

To the northeast and east of the development site, the landscape transitions from agricultural lands to salt lakes and wetlands reserves. Yarra Yarra Lake Reserve is located approximately 30 km east of the site. Kadathinni Nature Reserve, Dookanooka Nature Reserve along with other bushland reserves are interspersed and are located in between the development site and Yarra Yarra Lake Reserve.

Several rural residential townsites and a railway track intersperse within the reserves and farmlands across the area. Eneabba townsite is located approximately 20 km to the southwest of the project site at the intersection of Brand Hwy and Three Springs - Eneabba Rd. Three Springs townsite is located 35 km northeast of the study area, while Carnamah townsite is situated 44 km southeast of the development site. Both townsites feature heritage buildings dating back to the early 20th century, reflecting the towns' agricultural roots and historical development. Arrino station is approximately 31 km northeast of the development site.

A road corridor that comprises both sealed and unsealed roads is connecting the development site and townsites nearby. Three Springs - Eneabba Rd is a sealed, two-lane single carriageway running in a southwest-northeast direction. First North Rd, running in a north-south direction, and Kangaroo Rd, running in a west-east direction, connect the development lots. Both First North Rd and Kangaroo Rd are unsealed sandy roads that traverse through farmlands and natural bushland.

2.4 NATURAL LANDFORM

The natural landform of the project study area is characterised by gentle undulations and varied topography, despite modifications from road infrastructure and lot development. The study area features a significant topographic range, with elevations spanning from 26 metres AHD to about 370 metres AHD. The proposed development site itself ranges from 176 metres AHD to 294 metres AHD.

The elevation of the study area increases from the western part towards the middle, where hills and ridges are located, before slightly decreasing towards Yarra Yarra Lake and the inner inland area. The development site is situated on undulating terrain. Both the western and eastern parts of the study area are relatively flat compared to the middle section where the development site is located.

Refer **Figure 3 Elevation Mapping Within 30km Buffer**.

The development will be visible from various viewpoints, especially where vegetation is sparse. The visual impact will be most noticeable where vegetation is minimal, creating contrast with the natural site contours.

2.5 LIGHT

Evening lighting creates a visual change which needs to be considered, even when viewed from distant viewpoints.

Retaining existing vegetation on site and along site boundaries will help absorb and diffuse light, softening the impacts on the surroundings.

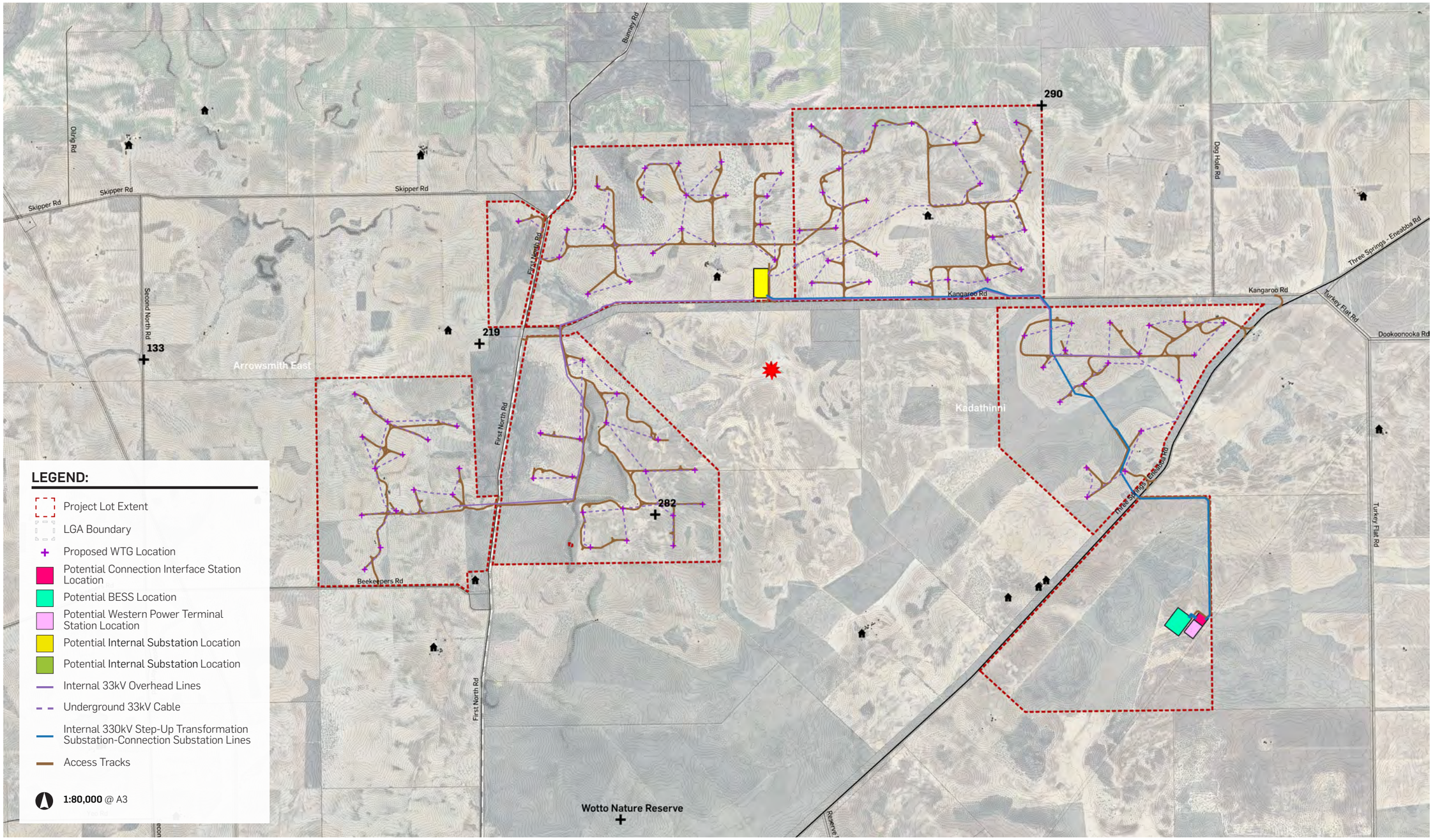


Figure 2 Project site Context

3.0 ASSESSMENT METHODOLOGY

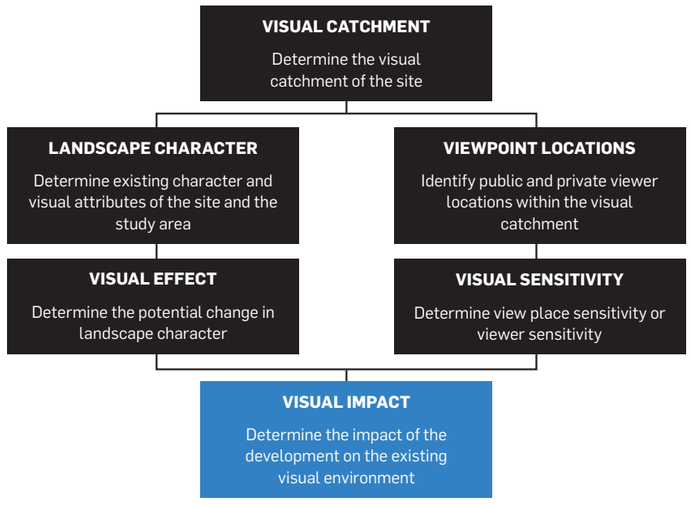
3.1 VISUAL LANDSCAPE PLANNING IN WESTERN AUSTRALIA

This report uses a well-recognised approach to visual quality assessment that is systematic, consistent and based on professional value judgement of commonly adopted and accepted criteria. This approach has been developed from the Western Australian Planning Commission Visual Landscape Planning in Western Australia Manual (DPI 2007).

The visual impact of the proposed development is determined by evaluating the visual effect of the development in the context of the visual sensitivity of the surrounding areas that it is visible from.

Urbis conducted a desktop data review to provide an assessment of the landscape character and undertook a site visit to examine the viewing focal points, A,B, C and D (Refer **Figure 5 Proposed Focal Points and Viewpoint Locations**), key viewpoints from the surrounding context and take photographs to assist with the preparation of the photomontages.

The following chart describes the visual assessment methodology undertaken for this project:



3.2 VISUAL CATCHMENT

The visual catchment of a site is the extent of the landscape that can be viewed from the site and likewise the extent of locations from which the site can be seen.

Vegetation, land use and landform play key roles in determining visual catchment. For example, where a development is surrounded by vegetation, the visual catchment is likely to be significantly restricted. Conversely, open roads and elevated areas do not create the same impediment to views.

The visual catchment for the project area was approximated by desktop analysis. This was reviewed on site to ascertain the influences of the surrounding vegetation and landform.

Refer **Figure 1 Extent of Visual Assessment Study Area.**

The foreground visual catchment of majority of the development is open and unconstrained by the topography of the surrounding areas or existing vegetation.

Foreground views were identified through the visual analysis mapping and confirmed on site. These views are available from a variety of locations surrounding the project site including:

- Three Springs - Eneabba Rd to the south and southeast of the site;
- First North Rd;
- Bunney Rd;,
- Kangaroo Rd; and,
- Skipper Rd to the northwest of the site.

Middle ground and background views of the turbines are available form a variety of public accessible viewpoints such as Intersection of Carnamah-Eneabba Rd and Garibaldi Willis Rd to the south of the site, Three Springs Townsite and Arrino Train Station to the east of the site, Eneabba Townsite, to the southwest of the site and the entrance of Western Flora Caravan Park, to the west of the site are likely to be barely discernible due to the topography and exiting vegetation.

The primary viewing corridors to the development proposal will be from within the traffic lanes running north and south along First North Rd, northeast and southwest along Three Springs - Eneabba Rd, east and west along Beekeepers Rd and Skipper Rd. Views to the proposal could be through the windows of the existing vegetation.

Views from Lake Ligue Nature Reserve, Beekeepers Nature Reserve, Yarra Yarra Lakes Reserve and Carnamah Townsite to both west and east of the development have not been assessed. Although visual analysis mapping indicates that views would be available from these locations, they were considered to be infrequent viewpoints since area to be obscured by the landform and vegetation.

The impact of a view will be greatest where:

- the view is taken from elevated viewing areas;
- the development is highly exposed with little coverage;
- the development is viewed in the foreground; and,
- distance views are removed by the development.

3.3 VIEWS AND VIEWER LOCATIONS

A viewshed 3D model was prepared using land contour information to illustrate the visibility of the site from potential viewing locations within the study area.

The viewshed 3D model does not account for screening from vegetation, buildings or other structures. This analysis identifies the areas where the site is visible from a viewing location.

Refer **Figure 4 Proposed Structure Visibility Within 30km Buffer.**

From the visual catchment Urbis identified 20 viewpoint locations. The key viewer locations were selected within the study area and take into consideration key infrastructure (roads), potential tourist destinations, housing and culturally-significant places. The viewpoints were limited to publicly accessible areas and places that present a view towards the site.

Site visits to validate the results of the desktop study and viewshed analysis were conducted on December 11, 2024 and December 12, 2024. The objectives of the visit were to:

- Identify the location and sensitivity of visual impact viewpoints for the project;
- Gather photographs from the identified viewing locations to assist in the assessment process and for the development of photomontages; and,
- Provide information to support the determination of the visual catchment.

Identified viewpoint locations were then confirmed through the site visit to check the extent of the view and identify areas that are screened with vegetation or built form. Photographs were taken from each identified location with viewing heights set at average standing height of 1.60 metres.

Five key views were identified as the most suitable viewing locations to undertake the assessment from due to the likelihood of visual change and proximity/accessibility to public viewing locations. The selected views were then used as a basis to develop photomontage images.

