

# KOJONUP BESS

Landscape Visual Impact Assessment  
Report 2026

UDLA



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*WE ACKNOWLEDGE THE  
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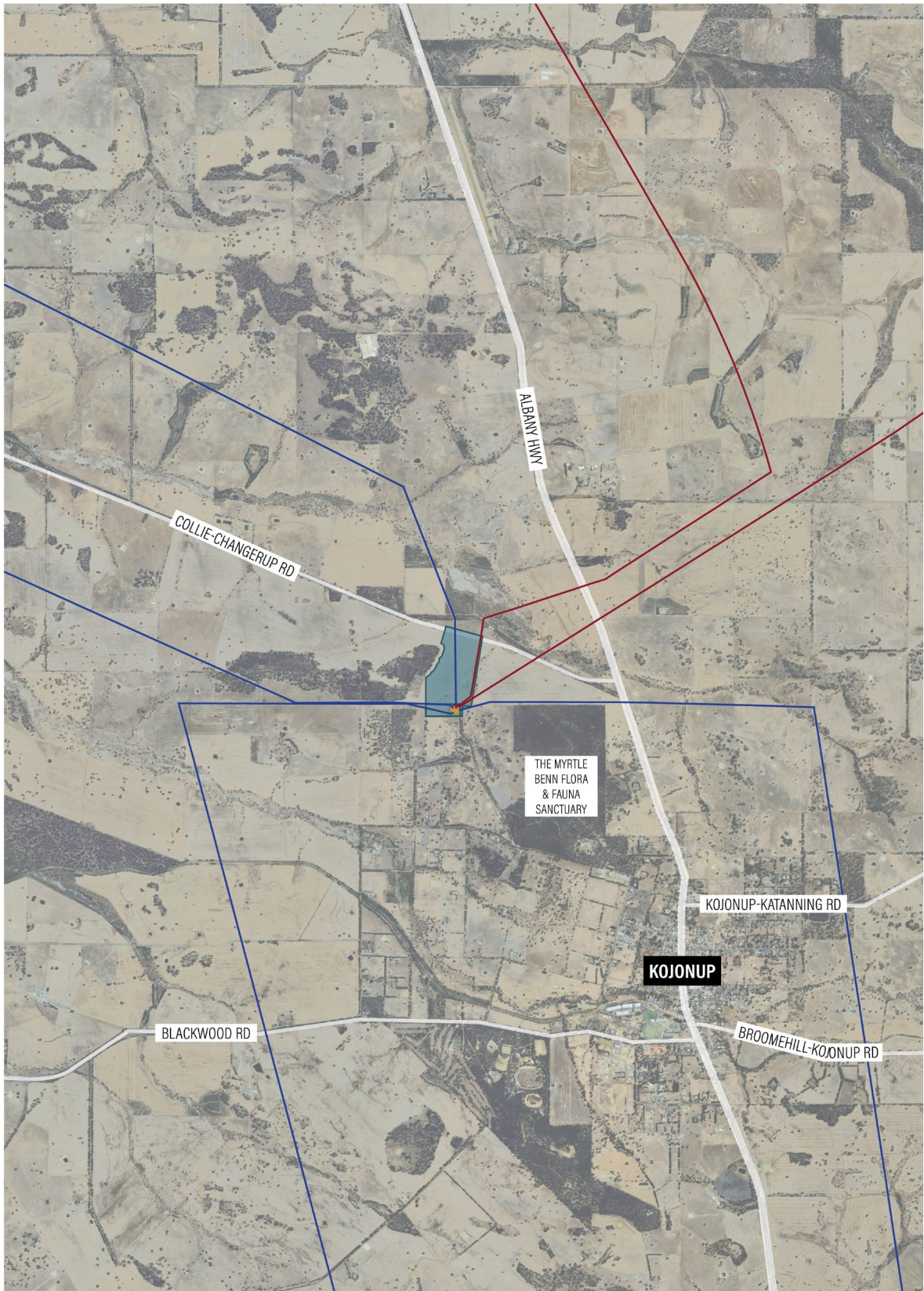
# 1. Introduction

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UDLA has been commissioned by Mint Renewables Pty Ltd (the Proponent) to undertake a Landscape and Visual Impact Assessment (LVIA) for a proposed new Battery Energy Storage System (BESS), located on private land at 3680 Collie-Changerup Road, (herein referred to as 'the Project'). The Project is located approximately 3 kilometres (km) northwest of Kojonup in the Great Southern region of Western Australia and will have a footprint of approximately 3.6 hectares (ha). The Proponent has entered into an agreement with the private landholder to facilitate the development, construction and operation of the Project. Figure 1 shows the proposed location of the Project in relation to the existing surrounding site context.

The Project has an indicative capacity of up to 800 MWh (e.g. 100 MW x 8 hours) and will be connected via the existing Kojonup Substation (which is located on lot 103 directly adjacent to the Project) through an underground connection. The Proponent is currently consulting with Western Power regarding connection and land access arrangements into the Kojonup Substation.

The Proponent is considering BESS models from multiple suppliers (to be selected post obtaining key Project planning approvals, prior to construction). All models are modular, utility-scale systems which can be delivered to site fully assembled for installation.



**PROJECT LAYOUT**

- Project Area
- Existing Kojonup Substation
- 66kV
- 132kV

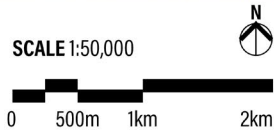


Figure 1: Project Layout

## 2. Purpose of this Report

UDLA have been engaged by the Proponent to assess the potential Landscape and Visual Impacts that might be brought about by the Project, and to define measures to avoid or reduce these impacts. This report is intended to support the broader development application for the Project.

### 2.1 Report Structure

The approach used to assess the Project's visual impacts is shown in Figure 2, and described below:

- Identify and describe the height, scale and footprint of the Project;
- Establish an appropriate assessment methodology based on the Project description;
- Determine the study area extent in relation to the height of the tallest and most visually prominent component of the Project;
- Review relevant planning controls and guidelines applicable within the study area;
- Assess visual impacts using selected viewpoints and photomontages; and
- Identify measures to minimise potential visual impacts of the Project.

This report has assessed the Project's visual impact from locations in the public domain. The assessment has also sought to identify nearby and neighbouring dwellings where the Project might also be visible. The closest dwelling is approximately 720 m to the south of the Project and is a short stay accommodation. Given the view contains the existing Kojonup Substation, the severity of any visual impacts is likely to be reduced. This will be further investigated in Chapter 10.

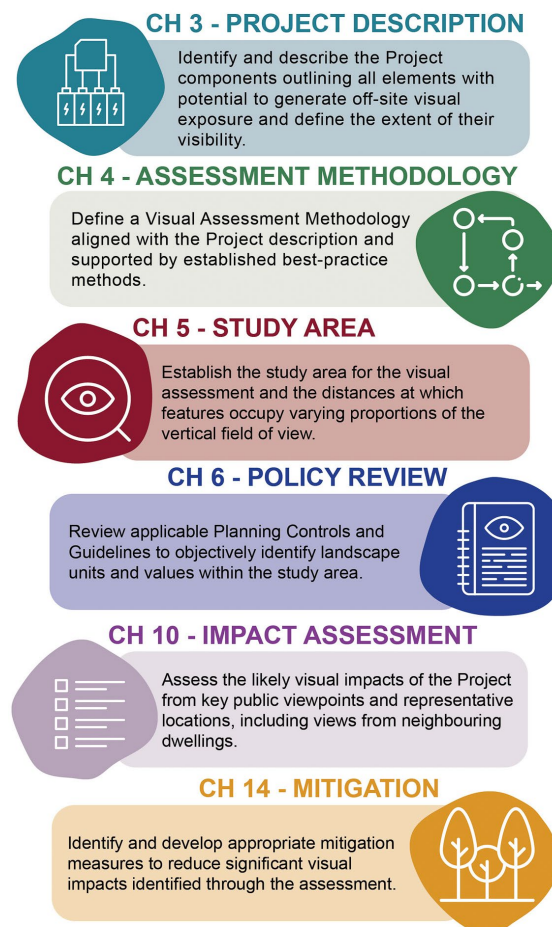
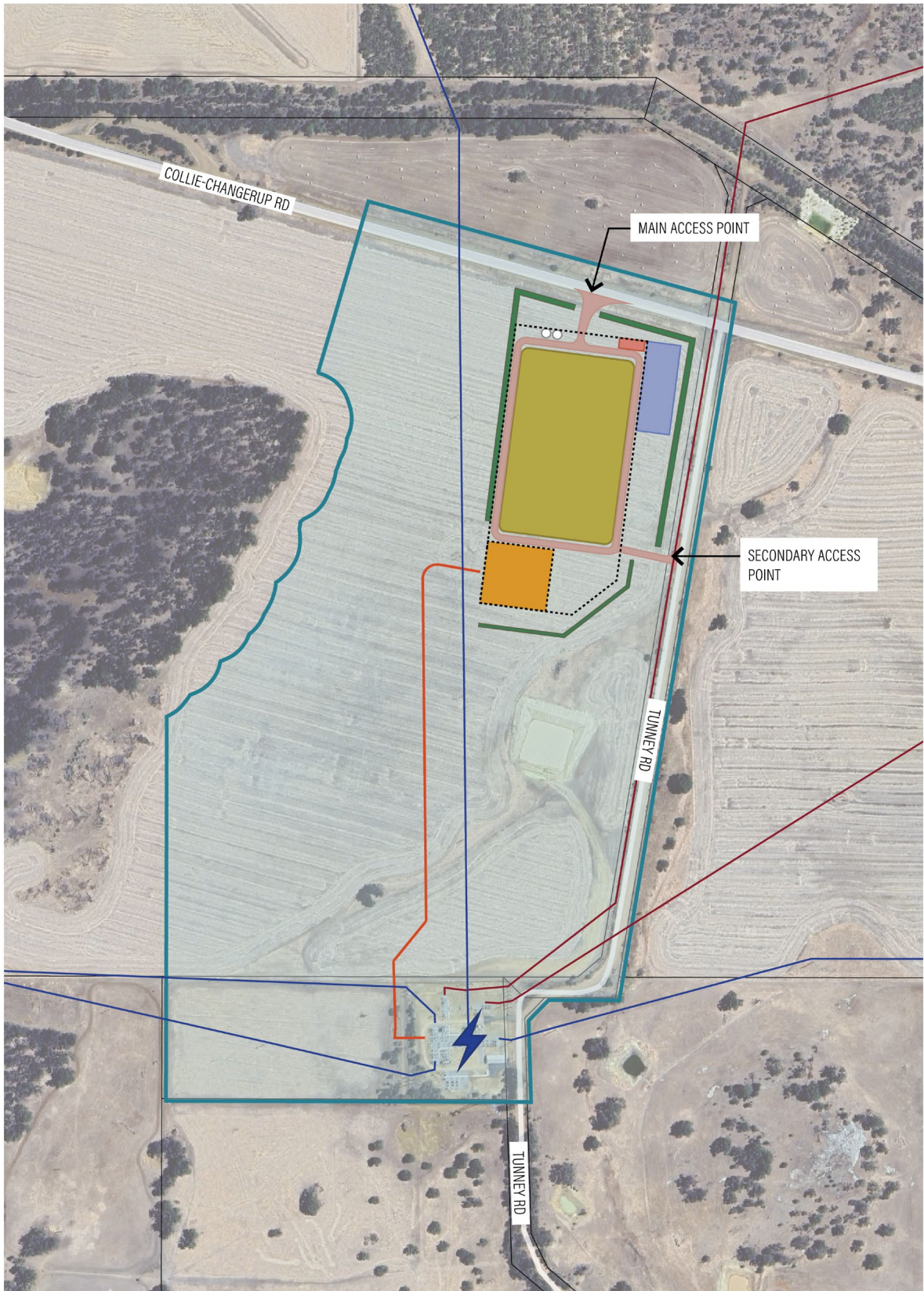


Figure 2: VIA Methodology

### 3. Project Description

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This chapter outlines the key project components that may influence views and visual amenity from surrounding areas. These elements form the basis of the methodology used to assess landscape and visual impacts. Figure 3 displays the indicative location and layout of the Project's key areas referenced below.



**KEY FEATURES AND INDICATIVE PROJECT LAYOUT**

- |                             |                        |                     |
|-----------------------------|------------------------|---------------------|
| Project Area                | Underground Cable      | Water Tanks         |
| Existing Kojonup Substation | Access Track           | Site Security Fence |
| Onsite Substation           | BESS Bench             | Lot Boundary        |
| 66kV                        | Operations Building    |                     |
| 132kV                       | Indicative Landscaping |                     |
|                             | Water Detention Area   |                     |

**SCALE 1:5,000**

0 50m 100m 200m

Figure 3: Key Features and Indicative Project Layout

### **3.1 BESS Footprint**

The Project is proposed to be located on cleared agricultural land within the Project Area, located north of the existing Kojonup Substation and connected via underground cabling. Key indicative infrastructure associated with the BESS includes:

- BESS units, inverters and transformers;
- Civil and structural works including laying of crushed rock;
- Internal access roads and access (and egress) points;
- Underground cabling (33 kV) to provide a connection between the battery units and inverters and on-site substation;
- Onsite substation including transformer to step up from 33 kV to the connection voltage at 132 kV, reactive power support equipment, protection and control devices;
- Underground cabling (132 kV) to connect the onsite substation to the existing Kojonup Substation;
- Permanent Operations and Maintenance (O&M) Facility;
- Water storage (including firefighting water supply and fire water runoff containment/stormwater detention basin);
- A new access point off Collie-Changerup Road (Main Access), and a new access point off Tunney Road (Secondary Access);
- Security fencing;
- Car parking;
- Landscape mitigation screening, as required;
- Business identification signage at the Main Access point; and
- Temporary disturbance for construction compound and laydown and work areas.

### **3.2 Onsite Substation Footprint**

An onsite substation is proposed between the indicative BESS location and the existing Kojonup Substation.

Key indicative infrastructure associated with the onsite substation include:

- Transformer and switching equipment;
- Security fencing surrounding the onsite substation
- Associated control equipment, switch rooms and reactive plant elements; and
- Supporting access tracks and firebreaks.

### **3.3 Kojonup Substation Works**

Works within the existing Kojonup Substation will be required to facilitate connection of the Project into the grid. This may involve a range of enabling works to support construction, connection and operation of the Project.

### **3.4 Construction and Laydown**

Construction activities will require temporary laydown and assembly areas. These areas are proposed around the main BESS facility and onsite substation as suitable space exists between the substation and potential BESS footprint, with characteristics expected to include:

- Temporary construction compound(s) for equipment storage, laydown and staging; and
- Temporary carparking for construction personnel.

Details of the temporary site infrastructure will be known once the preferred BESS supplier and Balance of Plant (BoP) contractor have been selected. A construction duration and footprint will be confirmed as part of detailed design and construction planning. Following completion of construction, temporary facilities would be removed, and any hardstand areas not required for ongoing operation would be rehabilitated in consultation with the landholder.

### **3.5 Landscaping**

A 5 m landscape buffer is proposed along the northern, eastern and western boundaries of the BESS footprint. This width allows for layered planting, this may comprise a double row of trees and an understory shrub layer, to provide effective visual screening as vegetation establishes over time. Along sections of the southern boundary adjoining the onsite substation, and along the diagonal eastern connection between the substation and BESS footprint, a planting width of 3 m is proposed. This narrower buffer is suitable for single-row tree planting, supported where appropriate, by low-scale understory planting, while maintaining operational, safety, and fire management requirements. The specific design will be determined in the detailed design phase, in consultation with the relevant authorities.

Overall, the landscape buffer arrangement is designed to balance visual screening effectiveness, site functionality, and constructability, while remaining consistent with the existing rural context and fire safety management. Final species selection and layout will require coordination with bushfire management requirements and relevant fire authorities, which may influence achievable density, species type and proximity to infrastructure. The design phase will aim to ensure landscaping treatments are appropriate and effective without causing unintended view obstruction or amenity impacts to surrounding neighbouring landholders.

The approach includes establishing vegetation buffers around the Project footprint to reduce long-term visibility and integrate the infrastructure into the wider agricultural setting. The efficiency of landscape screening to mitigate views of the Project is further explored in Chapter 9: Theoretical Visibility.

### **3.6 Relevance to this Assessment**

The adopted landscape and visual assessment methodology must respond directly to the scale and form of the Project. The tallest vertical component will likely be the lightning rods, up to 20 m in height. While narrow and visually lightweight compared to other infrastructure elements, their height forms the basis for determining Zones of Visual Influence (ZVI) and identifying viewpoints where the Project may be discernible in the wider landscape.

As outlined in Section 4.1 and Chapter 5, the study area has been defined conservatively based on the visual reach of these structures, ensuring assessment captures locations where the Project may be visible above existing vegetation, terrain or built form. The methodology applied to this assessment considers:

- Landscape character and sensitivity;
- Potential visibility based on topography and feature height;
- Viewpoint-based field verification; and
- Identification of feasible mitigation measures, including landscape screening.

This approach ensures that the scale, placement and visual influence of Project components are appropriately examined.

## 4. Assessment Methodology

There is no Australian or Western Australian legislation, methodology or policy that mandates a landscape and visual impact assessment in Western Australia (WA). However, various planning, environmental and heritage frameworks, such as *Visual Landscape Planning in Western Australia* (2007), reference landscape sensitivity and the management of visually amenity. The methodology adopted for this LVIA has been informed by previous assessments undertaken for comparable projects by other Proponents in the Kojonup area, such as Kojonup Wind Farm, Flat Rocks Wind Farm and Flat Rocks Wind Farm Stage 2, along with relevant Australian guidance documents. The methodology used has been set out below.

### 4.1 Study Area

The study area refers to the extent within which Project elements may be visible and where the development has the potential to result in a noticeable visual effect. The vertical field of view is used as a basis for determining this extent, providing an understanding of how much of the human visual field a feature occupies. Figure 4 illustrates the principles of the vertical field of view and key parameters of human vision in relation to this Project.

Central vision typically spans approximately 10° when standing (around 15° when seated). Features occupying less than roughly five per cent of this viewing cone may still be perceptible but are unlikely to present as prominent visual elements.