Refer **Figure 17 Assessed Viewpoint Locations.**

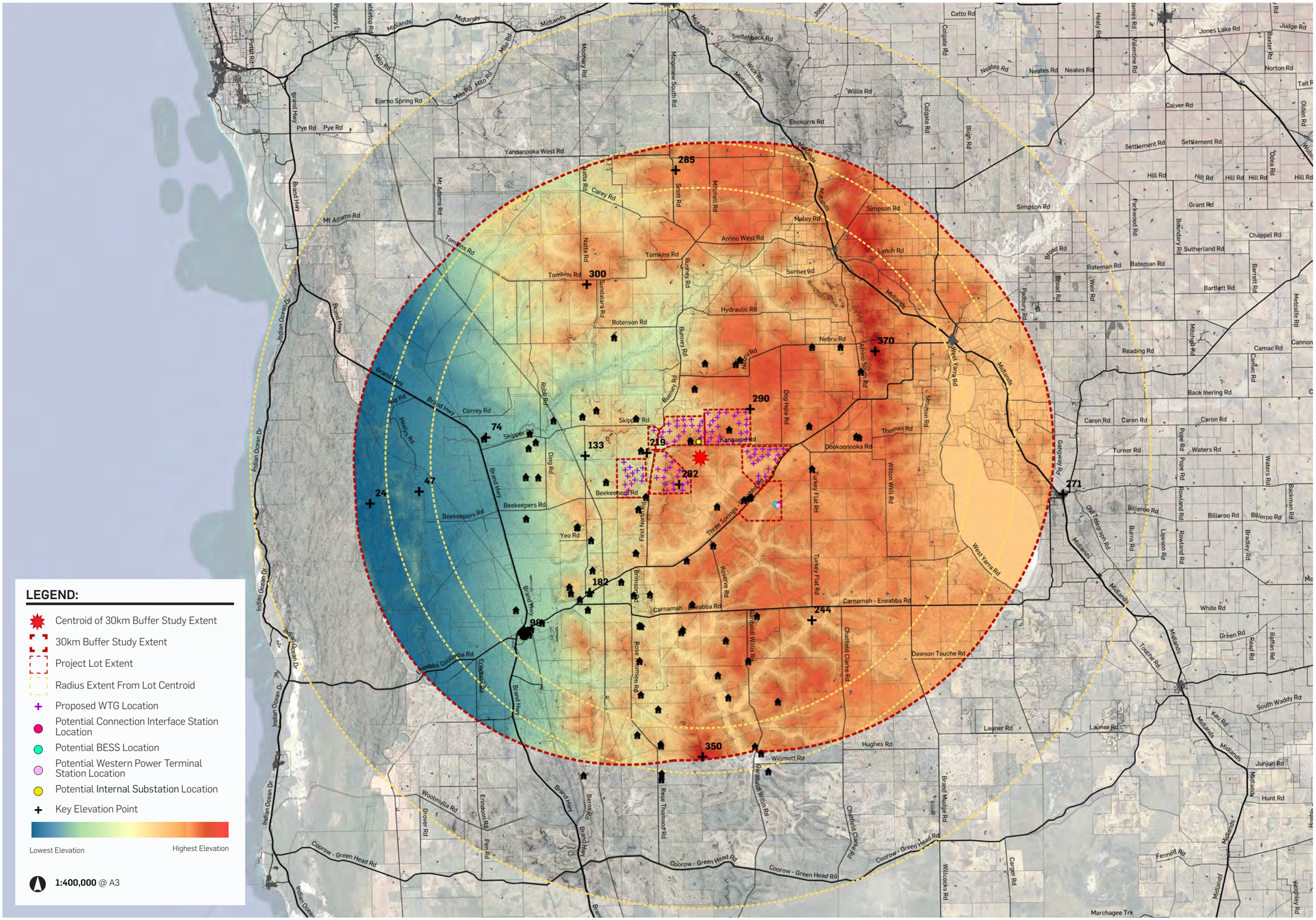


Figure 3 Elevation Mapping Within 30km Buffer

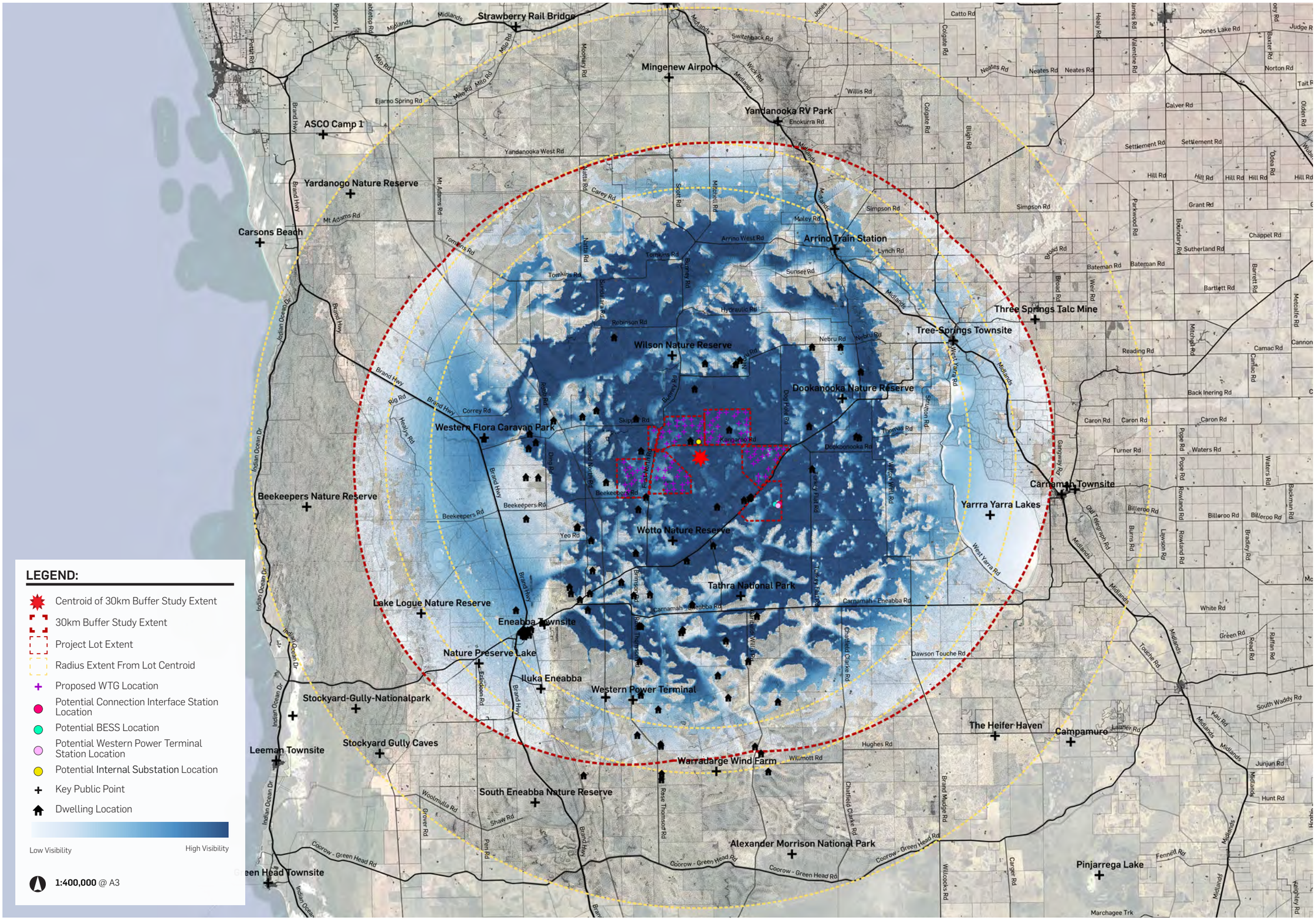


Figure 4 Proposed Structures Visibility Within 30km Buffer

POINT OF INTEREST:

01	Intersection of Three Springs-Eneabba Rd and Reserve Rd	29°43'48.67"S, 115°28'56.37"E
02	Entrance of 3282 Three Springs-Eneabba Rd	29°40'20.92"S, 115°33'0.17"E
03	Entrance of 1741 Bunney Rd	29°28'22.46"S, 115°27'17.42"E
04	Entrance of 1783 Skipper Rd	29°36'54.05"S, 115°23'55.92"E
05	Entrance of 757 First N Rd	29°41'18.48"S, 115°24'44.82"E
06	Intersection of Beekeepers Rd and Second North Rd	29°41'14.09"S, 115°20'23.64"E
07	Intersection of Three Springs-Eneabba Rd and Mineral Sands Rd	29°48'54.36"S, 115°16'31.36"E
08	Entrance of Lot 10222 On Three Springs-Eneabba Rd	29°47'24.38"S, 115°19'53.99"E
09	Intersection of Thomas St and Railway Rd	29°31'59.17"S, 115°45'42.34"E
10	Entrance of 4311 Three Springs-Eneabba Rd	29°37'37.68"S, 115°36'8.72"E
11	Arrino Train Station	29°26'28.49"S, 115°37'45.66"E
12	Entrance of Lot 10245 On Rose Thomson Rd	29°48'53.19"S, 115°23'28.01"E
13	Intersection of Bunney Rd and Nebru Rd	29°33'56.27"S, 115°27'1.65"E
14	Entrance of 693 Robinson Rd	29°31'1.24"S, 115°22'31.28"E
15	Intersection of First North Rd and Kangaroo Rd	29°38'23.31"S, 115°25'15.10"E
16	Intersection of Carnamah-Eneabba Rd and Garibaldi Willis Rd	29°48'4.86"S, 115°31'24.06"E
17	Entrance of Western Flora Caravan Park	29°37'32.95"S, 115°12'59.04"E
18	Entrance of 558 Skipper Rd	29°37'28.98"S, 115°17'0.54"E
19	Entrance of Elliots Sheepmaster Eneabba	29°45'23.73"S, 115°24'4.22"E
20	Entrance of 1185 Skipper Rd	29°36'52.17"S, 115°20'13.86"E

LEGEND:

- Centroid of 30km Buffer Study Extent
- 30km Buffer Study Extent
- Project lot Extent
- Extent of Visual Assessment Study Area
- LGA Boundary
- Proposed WTG Location
- Potential Connection Interface Station Location
- Potential BESS Location
- Potential Western Power Terminal Station Location
- Potential Internal Substation Location
- Key Public Point
- Dwelling Location

1:400,000 @ A3

Figure 5 Proposed Focal Points and Viewpoint Locations

3.4 EXISTING CHARACTER

Landscape character is the recognisable pattern of natural and built elements that define a landscape. Variations in geology, soils, landform, vegetation, land use, settlement patterns, and building styles create distinct landscapes, each with its own unique character and sense of place. Understanding these characteristics is critical in determining the potential degree of change to the landscape resulting from a proposed wind farm development.

The WAPC Visual Landscape Planning Manual (2007) provides guidance on managing visual impacts in landscape planning, including for wind farms. When assessing and planning wind farm developments, the following Visual Management Objectives (VMOs) should be applied:

Best Practice Siting and Design

- Position turbines to lower intrusion into key view corridors and avoid visual cluster where practicable.
- Reduce visual intrusion by blending the turbines into the landscape through strategic planting where practicable.

Protection and Maintenance of Landscape Character

- Retain and enhance existing landscape features such as tree belts, and open spaces that contribute to visual quality where practicable.
- Manage cumulative impacts and lower visual overload where multiple wind farms exist within the same visual catchment where practicable.

Restoration of Degraded Character & Enhancement Opportunities

- Where feasible, incorporate landscape rehabilitation measures, such as revegetation, to improve degraded areas around the development site.
- Design infrastructure elements (e.g., roads and substations) to complement the surrounding landscape, and avoid unnecessary scarring or disruption where practicable.

3.5 LANDSCAPE CHARACTER TYPE

The study area surrounding the proposed development is characterised by a mix of cleared agricultural fields, nature reserves, wetlands, low-density residential areas, and road corridors. These distinct landscape character types define the visual landscape and contribute to the overall setting.

In accordance with the Western Australian Planning Commission (WAPC) Visual Landscape Planning Manual, the identified landscape character types are assessed for their visual quality, landscape setting, and sensitivity to change. The five key character types in the study area include:

- Rural Farmland;
- Remnant Bushland and Natural Reserves;
- Salt Lake Reserve and Seasonal Wetlands;
- Low-Density Residential Communities; and,
- Road Corridors.

Rural Farmland

The Rural Farmland character type dominates the development area and its surroundings, reflecting the Mid West region's strong agricultural heritage. The landscape consists of large, open fields used for cropping and grazing, with scattered remnant bushland breaking up the vast plains.

Key Visual Features:

- Gently undulating terrain, creating long, expansive views.
- Clusters of farm structures, typically made from steel and timber.
- Scattered native tree belts, particularly along fencelines and waterways.

Visual Management Considerations:

- **Lowering impact to rural vistas by ensuring new development integrates with the landscape where practicable.**
- **Lowering visual impact through careful turbine placement to reduce disruptions to the open character where practicable.**
- **Lowering cumulative effects through spacing turbines appropriately to avoid an overwhelming presence.**

Remnant Bushland and Natural Reserve

The Remnant Bushland and Natural Reserve character type is interspersed with rural farmland landscape to the surrounding of the development area, showcasing the region's endemic vegetation and offering both ecological and visual continuity with the broader natural environment. These areas are marked by dense areas of native shrubs, ground-covers, and trees which provide habitat for local wildlife and contribute significantly to the area's biodiversity.

Wotto Nature Reserve

Wotto Nature Reserve is to the immediate south of the development area. It forms part of the Yamatji Conservation Estate. This reserve is dedicated to the conservation of native flora and fauna, providing a sanctuary for a variety of species. The landscape within the reserve typically features natural bushland, including a mix of woodlands and shrublands.

Tathra National Park

Tathra National Park lies further southeast of the site beyond the Wotto Nature Reserve. With the main vegetation type of Kwongan Heath, a low, hard scrub heathland habitat, it is an open sandy country that is renowned for its incredible diversity of endemic wildflowers and wildlife.

Wilson Nature Reserve

Wilson Nature Reserve is located north to the development area and it covers an area of around 1,100 ha. Wilson Nature Reserves contains a variety of native shrubs, wildflowers and groundcovers, including Bee Orchids, Banksia, etc. It is providing habitat for local wildlife and contributing to the area's biodiversity.

Visual Management Considerations

- **Lowering development footprint to avoid fragmentation of these natural reserves where practicable.**
- **Reducing impacts on view corridors to and from these areas, lowering the impact of turbines dominating scenic landscapes where practicable.**
- **Utilising natural screening to soften the visual impact of infrastructure.**

Salt Lake / Seasonal Wetland

Yarra Yarra Lake Reserve

Yarra Yarra Lake Reserve is located approximately 30 km north of the site. The landscape of Yarra Yarra Lake Reserve includes salt flats, wetlands, and areas of natural bushland. Yarra Yarra Lake is a seasonal salt lake that plays an important role in the local ecosystem. The lake and its surrounding habitats provide a sanctuary for a variety of bird species, including migratory birds, making it an important site for birdwatching and ecological research.

Lake Logue Nature Reserve

Lake Logue Nature Reserve is located on the southwest edge of the project study area. The reserve is centred around Lake Logue, a seasonal wetland that fills with water during the wetter months and can dry out during the dry season. This dynamic environment supports a range of aquatic and semi-aquatic species and the wetlands provide critical habitat for waterbirds, including migratory species.

Visual Management Considerations:

- **Avoiding turbine placement near sensitive wetland areas to protect habitat integrity.**
- **Maintaining visual buffers within the project area to retain the natural aesthetic of these unique landscapes.**
- **Ensuring infrastructure (e.g., roads, transmission lines) is carefully sited to avoid disturbing wetlands.**

Residential Community

Three Springs Townsite and Carnamah Townsite

Three Springs townsite is located 35 km northeast of the study area, while Carnamah townsite is situated 44 km southeast of the development site. Both townsites are low density residential communities with single-storey structures featuring large windows and verandahs, built with brick, weatherboard, and corrugated iron. The townsites also feature heritage buildings dating back to the early 20th century, reflecting the towns' agricultural roots and historical development.

Eneabba Townsite

Eneabba townsite is located approximately 25 km to the southwest of the project site at the intersection of Brand Hwy and Three Springs - Eneabba Rd. The elevation of the overall townsite is lower than the development areas. Most of the built forms are single-storey and employ materials such as brick and weatherboard. The town also use timber and colorbound as the fencing materials. Many houses in Eneabba have wide verandahs and large windows to provide shade and ventilation, essential for coping with the hot, dry climate.

Visual Management Considerations:

- **Preserving existing vegetation within the project area that acts as a buffer to screen turbines from the view of neighbouring residences.**
- **Careful placement of turbines to reduce visual dominance from key viewpoints.**
- **Maintaining townsite identity by ensuring turbines do not overpower the scale of the built environment.**

Road Corridor

The regional road network plays an important role in shaping the visual experience of the landscape, providing key viewpoints to the proposed development.

Major Road Corridors in the Study Area:

- Three Springs–Eneabba Rd – A sealed regional road linking major townsites and connecting to Brand Hwy.

Local Road Corridors in the Study Area:

- First North Rd & Bunney Rd – Unsealed, sandy roads running north-south through farmlands and bushland.
- Kangaroo Rd, Skipper Rd & Beekeepers Rd – Unsealed east-west connections linking development lots.

Key Visual Features:

- Expansive rural views framed by low shrubs, groundcovers, and native trees.
- Varying visibility of turbines, with some areas obscured by terrain undulations.

Visual Management Considerations:

- **Lowering impacts on view corridors by siting turbines to complement landform and vegetation patterns where practicable.**
- **Reducing visual obtrusiveness of supporting infrastructure.**
- **Provide filtered, rather than overwhelming, views of the wind farm by considering road alignments and vegetation buffers.**

3.6 VISUAL EFFECT

Visual effect is the expression of the change in landscape character created by the interaction between the development and the existing environment. It represents the level of contrast between the development and the visual setting within which it is placed. Critical issues include:

- Changes to landform;
- Changes to vegetation patterns; and,
- The nature, density and scale of existing and proposed development.

The way a landscape is perceived can differ amongst observers. As such the Visual Landscape Planning in Western Australia Manual (DPI 2007), provides a guide for assessing general valued characteristics of the landscape.

- A high visual effect would result if the development is a major element and contrasts strongly with the existing landscape. In such a situation the proposal would be viewed as a major change to the character of the areas and there is little or no natural screening or integration, such as could be provided by vegetation or topography.
- A moderate visual effect occurs if the proposed development creates a partial change to key characteristics of the existing landscape. This would occur where the surrounding vegetation and/or topography provide some measure of screening, there is a form of visual integration of the development with its setting or if the development is compatible with the surrounding character.
- A low visual effect occurs where there is minimal contrast and a high level of integration of form, line, shape, pattern, colour or texture values between the development and the environment. This can occur through constructed integration of the development with the landscape, if the proposal constitutes only a minor component of the wider view or by substantial preservation of the existing visual setting.

3.7 VISUAL SENSITIVITY

Visual sensitivity is a measure of the importance of the visual environment and the significance of elements within it to the user group (the general public) and how sensitive the existing character of the setting is to the proposed nature of change. Different activities undertaken within the landscape setting have different sensitivity levels. For example, tourists who are using the surrounding landscape as a part of the holiday experience will generally view changes to the landscape more critically than agricultural workers in the same setting. The visual sensitivity of the development depends on a range of user-group characteristics and public perception of the quality or significance of particular landscapes. The characteristics considered in this study are:

- visual use area (refers to the predominant use of the viewing location area);
- frequency (refers to the number of viewers that will be affected by changes in their views. If more people will be affected, the visual impact is likely to be higher);
- duration of view (refers to how long the viewers spend viewing the proposed development impact); and,
- the distance of the proposed development from viewers.

3.7.1 Visual Use Area

A measure of how critically a change to the existing landscape will be viewed from various use areas. Different activities undertaken within the landscape setting have different sensitivity levels. Tourists who are using the surrounding landscape as a part of the holiday experience will generally view changes to the landscape more critically than commuters or workers in the same setting. Individuals may view changes to the visual setting of their residence more critically than changes to the visual setting in which they travel or work.

- Low Sensitivity to Change - local roads / agricultural lands
- Moderate Sensitivity to Change - recreational areas / sporting reserves / tourist roads/private residences.
- High Sensitivity to Change - tourist attractions / lookouts / national parks.

3.7.2 Scenic Quality

Scenic quality is a measure of the visual appeal of the landscape, which is subjective and varies. Scenic quality may be assessed based on three features: visual characteristics, landscape features and man-made features. Three categories were determined:

- Low-quality - landscape that is highly modified or commonly occurring and can be characterised by visual clutter, disorganised, or an absence of visual harmony
- Medium-quality - landscape that can be considered attractive however not uncommon. They may contain areas of natural beauty but also include aspects that detract from its overall visual appeal.
- High-quality - landscape that is typically characterised by its visual appeal, and positive aesthetic attributes. It may include natural features like wilderness areas, scenic vistas, or water bodies.