For the purpose of this assessment, distance calculations are based on the 20 m high lightning rods, being the tallest structures within the Project. Despite their height, the rods are slender elements located within the on-site substation and are anticipated to be visually unobtrusive.

The study area boundary is defined at the distance at which a 20 m rod occupies less than five per cent of the normal vertical field of view (0.5°). This occurs at approximately 2.5 km, which has therefore been adopted as the landscape and visual study area threshold. Beyond this distance, the Project may still be visible in some instances; however, if present, it would read as a recessive background element occupying less than 0.5° of vertical view.

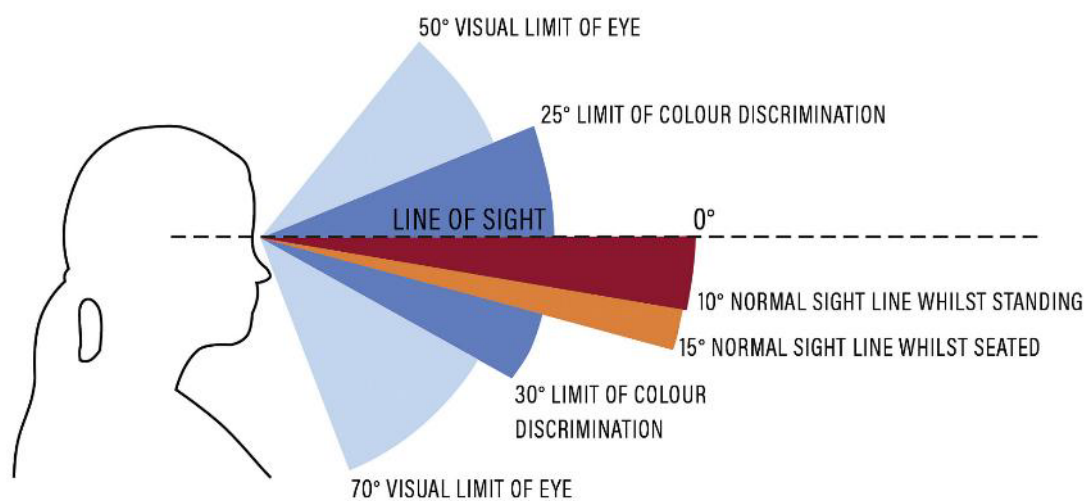


Figure 4: Vertical Field of View

## 4.2 Policy Review

Relevant government policies and guidelines, as detailed in Chapter 6, were reviewed to establish key objectives and considerations for the landscape and visual impact assessment. This process focused on understanding and describing the landscape character, features and values of the Project Area and its surrounds.

The policy review also identified legislation and planning frameworks that recognise landscape qualities, including areas of sensitivity such as key road corridors, tourist destinations, residential interfaces and community-valued places. These areas, and their relevance to the assessment, are detailed further in Chapter 6.

## 4.3 Landscape Character and Viewer Sensitivity

Landscape Character Units (LCUs) are determined by both the natural patterns of the landscape and existing or intended land-use outlined within relevant planning frameworks. Key contributors to landscape character include geology, landform and topography, vegetation, waterways and drainage, as well as areas that have been modified through development or management practices.

Definitions and assessment criteria for this LVIA are informed by *Visual Landscape Planning in Western Australia* (Western Australian Planning Commission, 2007). *Viewshed* is defined as a portion of the landscape that can be seen from one or more observer positions. The extent of area that can be viewed is normally limited by landform, vegetation and distance. Policy and guideline context within the study area also informs the desired landscape outcomes, assisting in identifying where landscape character is to be protected, enhanced or maintained.

## 4.4 Visual Impact Assessment

Visual impact assessment considers how a development alters the appearance of the landscape and how these changes are perceived by people, noting that impacts may be positive or negative.

*Observer position* refers to the placement and relationship of a viewer to the landscape that is being viewed, whereas *viewpoint* refers to the point from which a view is observed.

### 4.4.1 Publicly Accessible Locations

Viewpoints have been selected from locations that are representative of key views from roadways where people are most likely to stop, such as rest areas, as well as areas where it was apparent that the Project has the highest potential to be visible, representing key public viewing locations.

Visual impact from each location has been assessed using a series of qualitative criteria, outlined below. These criteria guide how visual change is interpreted from the public realm.

### 4.4.2 Landscape Impacts

*Landscape impacts* are changes in the character and quality of the landscape that occur as a result of development, while *visual impacts* relate to the appearance of these changes. Some developments can fundamentally reshape landform, vegetation and land use (e.g., subdivision, mining), whereas others such as wind or energy infrastructure, may be introduced without significant modification to underlying landscape patterns.

#### 4.4.3 Visibility

Visibility refers to whether a feature and/or landscape can be seen or not, as well as how far away the feature and/or landscape is from the observation point. If the Project is not visible from a viewpoint, no visual impact occurs.

#### 4.4.4 Distance

The apparent scale, prominence and visibility of infrastructure reduce with distance. Zones of Visual Influence (ZVI) mapping helps illustrate where visibility and potential dominance may occur.

#### 4.4.5 Viewing Duration and Experience

Duration considers how long and in what context the Project is viewed, not by minutes, but by use and occupation. Views experienced from recreation areas, lookouts or residential curtilage are typically afforded greater weight than fleeting views from vehicles or incidental glimpses along road corridors.

#### 4.4.6 Landscape Character and Sensitivity

Sensitivity is influenced by the existing landscape character: landform, vegetation, land use, naturalness and planning context. Landscapes that are highly natural, valued or protected are generally more sensitive to change than those that are already modified or developed.

#### 4.4.7 Viewer Exposure and Audience

The magnitude of impact is influenced by how many viewers are exposed to the change and the nature of their experience. Locations with high visitation or recognised scenic value may experience greater sensitivity than low-use or peripheral routes.

Visual impact is determined through professional judgement rather than a numerical scoring system. Assessment considers the combination of these factors at each viewpoint to form a qualitative rating of likely visual effect. This approach aligns with the methodology outlined in the *UK Guidelines for Landscape and Visual Impact Assessment, Third Edition* published by *The Landscape Institute, Institute of Environmental Management and Assessment* (2013).

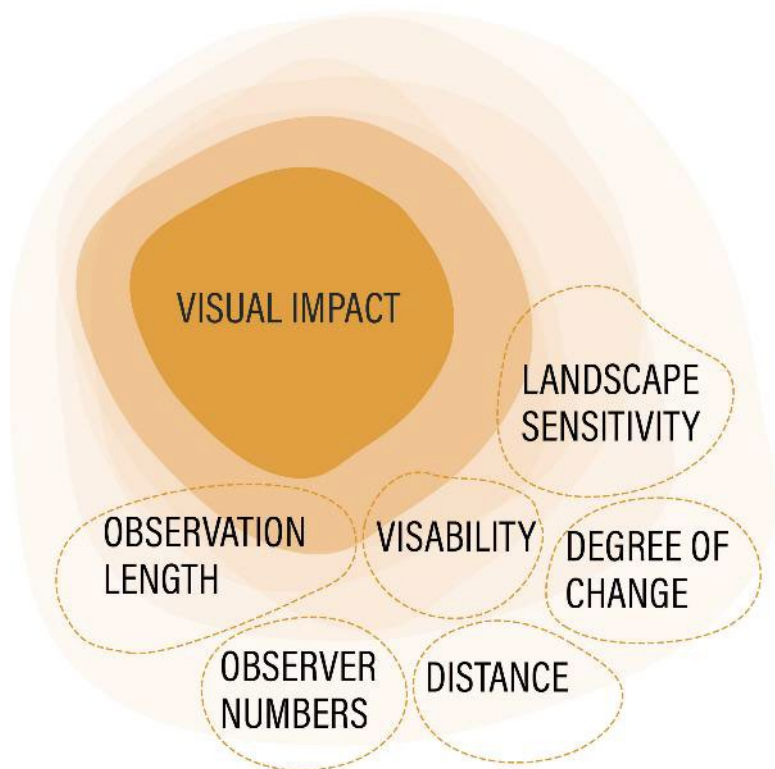


Figure 5: Degree of Impact

The relationship between assessment criteria and visual impact is illustrated in Figure 5.

The overall visual impact at each viewpoint will range between Nil and High. The definition for each scale is explored in Section 4.5: Scale of Effects.

## 4.5 Scale of Effects

Table 1 outlines the scale of effects used to assess the overall visual impact for each viewpoint from Nil, where the Project is not visible, to High, where the Project is fully visible.