3.7.3 Frequency

Frequency is the number of people who might view the proposed development. Three categories were determined:

- Low-frequency - side roads and screened areas where people traverse infrequently.
- Medium-frequency - roads, public walkways or parks that have medium usage by the general public.
- High-frequency - public places, thoroughfares, and major roads that have high usage.

3.7.4 Duration

Different levels of view duration at various view locations were identified and qualitative descriptions were determined:

- Short-duration- views from naturally vegetated areas that are partially obscured by topography or vegetation
- Moderate-duration - views from local roads where the duration of the view is short to moderate, many of the viewers are frequent users of the road, and their visual sensitivity is constrained because the orientation of the viewer (travelling in a vehicle) is often focussed on the road for much of the time
- Long-duration - views from residential and public recreational areas. Views include elements that dominate the landscape

Long-duration views from public places that have high visitation, would have highest visual impact. Short duration views, which are partially or largely obscured by existing topography, landscape or structures, would have the lowest visual impact.

3.7.5 Distance

The distance zones identified in the Visual Landscape Planning Manual (DPI 2007) have been used in this assessment. The distance zones are as follows:

- Foreground zone - distances within 0-0.5 km of the viewer - within this range the observer experiences maximum discernment of landscape details such as shape, colour and contrast;
- Middle ground zone - distances between 0.5-6.5 km – within this range, vegetation textures and land use patterns are visible to the observer; and,
- Background zone - distances greater than 6.5 km from the proposed development - within this range, textures and patterns are indistinct to the observer. The viewer is unaware of individual details and discerns broader landscape units as patterns of light and dark.

Viewer locations that fall within the foreground zone are considered to be in the zone of highest visual impact as the proposed development would be part of their ground views. Changes to views in the middle ground are considered to be important, but less important than in the foreground. This is because the project site is further from the viewer and would therefore occupy a lower proportion of the total view from the identified viewer location. It is considered that visual impact or viewer locations within the background zone is of least significance, however, still worthy of consideration.

3.8 VISUAL IMPACT

Visual impact is a measure of the potential effect that the proposed development will have on the visual environment without any remedial treatment. Visual impact is based on a number of factors which affect the perceived visual quality. The degree to which a wind farm development will impact on the landscape will depend upon:

- Siting, layout and design of the turbines, infrastructure, signage and ancillary facilities, including provision for tourism.
- Number, colour, shape, height and surface reflectivity of the towers and blades.
- Visibility of the development, having regard to the location, distance from which the development is visible, skyline and view sheds.
- Significance and sensitivity of the landscape, having regard to topography, the extent and type of vegetation, natural features, land use patterns, built form character and community values

Visual impact depends upon the visual catchment area (extent of visibility), visual sensitivity (the number of views/viewers affected, duration of views, and distance) and visual effect (the degree of visual intrusion or obstruction that will occur). These visual impacts can be positive or negative. Visual impact is determined as a result of the relationship between visual effect and visual sensitivity in accordance with **Table 3 Visual Impact Rating.**

Figure 6 Existing Site Character - Existing Agricultural Use Farmland

Figure 7 Existing Site Character - Remnant Bushland

Figure 8 Existing Site Character - Hills and Terrains

Figure 9 Existing Surrounding Landscape Character - National Park and Nature Reserve

Figure 10 Existing Surrounding Landscape Character - Rural Farmland and Pasture

Figure 11 Existing Surrounding Landscape Character - Low Density Residential Community

Figure 12 Existing Surrounding Landscape Character - Road Corridor - Sealed Road

Figure 13 Existing Surrounding Landscape Character - Road Corridor - Unseal Road

Figure 14 Existing Surrounding Landscape Character - Railway Track

4.0 VISUAL IMPACT ASSESSMENT

4.1 VISUAL IMPACT RATING

The final visual assessment ratings relates only to the identified public domain views.

The criteria listed in the following tables have been defined to measure visual sensitivity and visual effect for the assessment of visual impact to viewpoints. The combined assessment of effect and sensitivity provides an overall rating of the visual impact, as shown in the **Table 3 Visual Impact Rating table**.

Table 1 Visual Effect Matrix presents a range of criteria to quantify the expression of change in landscape character created by the interaction between the development and the existing environment.

Table 2 Visual Sensitivity Matrix provides weighted criteria scores for each of the identified viewer sensitivity characteristics including field of view, relative viewing level and distance. The overall rating for visual sensitivity is weighted according to the combined influence of these characteristics.

Table 3 Visual Impact Rating shows the ratings for each factor and how they collectively contribute to a final assessment of visual impact.

Table 1 Visual Effect Matrix

VISUAL EFFECT CRITERIA	RATING
MAJOR CHANGE TO KEY CHARACTERISTICS OF THE EXISTING LANDSCAPE. THE PROPOSAL SIGNIFICANTLY CONTRASTS IN SCALE AND CHARACTER AND IS SEVERELY DETRIMENTAL TO THE QUALITY OF THE SCENE.	HIGH
NOTABLE LOSS OR CHANGE TO KEY CHARACTERISTICS OF THE EXISTING LANDSCAPE. THE PROPOSAL FORMS A DOMINANT FEATURE OF THE SCENE TO WHICH OTHER ELEMENTS BECOME SUBORDINATE, REDUCING THE QUALITY OF THE SCENE.	MODERATE / HIGH
PARTIAL LOSS OR CHANGE TO KEY CHARACTERISTICS OF THE EXISTING LANDSCAPE. THE PROPOSAL IS IDENTIFIABLE WITHIN THE OVERALL SCENE, YET IS COMPATIBLE WITH THE SURROUNDING CHARACTER AND COMPOSITION. THE PROPOSAL WILL RESULT IN A MODERATE REDUCTION IN THE QUALITY OF THE SCENE.	MODERATE
MINOR LOSS OR CHANGE TO KEY CHARACTERISTICS OF THE EXISTING LANDSCAPE. THE PROPOSAL CONSTITUTES ONLY A MINOR COMPONENT OF THE WIDER VIEW, THAT IS COMPATIBLE WITH THE SURROUNDING CHARACTER.	LOW/MODERATE
LIMITED LOSS OR CHANGE TO KEY CHARACTERISTICS OF THE EXISTING LANDSCAPE. THE PROPOSAL CONSTITUTES ONLY A MINOR COMPONENT OF THE WIDER VIEW, AND AWARENESS OF THE PROPOSAL WOULD NOT HAVE AN EFFECT ON THE OVERALL QUALITY OF THE SCENE.	LOW
NO CHANGE IN THE LANDSCAPE OR VIEW.	NEGLIGIBLE

Table 2 Visual Sensitivity Matrix

CHARACTERISTICS	CRITERIA SCORES		
	0	1	2
VISUAL USE AREA	LOW SENSITIVITY USE	MODERATE SENSITIVITY USE	HIGH SENSITIVITY USE
SCENIC QUALITY	LOW QUALITY	MEDIUM QUALITY	HIGH QUALITY
FREQUENCY	INFREQUENT USE	MODERATE USE	HIGH VOLUME USE
DURATION	SHORT DURATION VIEW	MODERATE DURATION VIEW	LONG DURATION VIEW
DISTANCE	BACKGROUND	MIDDLE GROUND	FOREGROUND

CRITERIA TOTALS	SENSITIVITY WEIGHTING
<2	NEGLIGIBLE
3	LOW
4	LOW/MODERATE
5	MODERATE
6	MODERATE HIGH
>7	HIGH

Table 3 Visual Impact Rating

SENSITIVITY OF LANDSCAPE TO PROPOSAL \ VISUAL EFFECT LEVELS	HIGH	MODERATE / HIGH	MODERATE	LOW/MODERATE	LOW	NEGLIGIBLE
HIGH	HIGH	HIGH	MODERATE / HIGH	MODERATE / HIGH	MODERATE	MODERATE
MODERATE / HIGH	HIGH	MODERATE / HIGH	MODERATE / HIGH	MODERATE	MODERATE	LOW/MODERATE
MODERATE	MODERATE / HIGH	MODERATE / HIGH	MODERATE	MODERATE	LOW/MODERATE	LOW/MODERATE
LOW/MODERATE	MODERATE / HIGH	MODERATE	MODERATE	LOW/MODERATE	LOW/MODERATE	LOW
LOW	MODERATE	MODERATE	LOW/MODERATE	LOW/MODERATE	LOW	LOW
NEGLIGIBLE	MODERATE	LOW/MODERATE	LOW/MODERATE	LOW	LOW	NEGLIGIBLE

5.0 VISUAL PROMINENCE

5.1 VISUAL PROMINENCE

Visual prominence refers to how noticeable a wind turbine is within a landscape. This is influenced by multiple factors, including:

- Scale & Height – Taller turbines with larger rotor diameters tend to be more dominant.
- Location & Topography – Turbines placed on ridgelines or elevated ground stand out more.
- Colour & Contrast – A turbine's colour in relation to the background (e.g., white against a dark forest) affects its visibility.
- Skyline Interruption – Turbines that break a natural skyline are more visually prominent.
- Spacing & Clustering – A single turbine may be less prominent than a large wind farm with many closely spaced turbines.

Throughout the visual catchment (or Zone of Visual Influence [ZVI]) the degree of visual prominence will generally decrease as the distance from the development site to various viewing locations increases.

5.2 RELATIONSHIP WITH VIEWSHEDS

The report defines a number of viewsheds based on distance from the development for the purposes of assessment. The methodology is based on the reduction of impact with an increase in distance between a given viewpoint and the development. The transition between the specified ranges is gradual and not immediate but defines parameters for the assessment process.

Degree of Field of View Occupied	Potential Visual Prominence – Horizontal Field of View
Less than 5°	*Insignificant – Low Visual Prominence* The development may not be highly visible in the view unless it contrasts strongly with the background.
5° - 30°	*Potentially Noticeable – Moderate Visual Prominence* The development may be noticeable. The degree that it intrudes on the view will be dependent on how well it integrates with the landscape setting.
Greater than 30°	*Potentially Dominant – High Visual Prominence* The development will be highly noticeable.

Table 4 Horizontal Line of Sight - Visual Impact/ Visual Prominence

Degree of Field of View Occupied	Potential Visual Prominence – Vertical Field of View
Less than 0.5°	*Insignificant – Low Visual Prominence* A small thin line in the landscape.
0.5° - 2.5°	*Potentially Noticeable – Moderate Visual Prominence* The development may be noticeable. The degree that it intrudes on the view will be dependent on how well it integrates with the landscape setting.
Greater than 2.5°	*Potentially Dominant – High Visual Prominence* The development will be highly noticeable, although the degree of visual intrusion will depend on the landscape setting and the width/spread of the object.

Table 5 Vertical Line of Sight - Visual Impact/ Visual Prominence

Distance from Object	Potential Visual Prominence
Greater than 8,000 metres (Regional viewshed)	*Visibility Diminishing* The visibility of the development will progressively diminish over distance with there being no visibility beyond 20 km.
4,000 – 8,000 metres (Sub - regional viewshed)	*Potentially Noticeable* The development will be noticeable, reducing with distance. The degree that it intrudes on the view will be dependent on topography and the vegetation of the landscape setting as well as atmospheric conditions.
Less than 4,000 metres (Local viewshed)	*Potentially Dominant* The development will be noticeable, reducing with distance. The degree that it intrudes on the view will be dependent on topography and the vegetation of the landscape setting as well as atmospheric conditions.

Table 6 Visual Prominence in Relation to Distance

To determine the overall potential level of visual prominence, the values from the vertical and horizontal prominence calculations are combined (refer to Table 7). The vertical angle value has a weighting applied that is double that of the horizontal angle value. This reflects that fact that the human eye is accustomed to a strong horizontal line within the visual landscape. Any strong vertical element is therefore more visually prominent or apparent in views and horizontal elements are more influenced by the screening effects of intervening vegetation between the viewer and the object subject to assessment.

		Vertical Angle (Weighted Value x 2)		
		HIGH (6)	MODERATE (4)	LOW (2)
Horizontal Angle	HIGH (3)	HIGH (9)	HIGH (7)	MODERATE (5)
	MODERATE (2)	HIGH (8)	MODERATE (6)	LOW (4)
	LOW (1)	HIGH (7)	MODERATE (5)	LOW (3)

Low (Insignificant): total score = 3 - 4
Moderate (Potentially Noticeable): total score = 5 - 7
High (Potentially Dominant): total score = 8 - 9

Table 7 Determination of Visual Prominence

5.3 OVERLAPPING PERSPECTIVE FORESHORTENING

The stacking effect, or overlapping perspective foreshortening, occurs when wind turbines appear visually aligned from certain viewpoints, compressing depth and making them seem like a dense cluster rather than an evenly spaced array. This effect alters the perceived scale of a wind farm, creating a sense of visual compression that can disrupt an open or scenic landscape. Overlapping blades may form irregular patterns, increasing visual dominance and drawing more attention to the turbines.

Beyond individual stacking effects, the cumulative impact of multiple wind farms must be considered. The visual presence of several wind farms in close proximity can reduce the sense of open space. Observers traveling through a region may experience prolonged exposure to turbines, increasing perceived visual clutter. Landscapes with natural screening, such as hills or dense vegetation, can better absorb multiple wind farms, whereas open, flat areas with little visual buffering are more affected. Careful site selection and spacing can help mitigate these effects, preserving landscape character while accommodating renewable energy infrastructure.

6.0 VISIBILITY RATIONALE

6.1 VISIBILITY - RELATIONSHIP WITH VIEWSHEDS

The report defines a number of viewsheds based on distance from the development for the purposes of assessment. The methodology is based on the reduction of impact with an increase in distance between a given viewpoint and the development. These viewsheds or settings are:

- Local Setting – up to 4 km from the development.
- Sub-regional Setting – between 4 km and 8 km from the development.
- Regional Setting – beyond 8 km of the development.

These distances have been established based on previous studies undertaken by Urbis. They are based on the reduction of visibility of objects in the distance as the field of view reduces.

6.2 HORIZONTAL LINE OF SIGHT

It is generally accepted that the central field of vision for the human eye covers a horizontal angle of approximately 50° to 60°. Given both eyes see simultaneously and that there is a degree of overlap, a central field of view results in a person looking straight ahead (Figure 15).

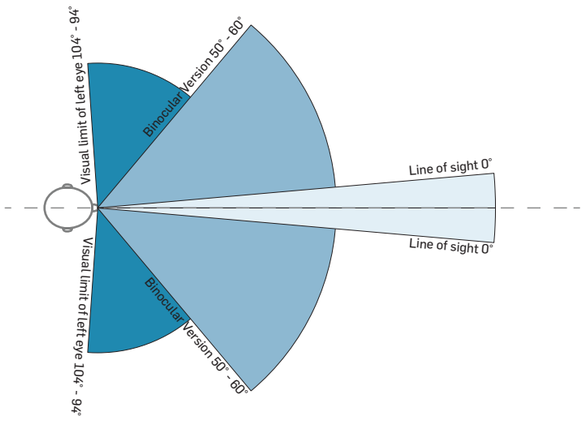


Figure 15 Horizontal Line of Sight - Visual Impact/ Visual Prominence

6.3 VERTICAL LINE OF SIGHT

As for the horizontal line of sight, there is also a vertical central field of view. If we assume that the horizon is 0° then the eye clearly defines colour, field of view and has image sharpness for an angle of approximately 25° upwards and 30° downwards. However, in reality, the typical line of sight for a standing person at ground level is approximately 10° below the horizon line (Figure 16).

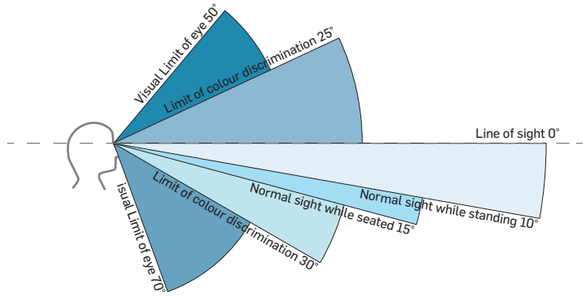


Figure 16 Vertical Line of Sight - Visual Impact/ Visual Prominence

7.0 VISUAL ASSESSMENT

7.1 VISUAL CHANGE

The visual impact assessment will evaluate the proposed development by determining the degree of visual change that will occur to the landscape. The main contributing factors towards visual change from the viewing locations within the study area will be the position of proposed built form within the landscape and the surrounding vegetation.

The view experience within the study area can be classified as follows:

- Moving/Transitional– dominant view experience along the road corridors.
- Elevated - elevated views are experienced at high-points along ridgelines.
- Static – limited static view opportunities within the study area.