Table 1: Scale of Effects

Overall Visual Impact	Definition
<b>Nil Visual Impact</b>	An overall assessment of <b>Nil</b> is achieved where a Project will be screened by topography, vegetation, buildings and other structures, or project features are at such a distance that they will no longer be a readily discernible feature in views.
<b>Negligible Visual Impact</b>	An overall assessment of <b>Negligible</b> is a minute effect barely discernible over ordinary day-to-day views. A 'negligible' level of visual impact would typically occur where a Project will be at a distance that it would be a minute element in views or will be filtered by vegetation or partially screened by features such as topography or buildings. An overall assessment of negligible may also occur where the Project is added to views that already include many similar features.
<b>Low Visual Impact</b>	An overall assessment of <b>Low</b> will be achieved where a Project is noticeable but will not cause significant adverse impacts. For example, a "low" level of visual impact will be assessed if the rating of several, but not all, assessment criteria (visibility, distance, viewer numbers and landscape sensitivity) is assessed as low.  Examples of a low level of visual impact are where the Project is visible in a highly modified landscape, few people will see a Project, or where views are transient rather than stationary.
<b>Moderate Visual Impact</b>	An overall assessment of <b>Moderate</b> may occur where several criteria are higher than "low", or the visual effects would be mitigated/remedied from an initial rating of High.
<b>High Visual Impact</b>	An overall assessment of <b>High</b> will be achieved where significant adverse effects cannot be avoided, remedied, or mitigated. For example, a highly sensitive landscape, viewed by many people, with a Project in close proximity and largely visible, will lead to an assessment of a high level of visual impact.

## 4.6 Mitigation Options

Mitigation measures can help reduce visual impact, particularly at sensitive locations and key visual receptors. For BESS facilities, landscape screening is the primary method for minimising visual change from static viewing points such as dwellings, public reserves and recreation areas. Proposed screening and mitigation options are outlined in Chapter 10: Impact Assessment.

### 4.1 Photomontages

Photomontages have been prepared to illustrate the likely change to the existing landscape as a result of the Project.

#### 4.1.1 Photographs

A 60mm lens on a Nikon D850 with a picture angle of 33° and a horizontal angle of view of approximately 22° was used to capture images that have informed the photomontages.

#### 4.1.2 Lens Size and Photography Methodology

Photomontages are presented using a 60° horizontal field of view, which aligns with the central portion of human vision where colour and detail perception is strongest. The vertical field of view typically falls within 10–15°, representing the central viewing cone, as illustrated in Figure 4 and Figure 6.

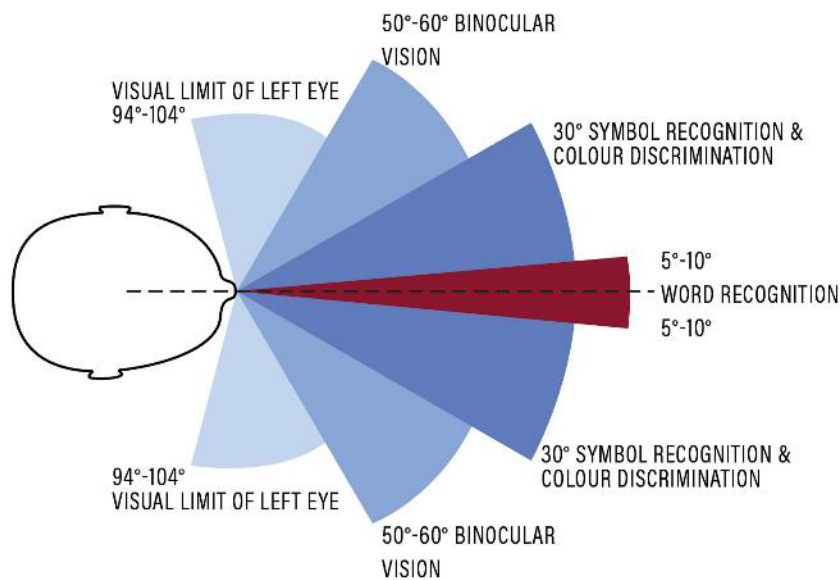


Figure 6: Horizontal Field of View

## 5. Study Area

The study area has been defined as a 2.5 km radius from the Project footprint. This distance represents the point at which a 20 m lightning rod (the tallest proposed element) occupies approximately 0.5° of the vertical field of view and therefore may still be distinguishable where visible.

It is noted that visibility may extend beyond the study area boundary; however, features viewed from outside this distance would appear as minor elements in the background. The study area and associated ZVI for the lightning rods have been applied to the entire Project footprint, acknowledging that other infrastructure, such as the BESS units (~3 m high) located on a cut bench, will sit lower and be less visually prominent.

### 5.1 Zones of Visual Influence (ZVI)

The apparent scale and prominence of Project infrastructure reduce with distance. This relationship is expressed through ZVI, which are used in the assessment to understand where Project elements may be visible and how dominant they may appear from different viewpoints. The ZVIs adopted for this assessment are summarised below in Table 2.

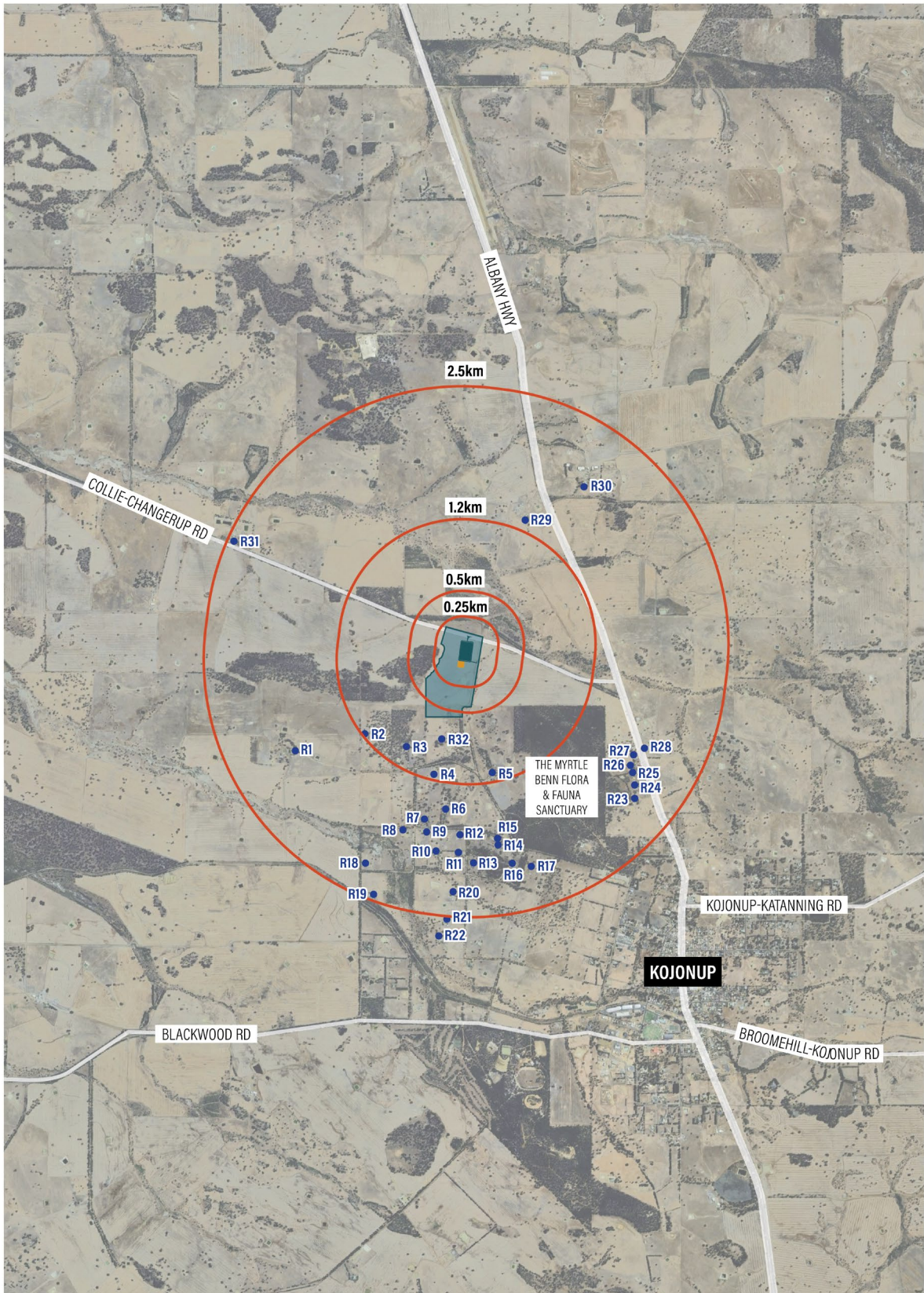
Table 2: Study Area and Zones of Visual Influence based on a 20 m Lightning Rod

Vertical View Angle	Distance to 20m High Lightning Rod	Zones of Visual Influence
<0.5	>2.5km	<p><b>Visually Insignificant – Extent of the Project study area</b></p> <p>The Project will be a small element in views, difficult to discern, and invisible in some lighting or weather circumstances.</p>
0.5 – 1.0	1.2m to 2.5km	<p><b>Discernible, but will not be dominant in views</b></p> <p>The Project will be visible, however, will not be a dominant feature in views or the landscape.</p>
1.0 – 2.5	500m to 1.2m	<p><b>Potentially noticeable and can dominate the landscape</b></p> <p>Where visible, the Project has the potential to be noticeable in view.</p>
2.5 – 5.0	250m to 500m	<p><b>Highly visible and will usually dominate the landscape</b></p> <p>The Project has the potential to be a dominant visual element in views. The degree of visual intrusion will depend on the placement of structures in the landscape and ameliorating effects of screening provided by existing features in views.</p>
>5.0	<250m	<p><b>Will be visually dominant in the landscape – Where visible</b></p> <p>The Project will be the dominant visual element in views and the landscape.</p>

Figure 7 illustrates the ZVI defined in Table 2, along with the approximate location of neighbouring dwellings (shown in yellow).

It is acknowledged that visual perception does not change abruptly between distance bands (e.g., 450 m vs 500 m). As such, ZVIs are used as a guide only and represent one of several considerations applied when assessing viewpoint sensitivity and visual impact.

The LVIA study area has been set at 2.5 km based on the 20 m lightning rods. Other components, including the BESS units, have a substantially smaller visual catchment, estimated at approximately 350m – well within the broader 2.5km study boundary.



## STUDY AREA AND ZVI

- Project Area
- BESS Bench and Access Track
- Onsite Substation
- ZVI
- Dwelling
- R1 Noise Sensitive Receivers

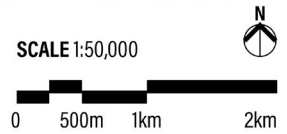


Figure 7: Study Area and Zones of Visual Influence (ZVI)

## 6. Policy Review

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The Project and broader investigation area are governed by the Shire of Kojonup Town Planning Scheme No. 3, supported by state-level renewable energy policy and visual landscape guidance. While no specific policy exists for BESS in WA, the development must respond to the rural zoning provisions, renewable energy assessment expectations, and visual landscape planning principles. An overview of the applicable planning framework relevant to landscape and visual assessment is summarised below in section 6.1.

### 6.1 Land Use Zones

The Project Area and majority of the surrounding landscape are zoned Rural Zone (Part III, Clause 3.2.7) under the Shire of Kojonup Town Planning Scheme No. 3. The Rural Zone seeks to:

- Maintain land predominantly for rural purposes;
- Protect the area from incompatible urban uses or development that may detract from rural character and amenity;
- Prevent development that may affect agricultural viability; and
- Support limited tourism and accommodation where compatible with rural landscape values.

Given the area surrounding the Project consists of cleared agricultural land and is co-located with the existing Kojonup Substation, which features numerous transmission lines running through the Project Area in order to connect to the existing Kojonup Substation, the Project is consistent with the established character of rural utility uses. The Rural Zone objectives emphasise the retention of rural landscape values and preventing visually intrusive development. As such, visual assessment, appropriate siting and potential landscape mitigation measures are central in supporting meeting the objectives of the Rural Zone.

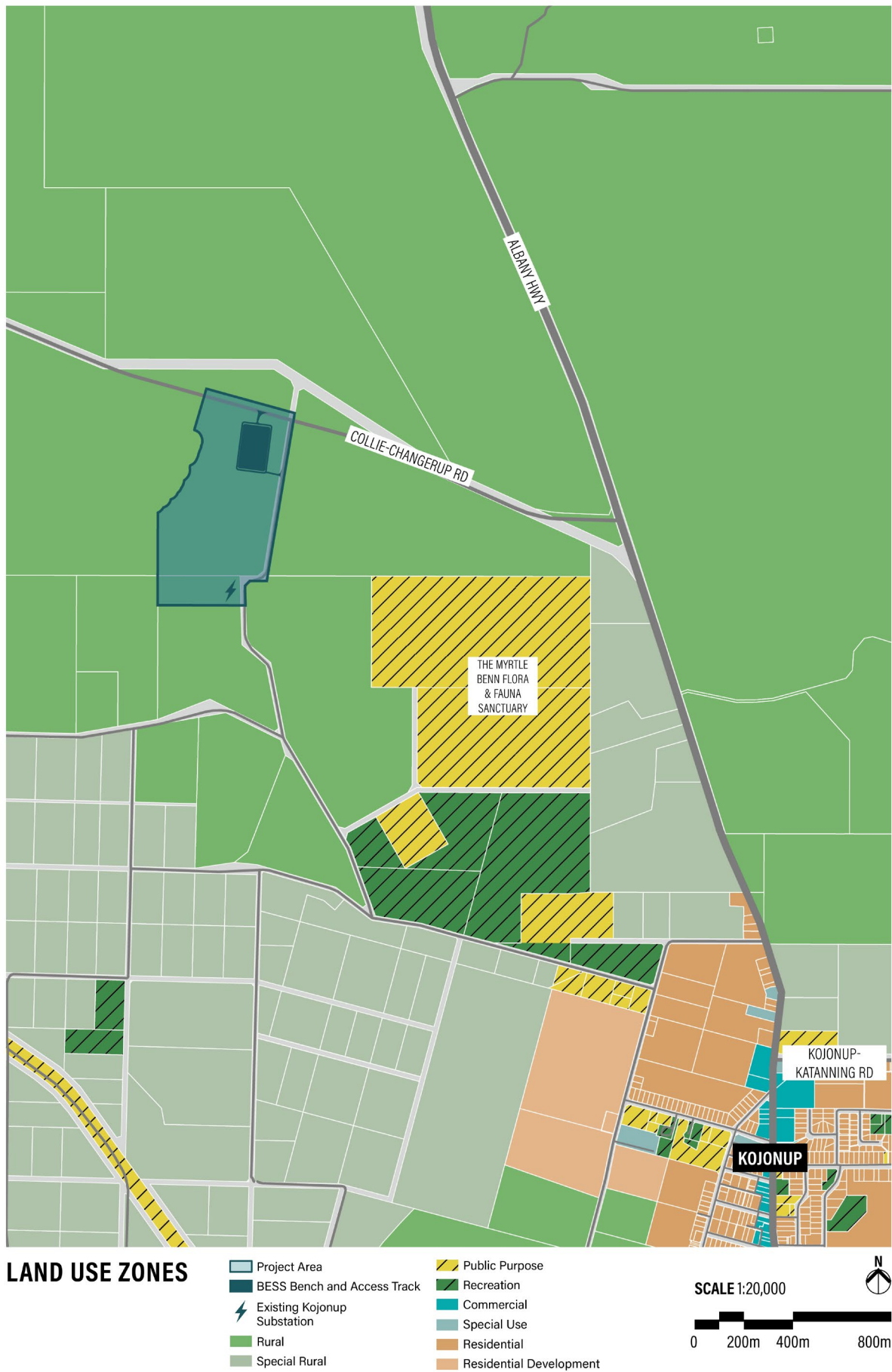


Figure 8: Land Use Zones

## 6.2 Overlays & Landscape Policy Context

No landscape-specific overlays apply to the investigation area, however, *Visual Landscape Planning in Western Australia* (2007), remains the primary reference framework for evaluating visual sensitivity and identifying suitable mitigation treatments. Key principles include visual landscape evaluation, impact assessment, and design measures to minimise visual prominence within the rural setting. Relevant state and local policy reinforcing landscape and visual considerations includes:

### 6.2.1 State Planning Position Statement – Renewable Energy Facilities (REF) (2020)

Although BESS are not technically defined as a ‘Renewable Energy Facility’, the statement requires REF proposals to consider the visual impact the development would have on its proposed site and are therefore applicable to this LVIA.

This statement requires renewable energy proposals to address:

- Landscape significance and sensitivity to change;
- Topography, vegetation clearing and landform modifications;
- Visual exposure from key public viewpoints including highways and residences;
- Design and layout considerations including height, colour and reflectivity; and
- Proposed measures to minimise visual impact.

This statement directly supports the requirement for an LVIA to be undertaken at the development stage of the proposed project.

### 6.2.2 Local Planning Policy No.10 – Wind Farms/Wind Turbines

While primarily relating to wind generation, the policy is relevant by guidance analogy for utility-scale renewable energy infrastructure. Clause 8 requires LVIA methodology consistent with Visual Landscape Planning in WA, including photo-documented viewpoints and assessment of visibility from sensitive receptors such as highways, heritage nodes and residential dwellings.

Although a BESS differs in form and height to wind turbines, principles around visibility, landscape compatibility and clear documentation of viewpoint analysis remain applicable.

## 7. Landscape Character Units

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LCUs, as defined in Section 4.3 Landscape Character and Viewer Sensitivity, have been used in this section to describe the landscape character within the viewshed. The following LCUs have been defined by the area surrounding the Project. The LCUs are defined according to their dominant landscape features including geology, landforms, vegetation and other key elements.

Defining the LCUs in the Project Area aids in the assessment of the sensitivity of the existing landscape to change. There are both low and high sensitivity LCUs identified in the Project Area. The impact of the Project on the defined LCUs is detailed in Chapter 12.

### 7.1 LCU1 Cleared Agricultural Land

This LCU is the most dominant within the vicinity of the development site and is found in abundance within the Great Southern Region. It is characterised by cleared farmland with areas of cropping, exposed soil, informal vehicle tracks, and evidence of agricultural activity. This LCU consists primarily of arable land and is widespread throughout the Shire of Kojonup and is considered to have a low sensitivity to change.



*Figure 9: The Project Area - Typical View of LCU1*

## 7.2 LCU2 Remnant Bushland

This LCU is also common throughout the region and is characterised by patches of bushland between cleared agricultural areas. There are patches of LCU2 scattered within the Project Area, with the largest patch located to the west of the Project Area measuring approximately 26 ha. This vegetation connects to a larger area of bushland that extends beyond the boundaries of the Project Area. Additionally, the Myrtle Benn Flora and Fauna Sanctuary reserve lies to the southeast, outside the Project Area. Due to the presence of well-established vegetation in a largely natural state, this LCU is considered highly sensitive to change. The Project has been designed to avoid direct impacts to the primary remnant bushland areas associated with LCU2. Some limited disturbance to smaller patches of native vegetation within the road reserves may be required however any such works would be subject to detailed design, minimisation measures and the relevant approvals/permits. These areas are not considered LCU2 as they comprise fragmented and highly modified roadside vegetation that does not form part of the continuous remnant bushland system described above.