Visual effect and visual sensitivity are considered from each of the viewpoint in order to determine the potential visual impact.

When considering the visual effect of the proposal on each viewpoint the following consistent visual effect judgements are noted:

- Changes to landform - The vertical form of the proposed turbine structures contrasts with the horizontal form of the surrounding landscape. The development proposal will break the horizon line in various locations;
- Changes to vegetation patterns - The proposed development does result in the loss of views to vegetation however the reduction in views to vegetation are limited and a consistent vegetation pattern is typically maintained within the viewshed; and,
- The nature, density and scale of the proposed development - the proposed development integrates well with the surrounding environment due to the sighting of the development and preservation of the surrounding vegetation/landscape.

Each of the selected viewpoints is assessed using the methodology presented in **Section 4.0 Visual Impact Assessment** is determined as a result of the relationship between visual effect and visual sensitivity. Refer **Table 3 Visual Impact Rating**.

7.2 SELECTED KEY VIEWPOINTS

The visual impact assessment has been prepared based on the likely view possible from the identified viewpoints and, therefore, takes into account the effects of screening of views to the proposed built form by surrounding vegetation and any existing structures.

The selected key views forming part of the assessment were taken at the closest publicly accessible locations adjacent to the sensitive viewpoints, key public destinations and prominent locations within the study area. These views are heightened in key locations including the following:

Three Springs-Eneabba Rd

A main travelling route within the study area in between Three Springs and Eneabba, Three Springs - Eneabba Rd runs southwest - northeast to the south of the site. Sections of the route pass through the project area and have the potential to provide views where there is no screening by existing vegetation.

First North Rd

A local road corridor that runs north - south direction. It passes through the development area and it is one of the main routes for accessing the site. Proposed wind turbines are located on both sides of the road. Travellers will view the proposed wind turbines from both directions. Views to the proposed structures will be seen through the existing road side vegetation.

Skipper Rd

A local road corridor that runs east - west and links the Brand Hwy and First North Rd. As the proposed turbine structures are located at the east end of the Skipper Rd, travellers will view the proposed wind turbine structures directly when travelling from Brand HWY on Skipper Rd.

7.3 VIEW DISTANCE ZONES

The identified views can be categorised into the following distance zones identified in the Visual Landscape Planning Manual (DPI 2007) as follows:

- Foreground zone - views of the site from the immediate context are unavailable other than from within the project property. The placement of turbines within the site limits accessible views at this range.
- Middle ground zone - views to turbines situated in the middle ground are available from viewpoints 1, 2, 4, 5, 6, 10, 13, 15, 20. Partially screened views to the turbines is available to be from viewpoints 5. The middle ground views from viewpoint 4 will be open and view from viewpoint 1 will within limited screening.
- Background zone - Some turbines will be visible within the background from viewpoints 3, 7, 8, 9, 11, 12, 14, 16, 17, 18, 19. The rural pasture land and bushland reserves frame the view at this range.

7.4 PHOTOMONTAGES

Photomontages were used to visualise the proposed development from fixed locations. Photographs were taken to create the photomontages consisting of a computer-generated image of the proposed development composited onto the photographs. Digital techniques are used to composite current photographs with computer generated images. This illustrates how the proposed infrastructure might look to a person from a specific location. The process involved taking photographs from select recorded viewpoints in the direction of the proposed development. The locations are measured on the floor plan, magnetic bearing of each view, lens spirit level and the camera's focal length were also recorded (to enable field of view to be calculated).

A Computer 3D model of the Study area was created with contour and cadastre information as well as CAD models of the development. Other inputs into the 3D model included the known locations of the viewpoints and the photographer's calculated field of view. Views were then taken from the viewing locations in the 3D model and these were rendered to create white model images of the field of view. The 3D image layer was then merged with the photograph layer to create a photographic impression.

The following were used as input for the modelling process for the photomontages:

- relevant digital photographs taken from the identified viewpoints;
- 3D CAD files of the infrastructure;
- heights for proposed infrastructure;
- contour data of the surrounding landscape;
- location and bearing data which describe the views from the viewpoints; and,
- reference points, used to align/ check the 3D features against existing scenery.

Photomontages were created at five key viewpoints, to aid in the assessment of visual impact. These viewpoints and the potential visual impact of the development are outlined in the photo simulation sections of the report.

7.5 VIEWPOINT LOCATION ANALYSIS

An analysis of view locations identified has been undertaken as a basis for assessing the impact that the proposed development will have on the existing view.

Each of these views is assessed using the methodology outlined within this report and presented in the view location assessment.

Refer **Section 3.0 Assessment Methodology** & **Section 4.0 View Impact Assessment.**

LEGEND:

- Photo-simulation View
- Site Photograph View
- Focal Point
- View Direction
- Centroid of 30km Buffer Study Extent
- 30km Buffer Study Extent
- Project Lot Extent
- Extent of Visual Assessment Study Area
- Proposed WTH Location
- Potential Connection Interface Station Location
- Potential BESS Location
- Potential Western Power Terminal Station Location
- Potential Internal Substation Location
- Key Public Point
- Dwelling Location

1:400,000 @ A3

Figure 17 Assessed Viewpoint Locations and Heading Direction

1 PHOTO-SIMULATION 1 INTERSECTION OF THREE SPRINGS-ENEABBA RD AND RESERVE RD

Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance Focal Point **A**	View Angle to Focal Point **A**
1.60m	**35mm**	**54.4°**	**~6,996m**	**330.69°**

Number of Wind Turbines Within Photo Simulation	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
55	**~6,264m**	**103.43°**	**2.74°**

VISUAL EFFECT

MODERATE

- **Landscape Character Unit - Road Corridor / Remnant Bushland and Natural Reserve**
- **Viewpoint Screening - Limited Screening**

The view of the proposed wind turbine structures will be predominantly open from this viewpoint.

The low roadside vegetation and bushland, combined with the elevated position of the proposed turbine structures on the ridgeline, ensures the wind turbines will be visible in the middle ground.

The proposed development is identifiable and will result in a noticeable change to the overall scene.

VISUAL SENSITIVITY

LOW/MODERATE

- **Visual Use Area - Low Sensitivity Use**
- **Scenic Quality - Medium Quality**
- **Frequency - Moderate**
- **Duration - Moderate Duration View**
- **Distance - Middle-ground/Background**

The viewpoint is located on the road verge, offering an open view of the farmland and bushland.

The proposed structures would be witnessed in passing by predominantly local traffic. The duration of views is moderate and contained to a passing view.

The presence of shrubs vegetation in close proximity to the road edge will create a screen effect.

LANDSCAPE CHARACTER

The viewpoint is located on the road verge of Three Springs-Eneabba Rd, near the intersection with Reserve Rd. The view looks northwest across the road surface and remnant low shrubland in the direction of the proposed wind farm. Areas of farmland are noticeable on the horizon and are separated by areas of remnant shrubland. The overall view remains open and unimpeded from this location.

VISUAL IMPACT

MODERATE

- **FOV Rating - HIGH**
- **Potential Visual Prominence - POTENTIALLY NOTICEABLE**

The introduction of the proposed wind turbines would be notable and represent a change to the view, as they will be visible in the middle ground and background.

The viewing experience of users will be limited to a passing view from a travelling vehicle at this viewpoint.

In this instance, the moderate visual effect combined with a low/moderate level of visual sensitivity will result in a moderate potential visual impact.

MODEL OVERLAY

KEY VIEWPOINT TYPE: COMMUTER ROUTE

Visual Management Objective (VMO)	Main Impacts
Best Practice Siting and Design ■ Position turbines to lower intrusion into key view corridors and avoid visual cluster where practicable.	Turbines could dominate the skyline, creating a visually repetitive impact over long distances
Potential Mitigation Measures	
■ Space turbines where practicable to avoid turbine placement that leads to a repetitive and potentially intrusive visual impact.	

PANORAMA (CONTEXT ONLY)


50MM FL REFERENCE VIEW
ORIGINAL PHOTO EXTENT - 35MM FL

2 PHOTO-SIMULATION 2 ENTRANCE OF 3282 THREE SPRINGS-ENEABBA RD

Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance Focal Point **B**	View Angle to Focal Point **B**
1.60m	**35mm**	**54.4°**	**~2,490m**	**19.28°**

Number of Wind Turbines Within Photo Simulation	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
15	**~588m**	**121.90°**	**25.40°**

VISUAL EFFECT

MODERATE / HIGH

- **Landscape Character Unit - Road Corridor/ Remnant Bushland and Natural Reserve**
- **Viewpoint Screening - Partially Screened**

The view of the proposed wind turbines will be partially visible above the existing vegetation from this viewpoint.

Wind turbines are located in close proximity to this viewing location and be visible in the foreground.

The introduction of the wind turbines will result in a noticeable change to the existing character of the overall scene.

VISUAL SENSITIVITY

LOW/MODERATE

- **Visual Use Area - Low Sensitivity Use**
- **Scenic Quality - Medium Quality**
- **Frequency - Moderate**
- **Duration - Moderate Duration View**
- **Distance - Middle Ground**

The viewpoint is located on the road verge, offering a partially screened view of the proposed structures through gaps in the existing roadside vegetation.

The primary viewers from this viewpoint will be road users in moving vehicles. The viewing duration for these users will be moderate, and their visual sensitivity is constrained by their orientation in a travelling vehicle.

LANDSCAPE CHARACTER

The viewpoint is located at the entrance of 3282 Three Springs-Eneabba Rd, looking northeast towards to the focal point B. The view looks across a wide band of existing tree and shrubland vegetation in the direction of the proposed wind turbines. Existing vegetation in the middle to background will screen views of the lower parts of the turbines. A number of turbines will be highly visible though breaks in vegetation, while others will be totally or partially screened by scattered trees or dense shrubs.

VISUAL IMPACT

MODERATE

- **FOV Rating - HIGH**
- **Potential Visual Prominence - POTENTIALLY DOMINANT**

The introduction of the proposed structures will be visible in the foreground of the view, resulting in a change to the visual character of the overall scene.

The viewing duration of the proposed wind turbines from this viewpoint will be moderate, as seen from a moving vehicle.

Therefore, the moderate/high visual effect combined with the low/moderate visual sensitivity will result in a moderate visual impact of the proposed turbine structures from this viewpoint.

KEY VIEWPOINT TYPE: COMMUTER ROUTE

Visual Management Objective (VMO)	Main Impacts
Best Practice Siting and Design ■ Reduce visual intrusion by blending the turbines into the landscape through strategic planting.	Turbines could dominate the skyline, creating a visually repetitive impact over long distances
Potential Mitigation Measures	
■ Enhance roadside vegetation buffer installing native shrubs, mid-height trees, and taller canopy species at key viewpoints or gaps in vegetation to screen sightlines to the wind farm turbines.	


50MM FL REFERENCE VIEW
ORIGINAL PHOTO EXTENT - 35MM FL

3 PHOTO-SIMULATION 3 ENTRANCE OF 1741 BUNNEY RD

Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance Focal Point **A**	View Angle to Focal Point **A**
1.60m	**35mm**	**54.4°**	**~22,380m**	**180.99°**

Number of Wind Turbines Within Photo Simulation	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
82	**~14,721m**	**49.40°**	**1.17°**

VISUAL EFFECT

MODERATE

- **Landscape Character Unit - Rural Farmland / Road Corridor**
- **Viewpoint Screening - Partially Screened View**

The proposed wind turbine structures will be visible in the background of the overall scene and will be partially screened by the existing foreground vegetation. Therefore, the wind turbines will be partially visible in the background from this viewpoint.

The turbines will occupy a wide field of view and the arrangement will result in some stacking of turbines.

The introduction of the development will result in a moderate reduction in the quality of the scene.

VISUAL SENSITIVITY

NEGLIGIBLE

- **Visual Use Area - Low Sensitivity Use**
- **Scenic Quality - Low Quality**
- **Frequency - Low Use**
- **Duration - Long Duration View**
- **Distance - Background**

This viewpoint is located on First North Rd, offering a partially screened view of the proposed wind turbine.

Roadside vegetation is present in the foreground, with farming paddocks in the middle ground and the wind turbine in the background. Users travelling on First North Rd will look towards the wind turbines from this viewpoint, and while at a distance the view of the turbines will be a long duration view.

LANDSCAPE CHARACTER

The viewpoint located at the entrance to 1741 Bunney Rd is situated to the north of the project site. The view extends along Bunney Rd, and across farmland with scattered vegetation in the foreground and middle ground. The view looks towards dense shrubland positioned on the ridgeline in the background where the proposed wind turbines will be situated. Existing roadside vegetation will assist in restricting views to the turbines in the background.

VISUAL IMPACT

LOW/MODERATE

- **FOV Rating - HIGH**
- **Potential Visual Prominence - VISIBILITY DIMINISHING**

The introduction of the proposed wind turbine structures will be noticeable within the overall scene and will represent a change to the landscape's character, as the turbines are situated in the background of the view.

In this instance, the moderate visual effect combined with a negligible level of visual sensitivity will result in a low/moderate potential visual impact.

KEY VIEWPOINT TYPE: LOCAL ROAD

Visual Management Objective (VMO)	Main Impacts
Best Practice Siting and Design ▪ Reduce visual intrusion by blending the turbines into the landscape through strategic planting.	Turbines could dominate the skyline, creating a visually repetitive impact over long distances
Potential Mitigation Measures	
▪ Space turbines where practicable to avoid turbine placement that leads to a repetitive and potentially intrusive visual impact.	


50MM FL REFERENCE VIEW
ORIGINAL PHOTO EXTENT - 35MM FL

4 PHOTO-SIMULATION 4
ENTRANCE OF 1783 SKIPPER RD

Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance Focal Point **A**	View Angle to Focal Point **A**
1.60m	**35mm**	**54.4°**	**~8,138m**	**143.64°**

Number of Wind Turbines Within Photo Simulation	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
24	**~2,110m**	**117.42°**	**7.36°**

VISUAL EFFECT

MODERATE/ HIGH

- **Landscape Character Unit - Road Corridor / Rural Farmland**
- **Viewpoint Screening - Limited Screening**

The wind turbines are situated on the slightly elevated farmland interspersed with bushland.

The view to the proposed wind turbines will be visible from this open view with limited screening by the medium to low shrubs situated within the foreground.

The introduction of the proposed wind turbines will be result in a noticeable change of the existing landscape character across the overall scene.

VISUAL SENSITIVITY

LOW

- **Visual Use Area - Low Sensitivity Use**
- **Scenic Quality - Low Quality**
- **Frequency - Low Use**
- **Duration - Long Duration View**
- **Distance - Middle ground**

The view from this viewpoint will be clear with limited low to medium roadside vegetation only.

The turbines will be visible within the farmland and remnant bushland.

The viewing duration to the proposed structures will be moderate/long by the users of the road.

LANDSCAPE CHARACTER

The viewpoint is located at the entrance of 1783 Skipper Rd. This perspective encompasses the gravel road in the foreground, and looks across the surrounding grassland. The view incorporates paddocks and bushland in the middle ground and background. The view remains open and level, with low grasses and shrubs being the dominant vegetation. The proposed wind turbines are situated within the middle ground and background of the view.

VISUAL IMPACT

MODERATE

- **FOV Rating - HIGH**
- **Potential Visual Prominence - POTENTIALLY DOMINANT**

The introduction of the proposed structures will result a noticeable change to the landscape scene as there is limited screening by existing vegetation and the slightly elevated position of the proposed wind turbines.

The viewing duration to the proposed structures within the open view will be moderate to long.

Therefore, moderate to high visual effect combined with the low visual sensitivity will result a moderate visual impact for this viewpoint.

KEY VIEWPOINT TYPE: NEIGHBOURING RESIDENCE

Visual Management Objective (VMO)	Main Impacts
Best Practice Siting and Design ■ Position turbines to lower intrusion into key view corridors and avoid visual cluster where practicable. ■ Reduce visual intrusion by blending the turbines into the landscape through strategic planting where practicable.	Turbines could appear dominant or intrusive from homes, affecting visual amenity
Potential Mitigation Measures	
■ Consult with impacted neighbours on preferred sightlines ■ Potential to screen key view corridors to residential properties (using native shrubs, mid-height trees) in discussion with an affected property owner.	


50MM FL REFERENCE VIEW
ORIGINAL PHOTO EXTENT - 35MM FL

5 PHOTO-SIMULATION 5 ENTRANCE OF 757 FIRST N RD

Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance Focal Point **D**	View Angle to Focal Point **D**
1.60m	**35mm**	**54.4°**	**~5,598m**	**16.37°**

Number of Wind Turbines Within Photo Simulation	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
8	**~2,263m**	**161.04°**	**7.52°**

VISUAL EFFECT

MODERATE

- **Landscape Character Unit - Road Corridor/ Remnant Bushland and Natural Reserve**
- **Viewpoint Screening - Partially Screened View**

The view to the proposed wind turbines will be partially screened by the existing vegetation and undulation of the topography.

The proposed turbine structures will be partially visible above the existing vegetation.

The introduction of the development will be result in a noticeable change of the exiting landscape visual character.

VISUAL SENSITIVITY

LOW

- **Visual Use Area - Low Sensitivity Use**
- **Scenic Quality - Low Quality**
- **Frequency - Moderate Use**
- **Duration - Moderate Duration View**
- **Distance - Middle ground**

This viewpoint is located on First North Rd with a partially screened view to the proposed wind turbines structures.

The proposed structures would be witnessed both by road users with a short duration view through the gaps of the existing vegetation, and residents of the 757 First North Rd with a static view through existing vegetation.

The presence of vegetation in front of the proposed structures and the undulation of the topography will create screen effects.

LANDSCAPE CHARACTER

This viewpoint is located at the entrance of 757 First North Rd, looking north towards focal point D. The view looks uphill across a gravel road towards remnant roadside vegetation including shrubs and small trees. Parts of the proposed wind turbines can be seen above the bushes and through the gaps of the vegetation.

VISUAL IMPACT

LOW/MODERATE

- **FOV Rating - HIGH**
- **Potential Visual Prominence - POTENTIALLY DOMINANT**

The introduction of the proposed wind turbine structures would represent a partially change to the overall scene. The viewing duration is considered moderate form this location.

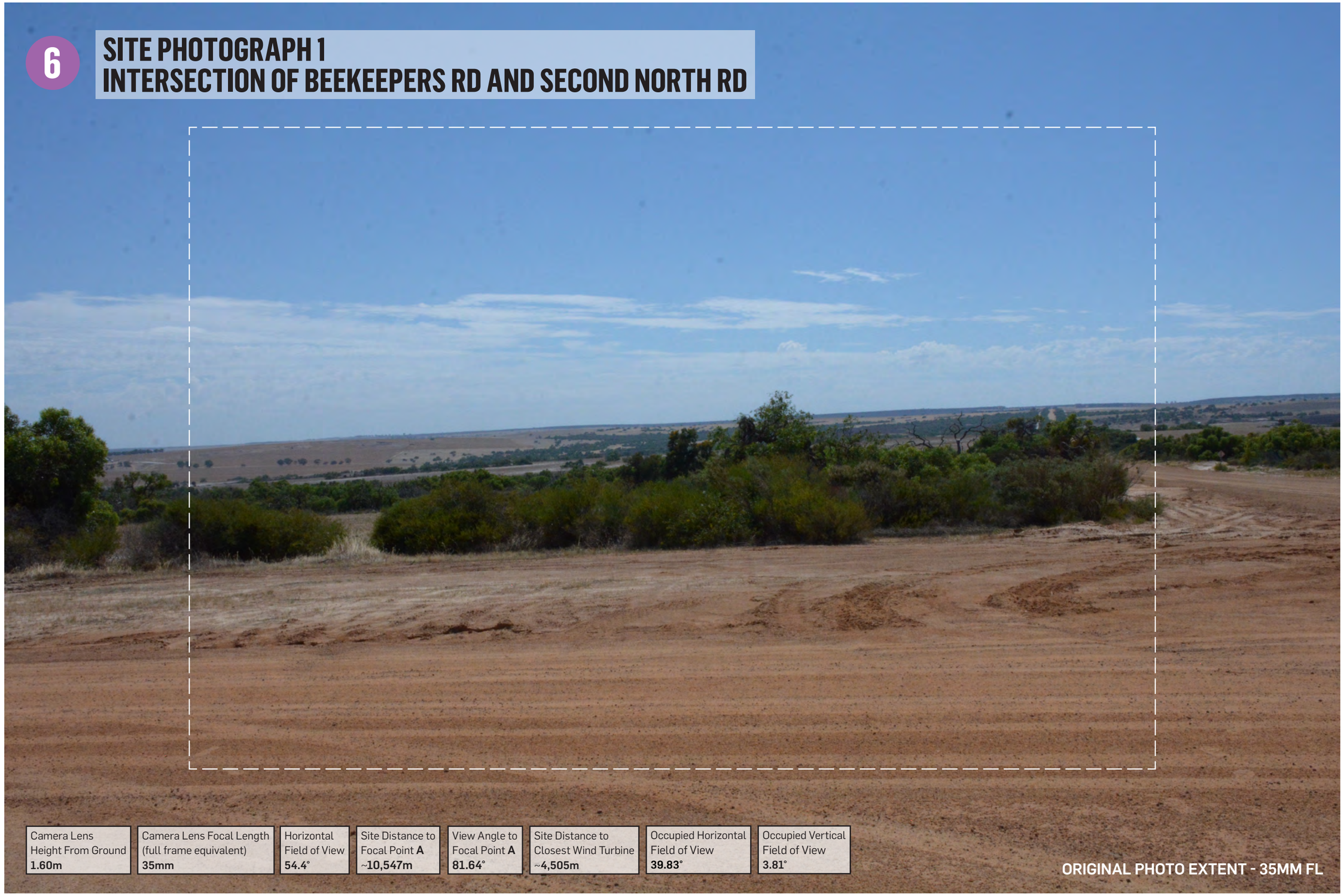
In this instance, the moderate visual effect combined with a low level of visual sensitivity will result in a low/ moderate potential visual impact.

KEY VIEWPOINT TYPE: LOCAL ROAD

Visual Management Objective (VMO)	Main Impacts
Best Practice Siting and Design ■ Position turbines to lower intrusion into key view corridors and avoid visual cluster where practicable. ■ Reduce visual intrusion by blending the turbines into the landscape through strategic planting where practicable.	Turbines could appear dominant or intrusive from homes, affecting visual amenity
Potential Mitigation Measures	
■ Consult with impacted neighbours on preferred sightlines ■ Potential to screen key view corridors to residential properties (using native shrubs, mid-height trees) in discussion with an affected property owner.	


50MM FL REFERENCE VIEW
ORIGINAL PHOTO EXTENT - 35MM FL

6 SITE PHOTOGRAPH 1
INTERSECTION OF BEEKEEPERS RD AND SECOND NORTH RD



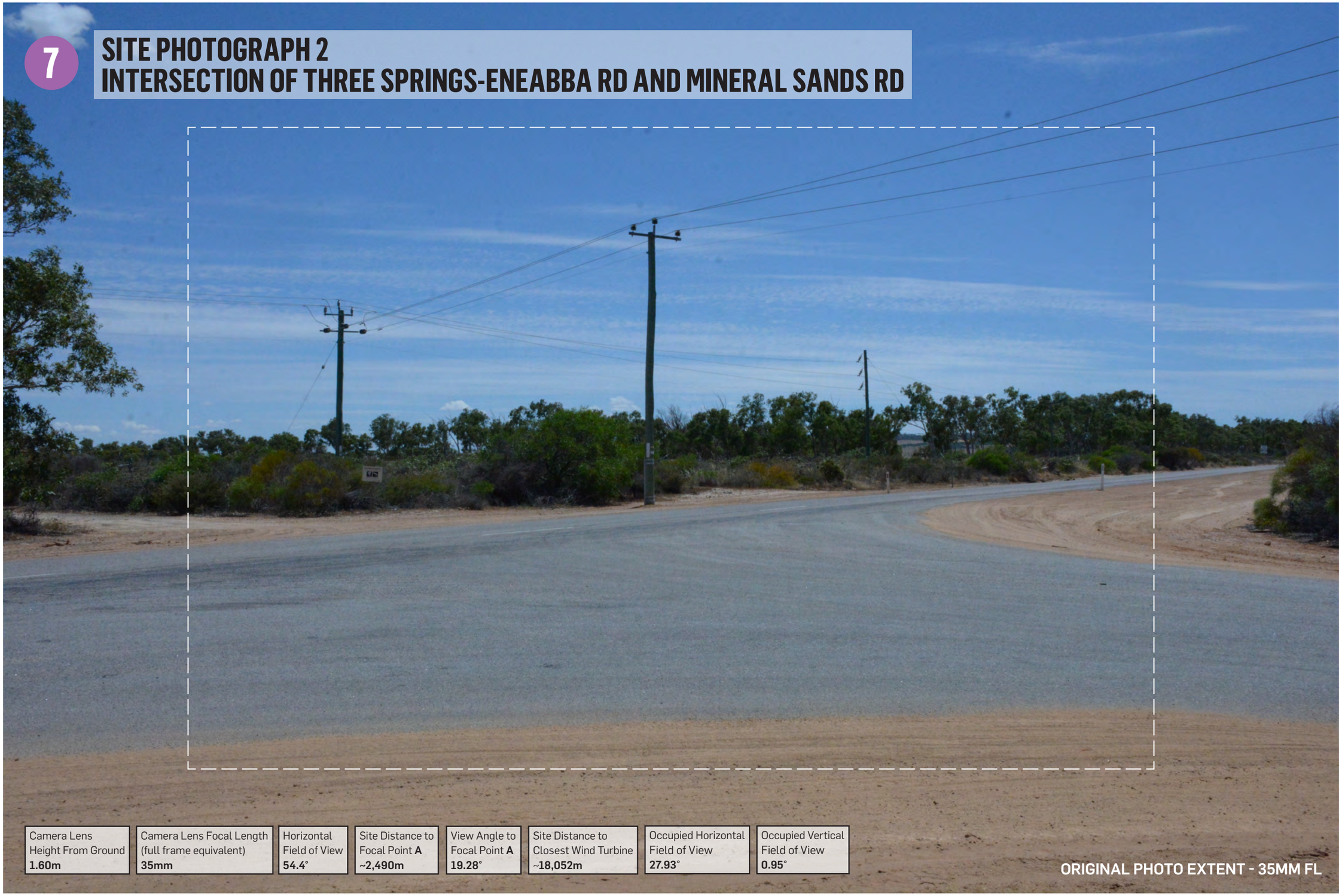
Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **A**	View Angle to Focal Point **A**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~10,547m**	**81.64°**	**~4,505m**	**39.83°**	**3.81°**

ORIGINAL PHOTO EXTENT - 35MM FL

LANDSCAPE CHARACTER

The viewpoint is taken from the verge of the intersection of Beekeepers Rd and Second North Rd looking east toward the proposed turbines. This open view looks towards undulating farmland and remnant bushland in the middle ground and background. The roadside vegetation will assist in screening views to part of the proposed wind farm.

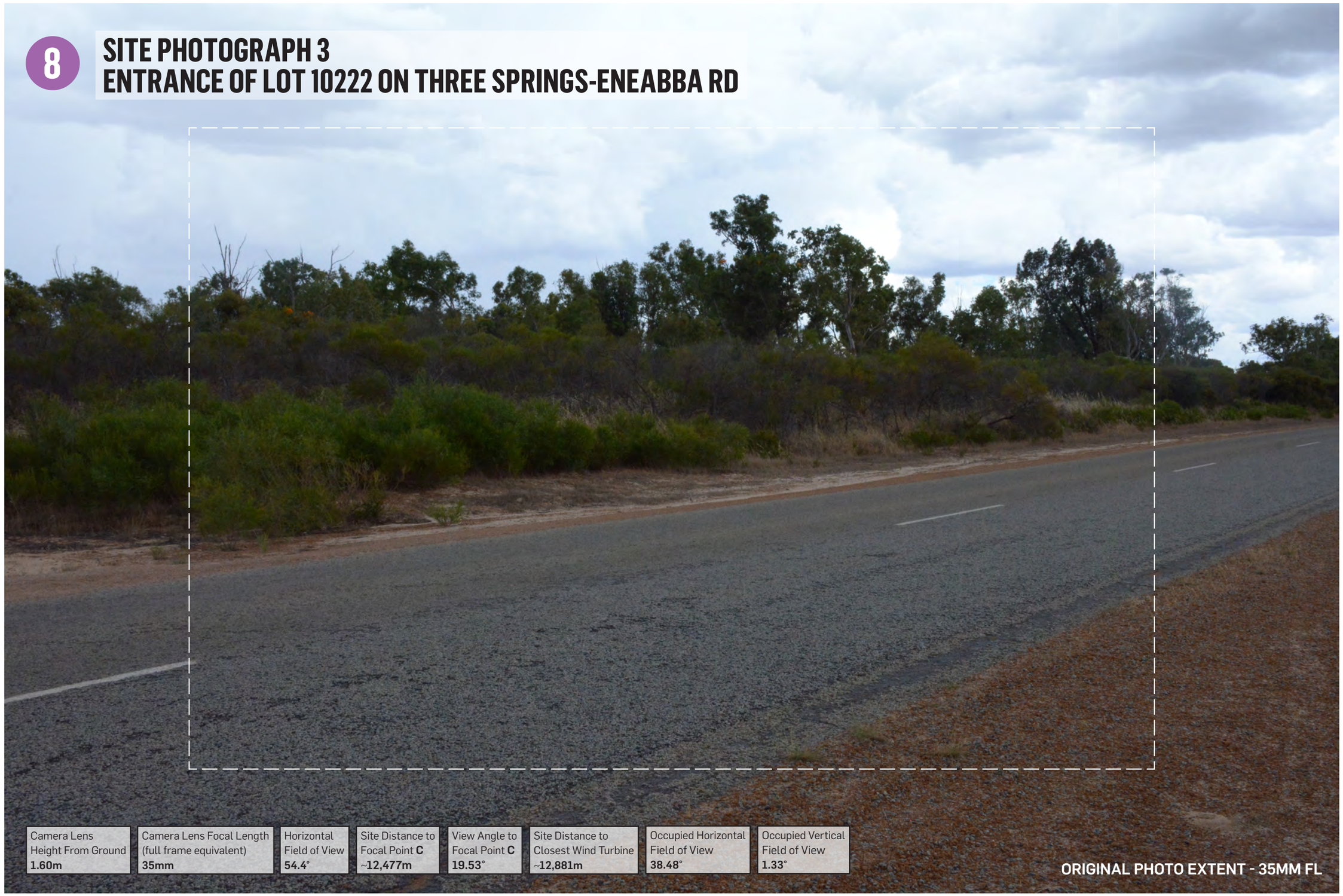
7 SITE PHOTOGRAPH 2
INTERSECTION OF THREE SPRINGS-ENEABBA RD AND MINERAL SANDS RD



LANDSCAPE CHARACTER

This viewpoint is located at the intersection of Three Springs-Eneabba Rd and Mineral Sands Rd. The view looks northeast across Three Springs-Eneabba Rd towards a band of road side vegetation. Glimpses of farmland can be seen through gaps in the vegetation. Power poles and overhead powerlines can also be seen within the foreground. The proposed turbines are likely to be screened by the roadside vegetation from this viewpoint.

8 SITE PHOTOGRAPH 3
ENTRANCE OF LOT 10222 ON THREE SPRINGS-ENEABBA RD



LANDSCAPE CHARACTER

The viewpoint is located at the entrance of lot 10222 on Three Springs-Eneabba Rd. The view looks northwest towards the project site through remnant tree and shrub vegetation at the road verge. This vegetation restricts views towards the project site and the proposed wind turbines will screened from this viewpoint.