*Figure 10: Typical View of LCU2 – Remnant Bushland*

### 7.3 LCU3 Modified Landscapes

LCU3 includes the existing Kojonup Substation. Within the area the LCU consists of a mast tower, transformers, electrical infrastructure and powerlines. This LCU can easily accommodate change and is considered to have a low sensitivity.



*Figure 11: Typical View of LCU3 showing Substation and Mast Tower (located to the left side of the photograph)*

## 8. Cumulative Considerations

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Cumulative visual impacts are the combined effect of changes brought about by a proposed development, in conjunction with other similar developments in an area which may result in changes to the perceptions of the local community or a visitor to the region. The potential for cumulative visual impacts occurs where there may be:

- Sequential views of multiple similar projects along roads within the study area; and
- Simultaneous views of multiple similar projects from significant or sensitive views in the public domain or private viewing locations.

This section identifies existing infrastructure within the landscape that may contribute to cumulative effects when considered in conjunction with the Kojonup BESS. These features are relevant when assessing visibility from viewpoints within the study area and understanding potential changes to landscape perception.

### 8.1 Existing Infrastructure Contributing to Cumulative Effects

The existing Western Power substation and surrounding transmission lines (66kV and 132kV) form the dominant electrical infrastructure within the viewshed, as shown in Figure 1. The Project is proposed immediately adjacent to this node, co-locating development within an already modified utility landscape rather than introducing an isolated visual element.

Existing linear infrastructure that may contribute to cumulative perception includes:

- Multiple overhead transmission lines entering and leaving the Kojonup Substation, visible particularly from Collie-Changerup Road and sections of Albany Highway;
- Existing electrical infrastructure, fences and grid interface facilities within the Project Area; and
- Kojonup Substation, which is already read as a visually modified landscape unit.

Given this context, the proposed Project, comprising containerised battery units, switchgear, transformers and lightning protection rods, will form part of an existing electrical infrastructure precinct rather than a new standalone feature. As a result, cumulative change is expected to be perceived as an expansion of existing electrical infrastructure, rather than a new typology within the landscape.

### 8.2 Future and Known Developments

At the time of preparing this report, no additional BESS or comparable energy projects were identified within the 2.5 km visual study radius.

The nearest renewable energy development is Flat Rocks Wind Farm, located approximately 30 km southeast of Kojonup. An expansion of this facility, known as Flat Rocks Wind Farm Stage 2, is proposed immediately south of the existing wind farm and is currently in pre-construction planning. At the time of writing, no publicly available information confirms the anticipated construction or operational timeframe.

Separately, the proposed Kojonup Wind Farm has had its development application (DA) approved, with construction anticipated to begin in January 2027. The DA assesses visual impacts based on turbines with a nominal capacity of 6.2 MW, a hub height of 125 m, blade lengths of 79 m, and a maximum tip height of 206 m. The Project is therefore anticipated to be the only utility-scale renewable-related development within the immediate visual catchment, minimising the likelihood of broad cumulative effects.

### **8.3 Implications for Viewpoint Assessment**

Cumulative assessment focuses particularly on viewpoints where the Project will be visible in combination with the existing substation, including:

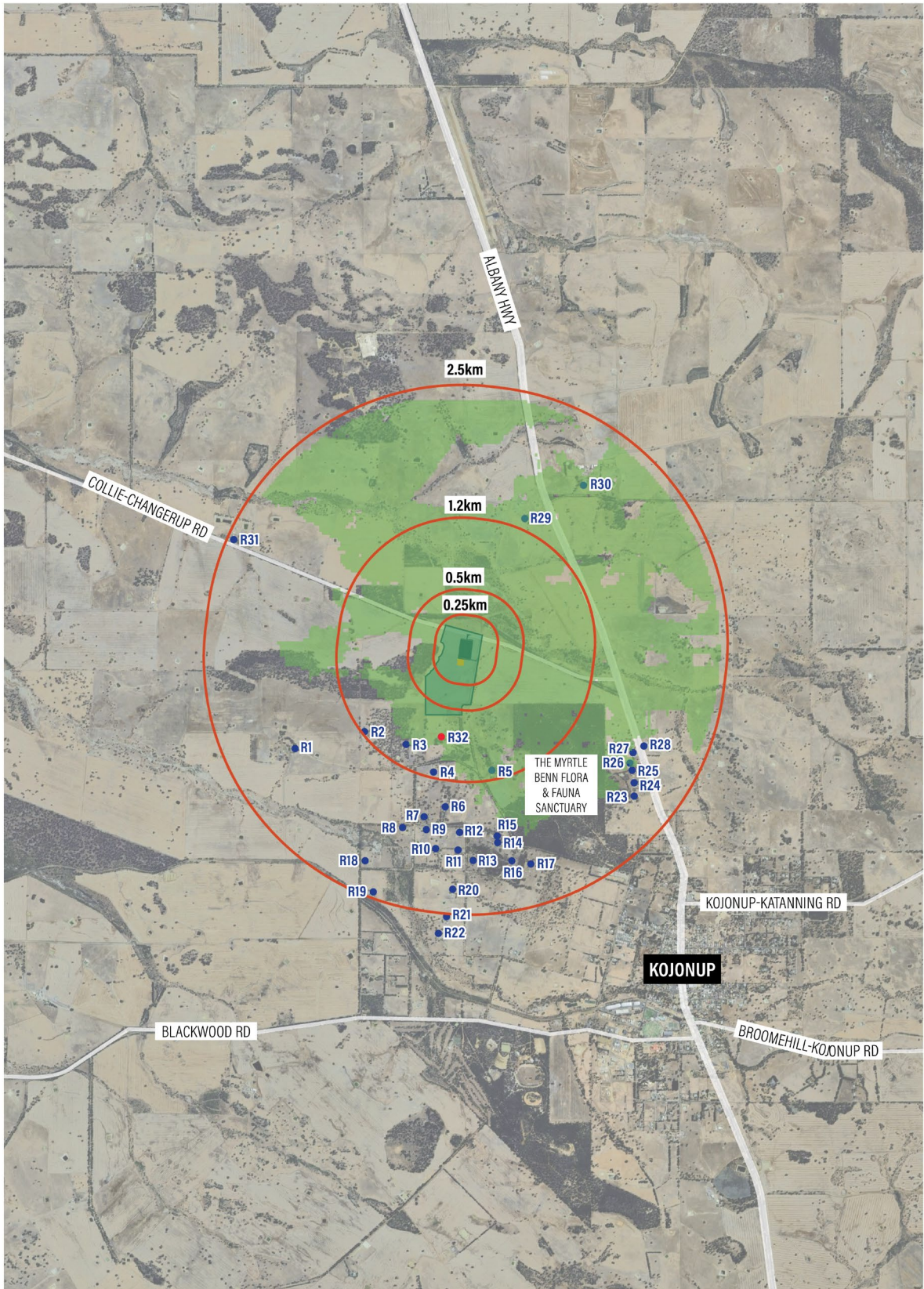
- Viewpoint 1 and Viewpoint 3, as shown in Figure 14 where infrastructure is already present in view;
- Viewpoint 2, where visibility is oblique and time-limited but still relevant for public perception, as shown in Figure 14; and
- Dwelling #32, shown in red on Figure 12 and Figure 14.

## 9. Theoretical Visibility

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Zones of Theoretical Visibility (ZTV) identify areas within the surrounding landscape that have the potential to obtain a view of the proposed Project infrastructure. ZTV modelling is based on topography and assumed maximum structure height, using the indicative 20 m lightning protection rods as the tallest visible component. It is noted that ZTV do not account for visual screening from vegetation, shelterbelts, roadside planting, farm structures, sheds, or the existing Kojonup Substation which may reduce visibility when assessed in real conditions.

ZTV functioned as a tool to inform site inspection planning and waypoint selection, supporting the identification of locations where visual exposure is most likely and where photomontage representation would be required. Figure 12 illustrates the areas theoretically capable of seeing a 20 m structure located at the indicative Project location, including Dwelling R32, displayed in red. Whilst Dwellings R2, R3 and R4 fall within the 1.2 km study area, the ZTV does not extend to these locations, indicating no theoretical visibility of the Project. Dwelling R5 is located within both the 1.2 km study area and the ZTV extent; however, existing vegetation planting directly to the north of the property as well as the proposed landscape screening is expected to effectively mitigate potential visual impacts.