9 SITE PHOTOGRAPH 4
INTERSECTION OF THOMAS ST AND RAILWAY RD

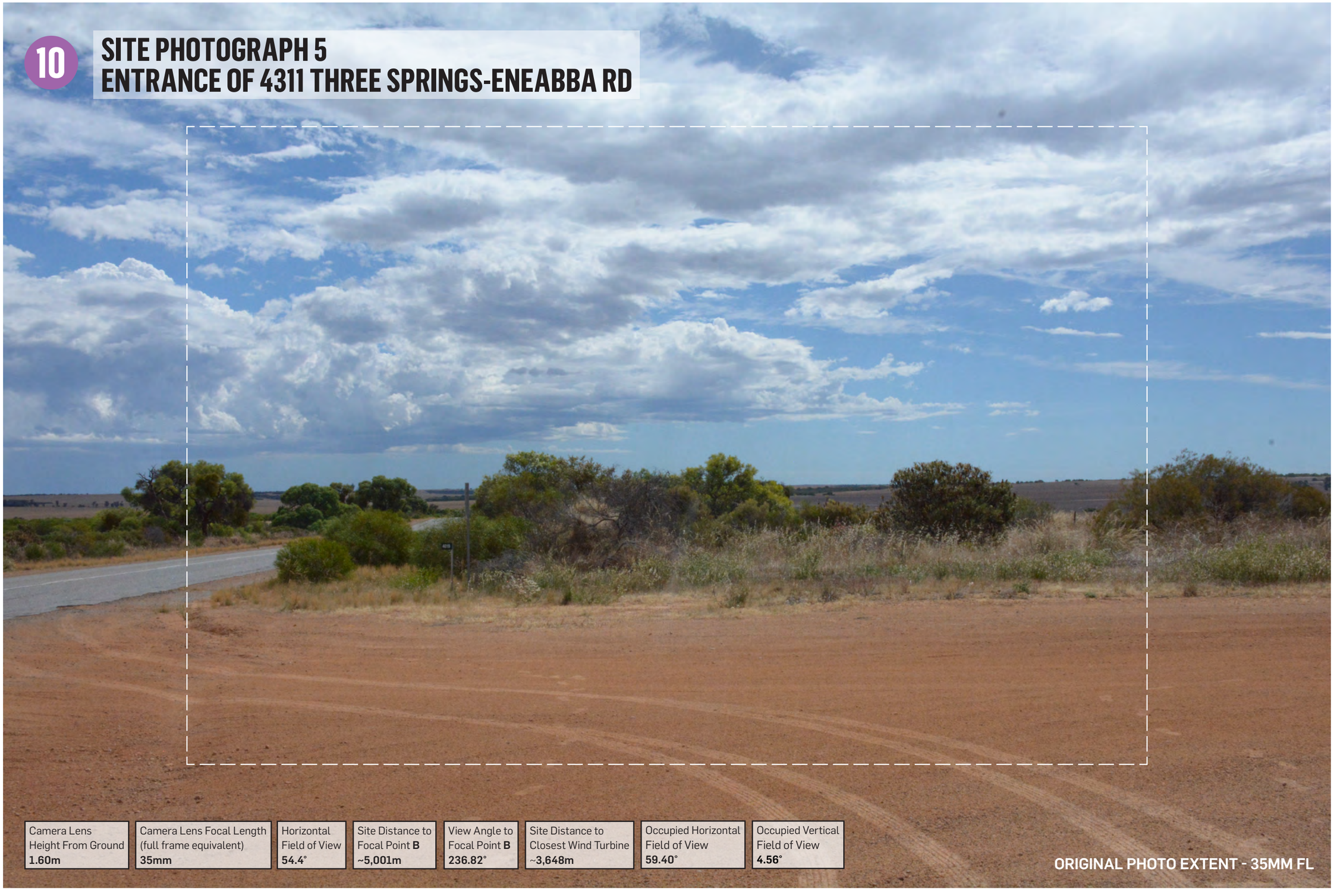
Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **A**	View Angle to Focal Point **A**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~34,222m**	**242.01°**	**~22,230m**	**19.88°**	**0.77°**

ORIGINAL PHOTO EXTENT - 35MM FL

LANDSCAPE CHARACTER

The viewpoint is located at the intersection of Thomas Street and Railway Rd in the Three Springs Townsite. The view looks across a road intersection and single-storey shopfront buildings toward the development area. The existing built forms and vegetation will restrict the view to the proposed wind turbines.

10 SITE PHOTOGRAPH 5
ENTRANCE OF 4311 THREE SPRINGS-ENEABBA RD

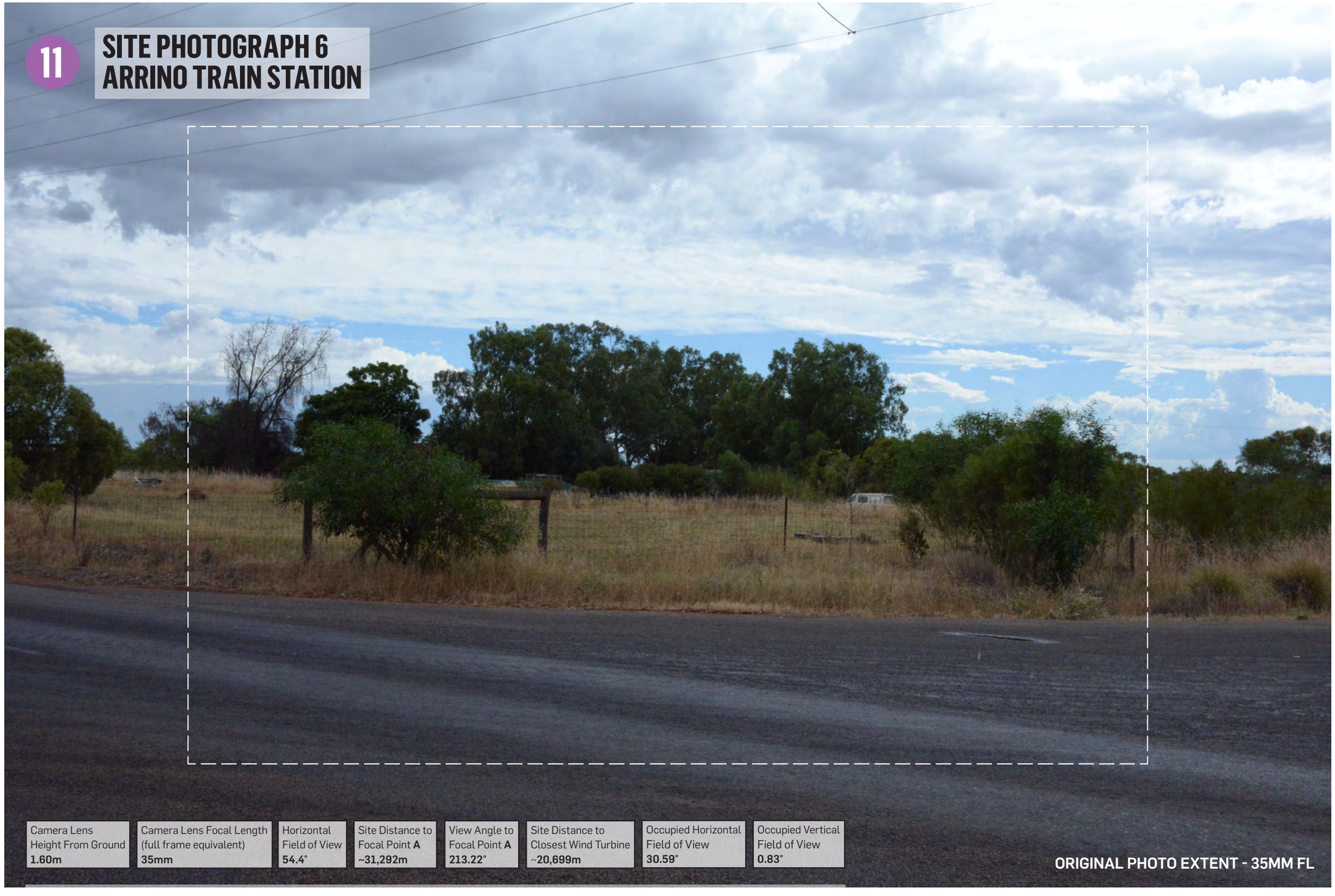


Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **B**	View Angle to Focal Point **B**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~5,001m**	**236.82°**	**~3,648m**	**59.40°**	**4.56°**

LANDSCAPE CHARACTER

The viewpoint is taken from the entrance to 4311 Three Springs-Eneabba Rd to the northeast of the project site. This is a partially screened view with existing shrub vegetation in the foreground. The view looks across an open landscape of farmland with patches of low remnant vegetation. The view to the proposed wind turbines will be partially screened by the existing road site vegetation.

11 SITE PHOTOGRAPH 6
ARRINO TRAIN STATION



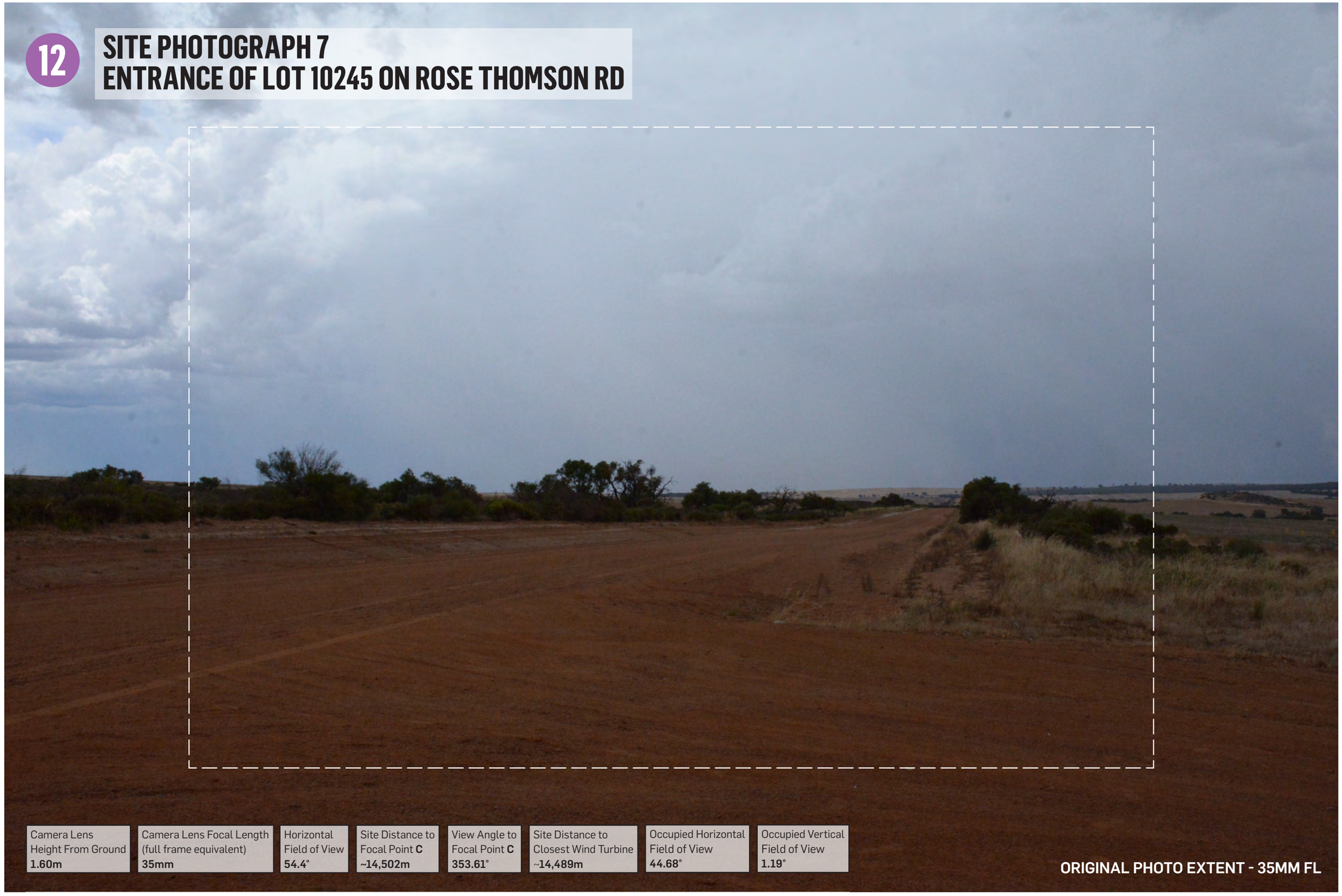
Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **A**	View Angle to Focal Point **A**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~31,292m**	**213.22°**	**~20,699m**	**30.59°**	**0.83°**

ORIGINAL PHOTO EXTENT - 35MM FL

LANDSCAPE CHARACTER

The viewpoint is taken outside the Arrino Station at the intersection of Arrino West Rd and Midlands Rd. The view looks through a post and wire boundary fence towards a private property used for storage of cars trailers and a boat. A blend of dense shrubs and trees in the foreground creates a visual screen toward the proposed turbines. In this instance, the view to the wind farm will be screened by the existing vegetation.

12 SITE PHOTOGRAPH 7
ENTRANCE OF LOT 10245 ON ROSE THOMSON RD



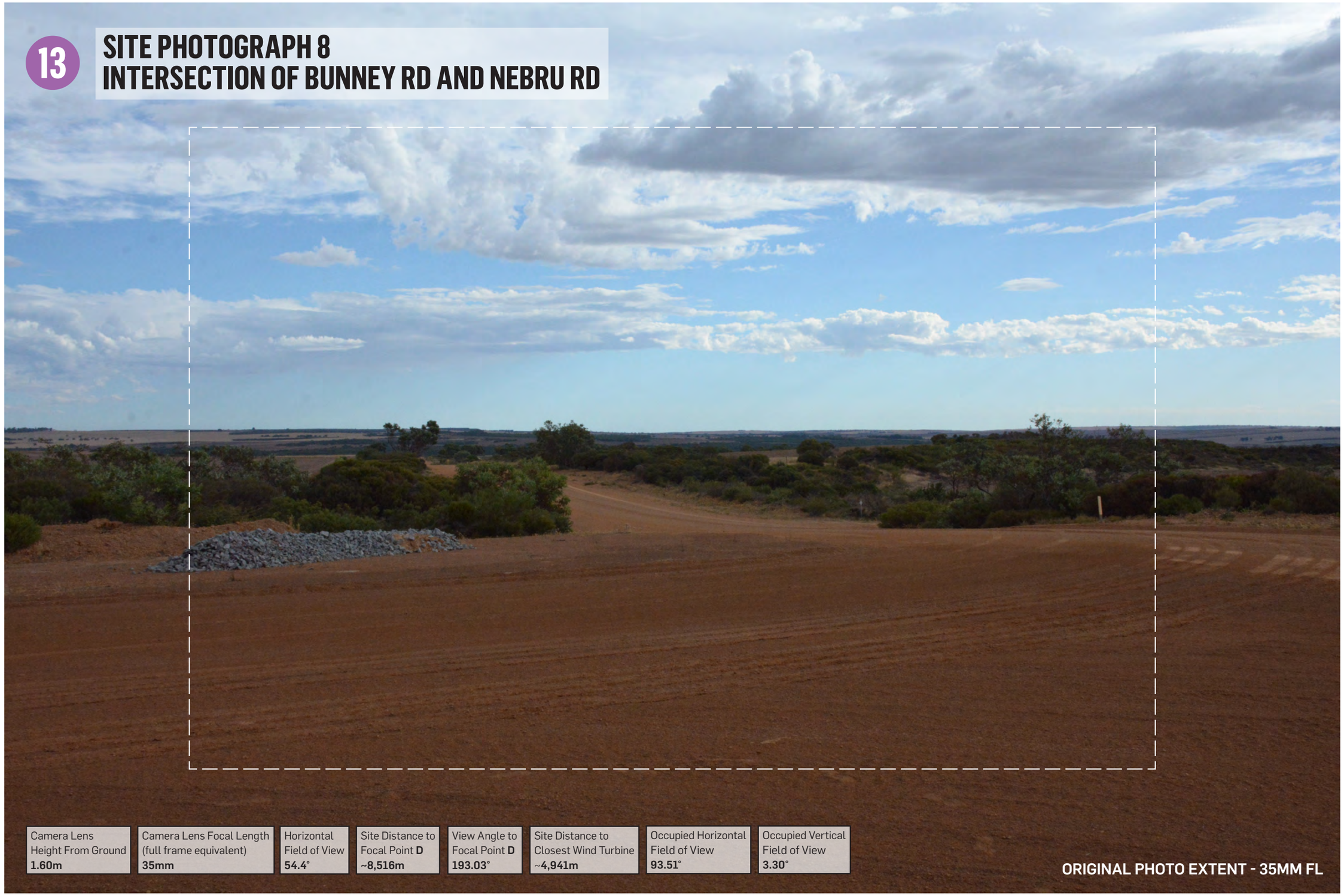
Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **C**	View Angle to Focal Point **C**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~14,502m**	**353.61°**	**~14,489m**	**44.68°**	**1.19°**

ORIGINAL PHOTO EXTENT - 35MM FL

LANDSCAPE CHARACTER

The viewpoint is taken near the entrance of lot 10245 on Rose Thomson Rd to the southwestern corner of the project site. The view looks along Rose Thomson Rd towards slightly undulating farmland and bushland in the direction of focal point C. This view is partially screened by the road verge on the western side of the view and is otherwise an open view. The view to the proposed structures will be partially screen by the vegetation from this location.