## ZONES OF THEORETICAL VISIBILITY (ZTV)

- Project Area
- BESS Bench and Access Track
- Onsite Substation
- ZTV
- ZVI
- Dwelling
- R1 Noise Sensitive Receivers

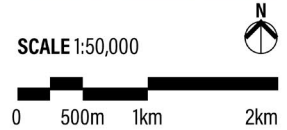


Figure 12: Zones of Theoretical Visibility (ZTV)

## 9.1 Relevance of ZTV to Visual Assessment

Preliminary visibility analysis indicates that large portions of the surrounding landscape experience reduced or no visibility due to landform variations, undulating cropping paddocks, vegetation clusters, and remnant bushland. Views from public roads and farmland are frequently filtered by topography or broken by vegetation lines, consistent with on-ground observations during a site investigation undertaken on 13<sup>th</sup> March 2025.

Key visibility characteristics include the following:

- Most visibility occurs at short to mid-range distance, particularly from areas immediately north and south of the site, around Collie-Changerup Road and Tunney Road;
- Long-range views from Albany Highway are oblique and time-limited, with screening from roadside planting reducing exposure;
- Vegetation blocks visibility from several potential ZTV-flagged locations, confirming that theoretical visibility overestimates true exposure in many directions;
- No elevated public lookouts or tourist vantage points were identified within the study area;
- Dwellings R2, R3 and R4 fall within the 1.2 km study area; however, the ZTV does not extend to these locations, indicating no theoretical visibility of the Project and, therefore, no anticipated visual impact;
- Dwelling R5 is located within both the 1.2 km study area and the ZTV extent; however, existing vegetation to the north of the property, in combination with proposed landscape screening, is expected to substantially limit potential views toward the Project;
- Dwelling R32 (~720 m south) exhibits the highest residential sensitivity due to its proximity, however, the current presence of partial views of the existing Kojonup Substation, combined with the proposed landscape screening reduces the degree of impact; and
- As the Project is co-located with the existing substation, BESS infrastructure is perceived cumulatively rather than as a standalone element.

Nearby public visibility is therefore primarily restricted to local roads, with potential low-moderate exposure.

The following chapter reviews views from three locations, where the ZTV has predicted visibility of the proposed Project. These viewing points are set out in Table 3 below.

Table 3: Viewpoint Visibility Expectation

Location	Visibility Expectation	Notes
Viewpoint 1	Visible	Filtered by vegetation; infrastructure already present
Viewpoint 2	Intermittent/oblique	Short duration exposure while passing
Viewpoint 3	Likely visible if aligned with substation	Low traffic, rural backdrop

## 10. Impact Assessment

This chapter assesses the potential visual impacts of the proposed Project, drawing on the visibility context established in preceding sections of this report. Viewpoint analysis focuses on public domain locations where theoretical visibility and field inspections confirmed potential exposure to the BESS infrastructure.

Viewpoints selected for review correspond with locations where ZTV modelling indicated possible visibility of 20 m lightning rods, and where breaks in roadside vegetation or open agricultural land enable a partial or unobstructed line of sight toward the existing substation and indicative BESS footprint. Viewpoints were prioritised around Collie-Changerup Road and Tunney Road reflecting publicly accessible travel routes with the highest likelihood of visual interaction.

The assessment considers the degree of visual change associated with the introduction of BESS infrastructure into an already modified energy landscape. As the Project is immediately adjacent to the existing Kojonup Substation, visual effects are expected to be perceived as infrastructure consolidation rather than the introduction of a new visual typology, with agricultural landform and vegetation contributing to visual filtering at various distances.

Visual effects for each viewpoint were evaluated using established assessment criteria including:

- Visibility (clarity, screening and prominence of infrastructure);
- Change;
- Distance from view location;
- Viewer duration and movement speed;
- Viewer numbers and sensitivity; and
- Qualitative landscape context (existing modification, landscape values, storage vs generation infrastructure form).

These criteria reflect the five-factor structure outlined earlier in this report, acknowledging that not all experiential qualities can be conveyed numerically. A summary has been provided for each viewpoint addressing visibility, distance, exposure duration, viewer frequency, scale of landscape modification, and sensitivity of the receiving environment. Qualitative discussion under each viewpoint remains the primary source of impact interpretation.

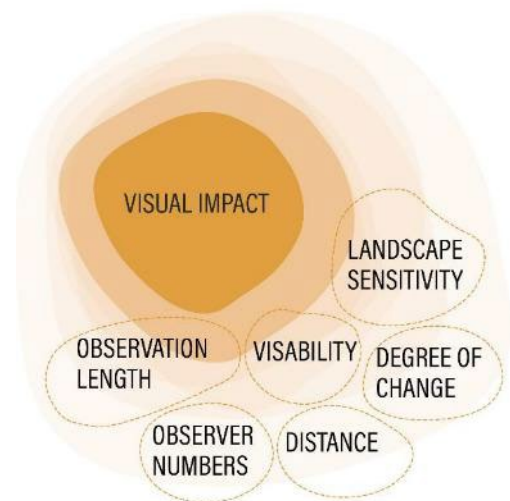
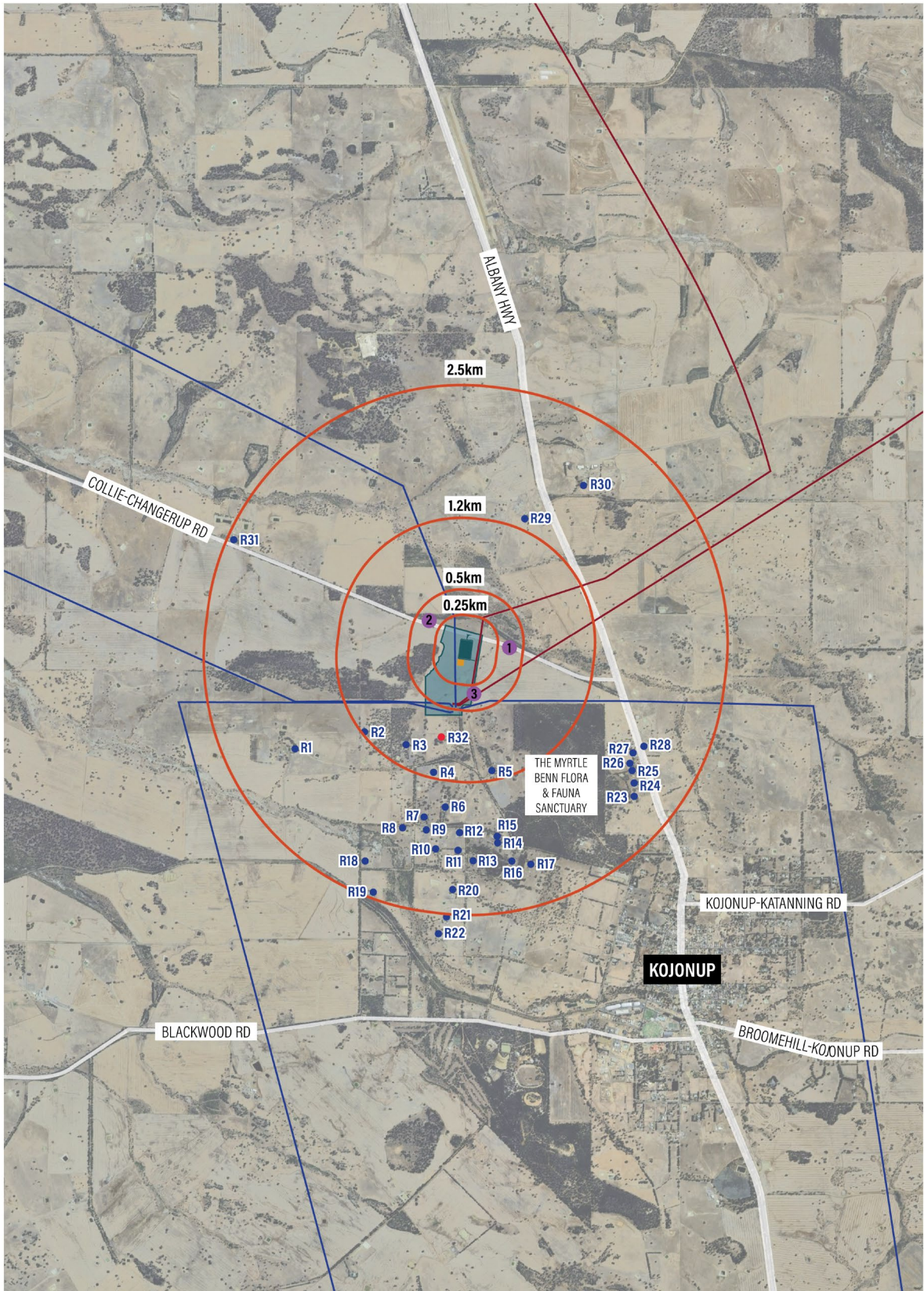


Figure 13: Degree of Impact

Visual effect levels have been graded using the impact scale established in Chapter 4.6 (visual effects rating criteria), reproduced in Figure 13, and applied consistently across all assessed viewpoints. Figure 14 displays the location of each viewpoint.

The following sections provide individual assessments of each confirmed viewpoint.



**VIEWPOINT  
LOCATION MAP**

- Project Area
- BESS Bench and Access Track
- Onsite Substation
- 66kV
- 132kV
- ZVI
- Dwelling
- Noise Sensitive Receivers
- Viewpoint Location

**SCALE 1:50,000**

0 500m 1km 2km

Figure 14: Viewpoint Location Map

## 10.1 Viewpoint 1



Figure 15: Collie-Changerup Rd - Existing View

### 10.1.1 Assessment Criteria

#### Visibility

Clear view toward existing Kojonup Substation from the existing roadside stopping area. The Project likely visible in similar view corridor, but filtered by intermittent vegetation and read in context with existing electrical infrastructure.