13 SITE PHOTOGRAPH 8
INTERSECTION OF BUNNEY RD AND NEBRU RD



Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **D**	View Angle to Focal Point **D**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~8,516m**	**193.03°**	**~4,941m**	**93.51°**	**3.30°**

ORIGINAL PHOTO EXTENT - 35MM FL

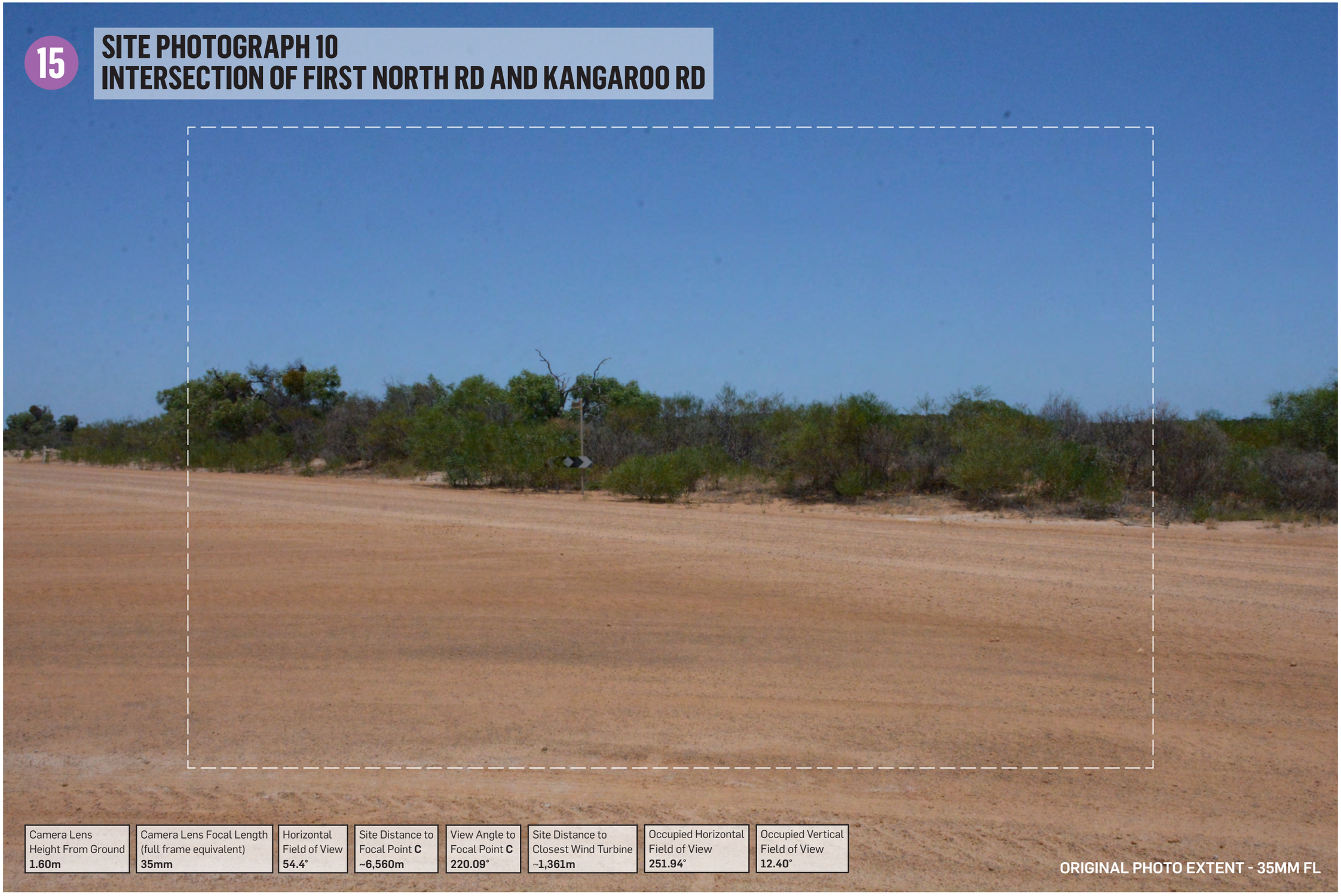
LANDSCAPE CHARACTER

This view is located at the intersection of Bunney Rd and Nebru Rd. The view looks southwest across the gravel road surface and past shrubs in the foreground towards bushland and open pasture land in the middle ground and background of the view. The view is relatively open due to the medium to low shrubs. The proposed turbines will be positioned on farmland in the middle ground and background. The turbines will be viewed above the remnant vegetation from this viewpoint.

LANDSCAPE CHARACTER

The viewpoint is taken at the entrance of 693 Robinson Rd to the northwest of the project site. The view looks across the sandy road towards the farm paddock in the direction of the proposed wind farm. Existing mature trees can be seen on the road verge and at the intersection. This view to the proposed structures is partially screened by the trees and topography within the foreground.

15 SITE PHOTOGRAPH 10
INTERSECTION OF FIRST NORTH RD AND KANGAROO RD



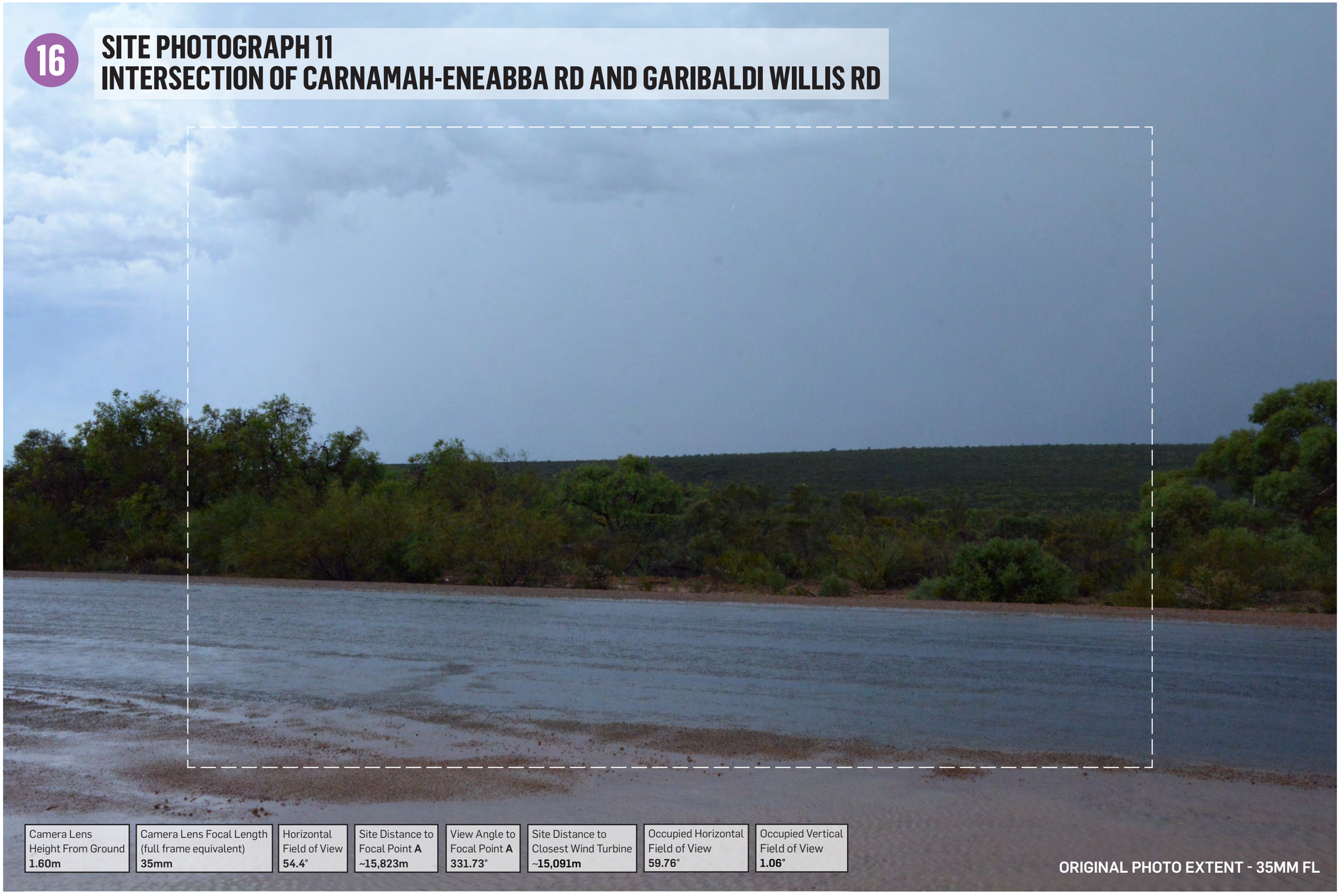
Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **C**	View Angle to Focal Point **C**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~6,560m**	**220.09°**	**~1,361m**	**251.94°**	**12.40°**

ORIGINAL PHOTO EXTENT - 35MM FL

LANDSCAPE CHARACTER

The viewpoint is taken from the verge intersection of First North Rd and Kangaroo Rd to the southwest of the development area. The view looks across the gravel road towards roadside vegetation in the direction of the project site. Two road signs can also be seen within the view. The turbines will be prominent from this location due to the close proximity. Views to the turbines will be partially obstructed by vegetation within the foreground.

16 SITE PHOTOGRAPH 11
INTERSECTION OF CARNAMAH-ENEABBA RD AND GARIBALDI WILLIS RD



LANDSCAPE CHARACTER

This viewpoint is at the intersection of Carnamah-Eneabba Rd and Garibaldi Willis Rd and looks across the Tathra National Park toward the development site. Roadside shrubs can be seen in the middle ground. The natural shrub covered ridgeline within Tathra National Park can be seen in the middle ground and will screen the view of the proposed turbines.

17 SITE PHOTOGRAPH 12
ENTRANCE OF WESTERN FLORA CARAVAN PARK

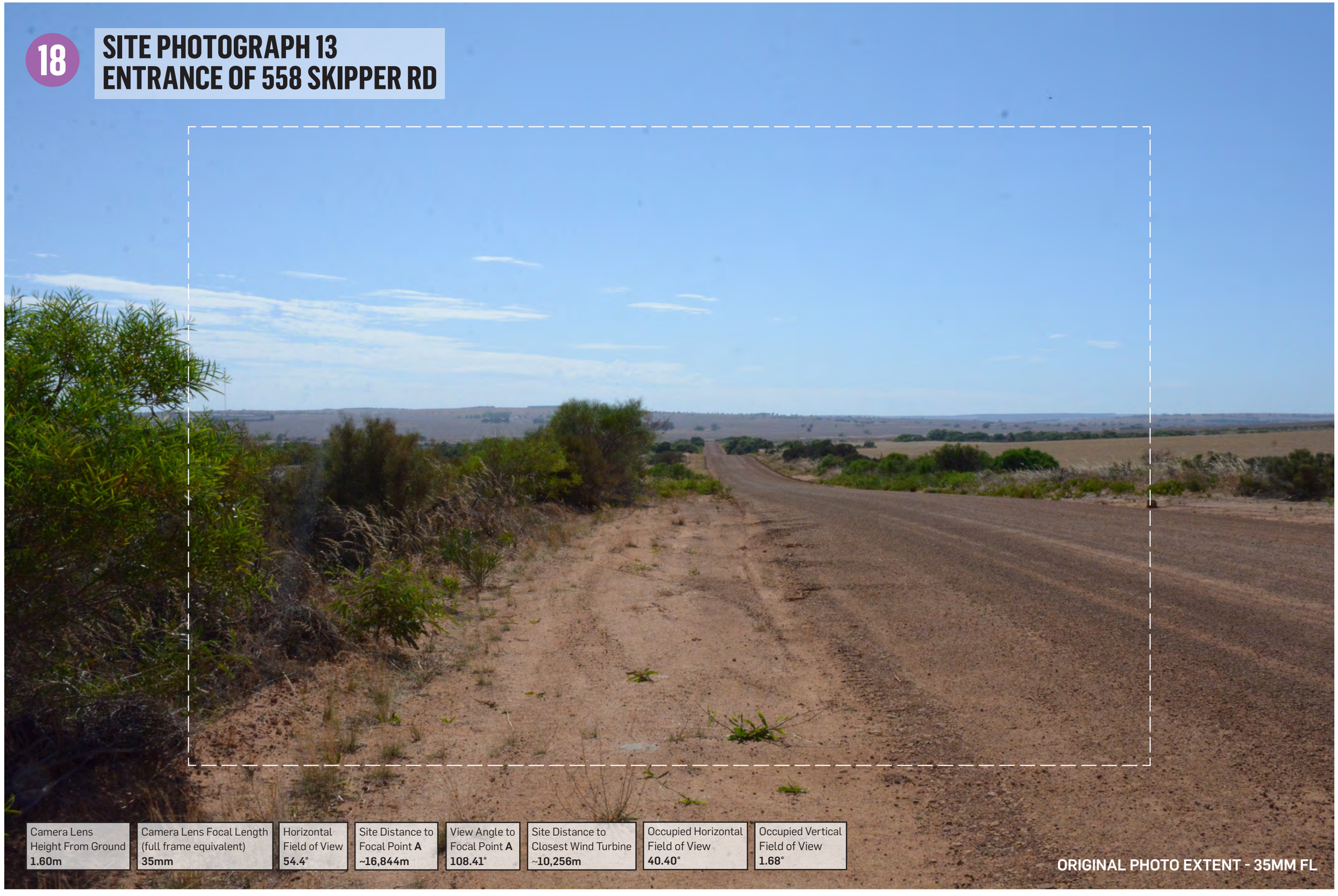
Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **A**	View Angle to Focal Point **A**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~23,047m**	**102.78°**	**~16,554m**	**26.89°**	**1.04°**

ORIGINAL PHOTO EXTENT - 35MM FL

LANDSCAPE CHARACTER

The viewpoint is taken from the entrance of the Western Flora Caravan Park on Brand Hwy. The view looks across the Brand Hwy towards remnant roadside vegetation comprising dense shrubs with some mature trees. A Western Flora Accommodation signage is standing in front of the vegetation on the verge. The view to the proposed turbines is likely to be screened by the existing roadside vegetation.

18 SITE PHOTOGRAPH 13
ENTRANCE OF 558 SKIPPER RD



LANDSCAPE CHARACTER

The viewpoint is located at the side road entrance of 558 Skipper Rd and looks southeast to the development site. The view looks along Skipper Rd which is lined with roadside shrubs and surrounded by paddocks with pockets of remnant vegetation. The view remains relatively open looking uphill towards undulating farmland and a ridgeline in the background. The proposed turbines will be visible on the ridgeline in the background and will be partially screened by vegetation located within the foreground.

19 SITE PHOTOGRAPH 14
ENTRANCE OF ELLIOTS SHEEPMASTER ENEABBA

Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **C**	View Angle to Focal Point **C**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~8,334m**	**342.56°**	**~8,172m**	**65.32°**	**2.11°**

ORIGINAL PHOTO EXTENT - 35MM FL

LANDSCAPE CHARACTER

The viewpoint is taken from the verge on Three Springs-Eneabba Rd at the entrance of Elliots Sheepmaster Eneabba. The view looks across a rising paddock in the direction of focal point C to the southwest of the development area. Mature trees are standing in the foreground with a post and wire lot boundary fence behind. The view to the turbines will be screened by the rising topography from this location.

20 SITE PHOTOGRAPH 15
ENTRANCE OF 1185 SKIPPER RD

Camera Lens Height From Ground	Camera Lens Focal Length (full frame equivalent)	Horizontal Field of View	Site Distance to Focal Point **A**	View Angle to Focal Point **A**	Site Distance to Closest Wind Turbine	Occupied Horizontal Field of View	Occupied Vertical Field of View
1.60m	**35mm**	**54.4°**	**~12,618m**	**121.15°**	**~6,193m**	**63.25°**	**2.57°**

ORIGINAL PHOTO EXTENT - 35MM FL

LANDSCAPE CHARACTER

The viewpoint is taken at the entrance of 1185 Skipper Rd and the view looks southeast towards the development area. The view looks across Skipper Rd towards roadside shrubs with the undulating farmland and the remnant bushland in the middle ground and background beyond. The natural topography and roadside vegetation will partially screen the view from this viewpoint. The proposed wind turbines will be positioned on the ridgeline in the background.

8.0 SUMMARY AND MITIGATION

8.1 IMPACTS ON VIEW EXPERIENCE

The viewshed and 3D modelling results showed that the development area may be visible from 20 identified view locations within the study area. The analysis of five photomontages (refer **Table 8 Assessed Visual Impact**) revealed that the view of the development proposal will available or partially available from the identified locations. For the remaining 15 viewpoints the view to the turbines is likely to be fully screened in six locations and partially screened in the remaining nine locations.

Viewpoint No.	Viewpoint Name	Assessed Visual Impact
01	Intersection of Three Springs-Eneabba Rd and Reserve Rd	**MODERATE**
02	Entrance of 3282 Three Springs-Eneabba Rd	**MODERATE**
03	Entrance of 1741 Bunney Rd	**LOW/MODERATE**
04	Entrance of 1783 Skipper Rd	**MODERATE**
05	Entrance of 757 First N Rd	**LOW/MODERATE**

Table 8 Assessed Visual Impact

The viewshed analysis (Refer **Figure 4 Proposed Structures Visibility Within 30km Buffer**) showed that foreground views of the project site are publicly available from locations along Kangaroo Rd, First North Rd, and Three Springs-Eneabba Rd through gaps in the existing remnant vegetation in and surrounding the development lot within the undulation of the topography.

Middle ground views of the project site will be available from the view locations along Three Springs-Eneabba Rd toward to focal point A and B(Viewpoint 1, Viewpoint 2 and Viewpoint 10), Bunney Rd toward to focal point D (Viewpoint 13), Skippers Rd toward focal point A (Viewpoint 4 and Viewpoint 20), First North Rd toward focal point C and D (Viewpoint 5 and Viewpoint 15), and Beekeepers Rd toward focal point A (Viewpoint 6).

Background views of the project site from Bunney Rd toward to focal point A (Viewpoint 3), along Three Springs-Eneabba Rd toward to focal point C (Viewpoint 19), along Skippers Rd to focal point A (Viewpoint 18), along Rose Thomson Rd (Viewpoint 12), and along Robinson Rd (Viewpoint 14) are also available but will be less clear at distance. Background views from the Arrino Station, Three Springs Townsite and along the Brand Hwy will not available due to the restriction of vegetation and landform.

8.2 IMPLEMENTATION AND VISUAL IMPACT DURING CONSTRUCTION

Prior to construction and removal of any existing vegetation, it is recommended that seed collection take place through the surrounding endemic vegetation areas to ensure there is suitable endemic seed available for rehabilitation planting if required. Visual impact mitigation works should be carried out prior to construction where possible to allow the maximum time for establishment of new plantings.

Construction zones, construction specific access roads and site compound areas are to be located in areas that create low impact on existing vegetation. Where endemic vegetation requires removal, this should be restored with new endemic planting once construction has been completed where practicable.

Following the completion of construction activities, re-vegetate affected areas where practicable to reinstate any disturbed endemic vegetation areas to return the quality of the immediate surroundings to as close to that prior to construction commencing.

8.3 MITIGATION STRATEGIES

The proposed development includes installation of large turbines and other built form structures. The focus of the visual assessment has been to look at the impact of these structures from public viewpoints at locations where the view may be impacted.

Under the Visual Landscape Planning in Western Australia (WAPC 2007) guidelines, mitigation is required where wind farms cause significant visual changes, particularly in high-value scenic areas and locations with cultural or recreational significance.

Mitigation should reduce turbine visibility through strategic landscape design, such as planting native vegetation buffers or careful siting to minimise exposure. On-site and off-site landscaping can assist in screening infrastructure and reducing visual impacts.

Visual Landscape Planning in WA (WAPC 2007) identifies a series of methods to ameliorate visual impact of wind turbines. The mitigation strategies presented below are in line with these recommendations, can assist in the preparation of detailed designs, and can help to clarify possible scope of work for landscape treatment.

Foreground Visual Screening / Forward Planting

- Visual screening is to be considered in areas of high visual sensitivity, such as close to residences and other areas where amelioration of views to the wind farm may be required.
- For affected dwellings (within 4 kilometers of turbine), off-site landscaping can be developed in consultation with landowners to provide vegetation screening.
- Given the height of wind turbines, visual screening within a setting is most effective when the screening is closer to viewpoints.
- Planting to screen views of the wind farm should attempt to avoid impeding the existing significant views to the broader landscape.

Remnant Vegetation Actions

Specific mitigation strategies should include the following:

- retain existing roadside and other significant bands of vegetation,
- minimise the extent of native vegetation removed or disturbed by new development, and
- where disturbance of native vegetation occurs, reinstate the vegetation following decommissioning.

Turbine Design Actions

- Non-reflective coatings must cover all of the structure, including fastenings between the blades and the hub.

Turbine Placement Actions

- Control the placement of turbines to ensure a balanced distribution that avoids overly dense clusters or linear arrangements that could lead to visual monotony.
- Areas of high scenic value or proximity to residential zones should be prioritised for lower turbine densities to reduce visual dominance.

Project Infrastructure Actions

- Use of low-profile and unobtrusive building designs to minimise the urbanised appearance or industrial character of sites located in rural or remote areas.
- Align the built style of the substations and other above ground structures with the existing built style of the area.
- Bury powerlines underground within the site, except where prohibitive cost or challenging terrain makes this unfeasible. Design equipment, such as transformers and switchgear are to be visually unobtrusive, either by concealing them within existing structures or by using landscaping to minimise their visual impact.
- Where practicable, select material colours for new structures to blend into the surrounding landscape (pasture/vegetation coloured) and lower their visibility.

Light Spill

Specific mitigation strategies should include the following;

- Light spill from the turbines should be minimised where possible to reduce impacts on surrounding residential areas, Flight/aviation warning lighting must however be designed to comply with aviation safety standards.
- Security lighting throughout the wind farm and the substation should be designed to decrease the contrast between the wind farm and the nighttime landscape of the area.
- Motion detectors should be used to activate nighttime security lighting where practicable.

Dust Control

- Undertake staged clearing of vegetation to limit the number of open areas causing erosion / wind-blown sand during construction.
- Consolidate roads and reduce the need for clearance of large areas of ground cover vegetation for roads where practicable.
- Revegetation of any cleared areas no longer required.

8.4 MITIGATION EFFECTIVENESS

Mitigation measures when incorporated into the design process, such as those outlined above, will have a positive effect on reducing the visual impact of the proposed wind farm. The effect of measures will be greatest for sensitive static viewpoints such as residences lacking existing screening vegetation.

9.0 CONCLUSION

9.1 PERCEPTIONS OF CHANGE

The visual impact of the Twin Hills Wind Farm is inherently linked to public perception. While the extent to which the wind turbines are visible from key viewpoints can be objectively measured, the degree to which they are perceived as intrusive or acceptable is influenced by individual attitudes toward change and renewable energy infrastructure.

Community acceptance of wind farms varies widely. In areas where renewable energy is valued, turbines may be seen as positive additions to the landscape. Conversely, in locations where landscape integrity is prioritised over infrastructure, they may be viewed as intrusive. The visual impact of turbines is also shaped by their perceived function-elements associated with safety and progress, such as lighthouses or control towers, are often accepted within a landscape.

Local residents and users of the surrounding area will have diverse perspectives on the project, influenced by personal values, familiarity with the setting, and their expectations of how the landscape should be maintained or altered. These factors must be considered in assessing and mitigating visual impacts.

9.2 LEVELS OF IMPACT

The visual impact assessment concludes that the project is located in an area with typically low sensitivity to visual change, where the surrounding landscape, already extensively modified for agricultural use, can accommodate the proposed wind turbines.

The development will introduce a change in landscape character at the local, sub-regional, and regional scales. The study area consists of an open, slightly undulating terrain, predominantly comprising nature reserves, road corridors, and farmland - a landscape assessed as having a low to low-moderate scenic quality.

The broad visual catchment of the project is due to:

- The height of the turbine structures.
- The open nature of the rural farmland.
- Limited areas of retained tall vegetation.
- The undulating topography of the site.

The five photomontages of the visual impact assessment identified two viewpoints as areas of low/moderate visual impact, three viewpoints as areas of moderate visual impact.

Where the project has the potential to create a moderate visual impact or greater, mitigation measures should be explored on a case by case basis in consultation with the affected stakeholder, and a qualified landscape architect.

Low/Moderate Visual Impact

The project development will have a low/moderate impact on viewpoints where it is visible but does not attract attention and blends in well with the landscape, including:

- PHOTO-SIMULATION 3 - ENTRANCE OF 1741 BUNNEY RD
- PHOTO-SIMULATION 5 - ENTRANCE OF 757 FIRST N RD

These locations may be visually sensitive however mitigated by distance or frequency. The development when viewed from these locations will not detract greatly from the view experience.

Moderate Visual Impact

The visual analysis identified locations within the study area where a moderate level of visual impact will result from the proposed development including:

- PHOTO-SIMULATION 1 - INTERSECTION OF THREE SPRINGS-ENEABBA RD AND RESERVE RD
- PHOTO-SIMULATION 2 - ENTRANCE OF 3282 THREE SPRINGS-ENEABBA RD
- PHOTO-SIMULATION 4 - ENTRANCE OF 1783 SKIPPER RD

At these viewpoints, the turbines will be visible in the middle ground, altering the existing views. While they will not necessarily dominate, their presence will be noticeable. In such cases, mitigation measures may be implemented.

For road users, the transient nature of viewing and the presence of roadside vegetation assist in reducing visibility. Where gaps in roadside vegetation exist, additional planting may help screen the turbines from sensitive viewpoints.

Off-site landscaping/vegetation screening when placed in close proximity to the viewer will provide the best form of mitigation in these circumstances.

For residential properties with moderate impact, targeted mitigation, such as planting screening vegetation in proximity to key viewing areas, can be implemented in consultation with property owners to reduce visibility.

Impacts on Visual Character

The introduction of wind turbines will inevitably modify the existing visual character of the study area. However, the predominant landscape character of the Mid West region and the Shire of Three Springs, defined by undulating farmland and bushland, will remain dominant.

While the turbines will introduce a contemporary, industrial element into the landscape, their effect will be contingent on public perception. For some, they may represent an environmentally progressive feature, potentially drawing interest and tourism to the area. Others may view them as a disruption to the existing rural setting.

Mitigation Strategies

While the economic, social, and environmental benefits of the Twin Hills Wind Farm are expected to outweigh the identified visual impacts, it is essential to adopt appropriate mitigation strategies where required.

It is recommended to consult with a registered landscape architect to assist in the preparation of a comprehensive mitigation plan for the wind farm development.

Key initiatives to reduce visual impact include:

- Utilising natural topography and vegetation: Positioning turbines to take advantage of existing landforms and tree cover to reduce visual prominence.
- Retaining existing vegetation: Minimising disturbance to established vegetation, particularly where it provides effective screening.
- Introducing targeted screening vegetation: Planting in close proximity to key viewing locations to mitigate visibility impacts, particularly for residences requesting mitigation planting and key viewpoints.

The Twin Hills Wind Farm will alter the visual landscape, introducing a new, large-scale infrastructure element into an otherwise open, rural setting. The level of visual impact will vary depending on location, viewing distance, and individual perceptions of renewable energy infrastructure.

Visual impacts are primarily experienced in close proximity to the turbines, where their scale and movement are most apparent. To mitigate these effects, targeted screening measures, such as vegetation planting or structural screening, can be implemented either on-site or off-site at key locations, including surrounding residences, to reduce visual prominence and integrate the turbines more effectively into the landscape.

While some viewpoints will experience moderate visual impact, these effects can be mitigated through a combination of careful site selection, strategic planting, and public engagement. Overall, the existing landscape character will remain legible, and the wind farm will contribute positively to broader sustainability goals.

A balanced approach that acknowledges both visual sensitivity and the benefits of renewable energy is essential in ensuring that the Twin Hills Wind Farm integrates harmoniously into the landscape while minimising its impact on key viewpoints.

10.0 PHOTO-SIMULATION PROCESS

10.1 DATA SOURCES

Camera Equipment:

- Camera body: Nikon D7100 - 24.1MP DX format CMOS sensor
- Lens: Nikon AF-P DX 18-55MM F3.5-5.6G VR

Software:

- ArcGIS and QGIS
- AutoCAD 2021
- Google Earth Pro
- Sketch-up Pro 2023
- Photoshop CC 2024
- Naviswork 2024
- Rhino 8

Data Sources

- Near Map Imagery (2024-09-12)
- Site feature survey received via client
- Proposed structure dimensions from client
- Surveyed locations of photo viewpoint locations
- Data Downloaded from Data WA (https://data.wa.gov.au/)
- Data Downloaded from Elvis (https://elevation.fsdf.org.au/)

10.2 METHODOLOGY

Photo-simulations provided have been produced with a high degree of accuracy. The process for producing these photo-simulations are outlined below:

Photographs have been taken on-site using the above listed equipment to obtain high-resolution photos whilst minimising image distortion. Photos are taken with the camera mounted to a tripod, at a standing height of 1.60m above natural ground level or above floor level. A combination of aerial and GPS data has been used to record the locations of the camera setup at each viewpoint location. Photos have generally been taken at a standard focal length of 50mm (full frame equivalent) or at 35mm (full frame equivalent) to cover a wider context. Where photos are wider than a 50mm focal length, a 50mm reference window is provided to assist with standardising the set for a standard view. A photo taken using the 50mm focal length on a full-frame camera (equivalent to 39.6° horizontal field-of-view) is considered an accepted photographic standard to approximate human vision.

Available geo-spatial data for the site listed above are combined to form a geo-referenced base 3D model from which additional information, such as proposed build forms, landscape and photographic viewpoints can be inserted.

Details of the proposed development are obtained from the client. All models are registered to their correct geo-location in the base 3D model.

For each photo being used for the photo-simulation, the photo's taken location and focal length is extracted, and matched in the 3D base model. A camera match is created by aligning the 3D camera with the 3D base model against the original photo, matching the original photographic location and orientation.

From each viewpoint, the final photo-simulation is then produced by compositing 3D rendered images of the proposed development into the original photo with editing performed to sit the render at the correct view depth. Photographic elements are cross-checked against the 3D model and reference materials to ensure elements such as foreground trees and buildings that may occlude views to the proposed development are retained. Conversely, where trees/buildings may be removed as part of the proposal, these are also removed in the photo-simulation.

10.3 DISCLAIMER

This Visual Impact Assessment is dated **March 2026** and incorporates images, data, information up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (Urbis) opinion in this Assessment.

Urbis is under no obligation in any circumstance to update this Visual Impact Assessment for events occurring after the date of this Visual Impact Assessment. Urbis prepared this Visual Impact Assessment on the instructions, and for the benefit only, of **Wind Prospect** (Instructing Party) on behalf of **Twin Hills Wind Farm Pty Ltd** for the purpose of determination of a **Development Application** (Purpose) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this Visual Impact Assessment for any purpose other than the Purpose, and to any other person which relies or purports to rely on this Visual Impact Assessment for any purpose whatsoever (including the Purpose).

In preparing this Visual Impact Assessment, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

Urbis has recorded any data sources used for this Visual Impact Assessment within this Visual Impact Assessment. These data have not been independently verified unless so noted within the Visual Impact Assessment.

All projections and models contained in or associated with this Visual Impact Assessment are made in good faith and on the basis of information supplied to Urbis at the date of this Visual Impact Assessment, and upon which Urbis relied.

Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this Visual Impact Assessment, it is not responsible for determining the completeness or accuracy of information provided to it. The visual image in this Visual Impact Assessment showing the proposed new building structure in situ after construction is complete, is an estimate only of its possible visual impact. The actual visual impact of the new building may be impacted by a number of variables including amongst others the actual location of the building structure on the site, the topography of the site and the final height of the fully constructed building structure.

Urbis (including its officers and personnel) is not liable for any errors or omissions, including in visual representations of the completed building structure in situ, in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This Visual Impact Assessment has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this Visual Impact Assessment are given in good faith and in the reasonable belief that they are correct and not misleading and taking into account events that could reasonably be expected to be foreseen, subject to the limitations above.

11.0 REFERENCES

- Department of Planning and Infrastructure (DPI) (2007) Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design. Western Australian Planning Commission, Perth.
- Australian Institute of Landscape Architects (AILA) (2018) Guidance Note for Landscape And Visual Assessment: AILA.
- Department of Primary Industries and Regional Development (DPIRD) (2022) 2m Contour Dataset in PDF and DWG format.
- Hydro Enforced 1 Second DEM in GeoTIFF (Geo-referenced Tagged Image File Format)

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