#### Landscape Change

Additive – expansion of existing substation infrastructure.

#### Distance

560m.

#### Duration

Short duration for passing road users.

#### Viewer Type/Numbers

Road users/moderate flow.

#### Landscape Character/Viewer Sensitivity

Predominantly cleared farmland with electrical infrastructure present – low sensitivity landscape.

#### Overall Visual Impact

Low-Negligible.



Figure 16: Viewpoint 1 Location

### 10.1.2 Existing Setting and Change in Views

The existing view from Viewpoint 1 is characterised by broad, open, agricultural land in the foreground, with scattered paddock vegetation and remnant tree belts framing the horizon, long, horizontal ground planes, expansive sky exposure and minimal vertical built form. Patterns of development and settlement are reinforced by roads navigating the rural area and fencing along boundaries and paddocks. From this location, the existing Kojonup Substation is a background element to the cleared agricultural land.

### 10.1.3 Assessment

While the proposed Project will be visible, the facility will be added to views that include the existing Kojonup Substation and transmission lines. This view is a roadside stop, however, does not include any

formal signage or amenities e.g. rubbish bins, picnic tables. Therefore, views will be short in duration, viewed across cleared flat farming land, which has a low sensitivity to visual change.

For these reasons, the overall visual impact will be **low-negligible**.

*Low-Negligible visibility: new elements noticeable but not dominant.*



Figure 17: Viewpoint 1 - Collie-Changerup Rd - Existing View



Figure 18: Viewpoint 1 - Collie-Changerup Rd - Photomontage (BESS Infrastructure only)



Figure 19: Viewpoint 1 - Collie-Changerup Rd - Photomontage (Landscape Screening)

## 10.2 Viewpoint 2



Figure 20: Collie-Changerup Rd - Existing View

### 10.2.1 Assessment Criteria

#### Visibility

Partial glimpses of the site visually softened by the presence of substation and vegetation.

#### Landscape Change

Additive – expansion of existing substation infrastructure and above ground transmission network.

#### Distance

630 m.

#### Duration

Short.

#### Viewer Type/Numbers

Road users/low frequency.

#### Landscape Character/Viewer Sensitivity

Cleared agricultural context with remnant bushland – low sensitivity.

#### Overall Visual Impact

Low–Negligible.



Figure 21: Viewpoint 2 Location

### 10.2.2 Existing Settings and Change in Views

The existing view from Viewpoint 2 is characterised by an open, rural landscape comprising broad agricultural fields, gently undulating landforms and intermittent vegetation bands that define a consistent, low horizontal skyline. The landscape expression is predominantly agricultural, with limited built form and scattered elements of infrastructure. Existing electrical grid infrastructure is visible within the view, reinforcing the presence of energy-related development within the broader rural setting. While vegetation and landform limit direct views toward the existing Kojonup Substation, the transmission network crossing the roadway provides a perceptible indication of existing infrastructure within the landscape.

### 10.2.3 Assessment

In the proposed condition, the Project would be a minor addition to views that already include existing electrical infrastructure. The facility would be intermittently visible at distance through gaps in vegetation, where glimpsed views toward the substation precinct are possible. Due to its low height, separation distance and partial screening, the Project would appear recessive and visually embedded within the surrounding agricultural landscape, rather than forming a new or dominant element. In many viewing conditions, the Project may be difficult to discern, or visually absent.

While the proposed Project may be intermittently visible, it would be viewed in the context of an existing rural landscape that already contains electrical infrastructure. Views from this location are informal, short in duration and experienced across open agricultural land with low sensitivity to visual change. The degree of visual change would be minor, with new elements noticeable but not prominent or visually dominant.

For these reasons, the overall visual impact from Viewpoint 2 would be **low–negligible**.

*Low–Negligible visibility: new elements noticeable but not dominant.*



Figure 22: Viewpoint 2 - Collie-Changerup Rd - Existing View



Figure 23: Viewpoint 2 - Collie-Changerup Rd - Photomontage (BESS Infrastructure only)



Figure 24: Viewpoint 2 - Collie-Changerup Rd - Photomontage (Landscape Screening)

## 10.3 Viewpoint 3



Figure 25: Tunney Rd - Existing View

### 10.3.1 Assessment Criteria

#### Visibility

View toward substation available from parts of Tunney Road. The Project likely visible but filtered through roadside vegetation. Infrastructure reads as extension of existing infrastructure.

#### Landscape Change

Additive – consistent with electrical infrastructure landscape character.

#### Distance

515 m.

#### Duration

Short – low traffic, intermittent user presence.

#### Viewer Type/Numbers

Local road users/very low volume.

#### Landscape Character/Viewer Sensitivity

Modified landscape – low sensitivity due to existing Kojonup Substation dominance.

#### Overall Visual Impact

Low.



Figure 26: Viewpoint 3 Location

### 10.3.2 Existing Settings and Change in Views

The existing view from Viewpoint 3 is characterised by cropped paddock and dry grassland in the foreground, extending across gently undulating agricultural land. Vegetation belts and scattered trees provide the primary vertical elements within the view, reinforcing the rural landscape pattern and horizontal emphasis. Built form and infrastructure are present but remain visually subordinate to the agricultural setting. The existing Kojonup Substation is visible to the southwest; however, its visual influence is moderated by separation distance and surrounding vegetation, contributing to a modified rural character rather than an industrial landscape expression.

In the proposed condition, the Project would be added to views that include the existing Kojonup Substation and associated infrastructure. The facility would appear as a low-lying, compact infrastructure element located adjacent to the existing Kojonup Substation footprint. While this would result in an increase in built form within the view, the Project would maintain a low height profile and benefit from partial screening provided by vegetation and landform. The resulting visual change would be incremental, reinforcing the existing infrastructure presence rather than introducing a new or visually dominant element. The overall view would remain predominantly agricultural in character.

### **10.3.3 Assessment**

While the Project will be visible from this location, it would be viewed in the context of an existing rural landscape that already accommodates utility infrastructure. Views are informal and experienced across open agricultural land with low to moderate sensitivity to visual change. The increase in visual complexity would be limited, with the Project remaining subordinate to the broader landscape setting.

For these reasons, the overall visual impact from Viewpoint 3 would be **low**.

*Low visibility: Noticeable elements visible but will not cause significant adverse impacts.*



Figure 27: Viewpoint 3 - Tunney Rd - Existing View



Figure 28: Viewpoint 3 - Tunney Rd - Photomontage (BESS Infrastructure only)



Figure 29: Viewpoint 3 - Tunney Rd - Photomontage (Landscape Screening)

## 11. Summary of Visual Impacts

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The visual impact assessment undertaken for the Project indicates that overall visual effects associated with the Project are low to negligible when viewed from publicly accessible locations within the study area. This outcome reflects the Project's co-location with the existing Kojonup Substation, existing overhead transmission lines, the predominantly rural and already modified character of the surrounding landscape, and the limited duration and extent of visibility from key viewpoints.

Visibility of the Project is largely constrained to short-range and mid-range views from local road corridors, particularly Collie-Changerup Road and Tunney Road, where intermittent breaks in roadside vegetation allow partial views toward the existing Kojonup Substation, and over overhead transmission lines entering and exiting the Kojonup Substation. In these locations, the proposed BESS infrastructure is perceived as an extension of an already established electrical infrastructure precinct rather than as a new or isolated visual element. The slender lightning protection rods, while the tallest components at approximately 20 m, are visually lightweight and read as recessive elements when viewed against the broader agricultural landscape and existing transmission infrastructure.

Longer-range views are generally filtered or screened by undulating landform, remnant vegetation and shelterbelts, resulting in limited and oblique visibility. Views from higher-order roads, including Albany Highway, are fleeting and experienced at speed, further reducing the potential for visual dominance or sustained visual effect. No elevated public lookouts, scenic routes or recognised tourist viewpoints were identified as being required for assessment, within the study area.

The closest sensitive receptor is a dwelling located approximately 720 m south of the BESS. While partial views toward the existing Kojonup Substation are anticipated, the proposed BESS will be read cumulatively with existing infrastructure, and landscape mitigation measures are expected to further soften views over time. As a result, visual impacts at residential locations are assessed as low, reducing to negligible, with the establishment of proposed screening.

Overall, the introduction of the Project results in an additive but non-dominant change to the existing visual environment, with impacts largely confined to areas already characterised by utility infrastructure and rural modification.

## 12. Impacts to LCUs

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The visual impacts identified above inform the assessment of effects on the LCUs present within the study area. Three LCUs have been defined for the Project context, and the impacts to each are summarised below.

### 12.1 Impacts to LCU1 – Cleared Agricultural Land

LCU1 comprises broad expanses of cleared farmland characterised by cropping paddocks, exposed soils, agricultural fencing and informal access tracks. This unit is widespread throughout the Shire of Kojonup and exhibits a low sensitivity to change due to its highly modified nature and capacity to accommodate infrastructure associated with rural production and services.

The proposed Project footprint is located within this LCU and will result in a localised increase in built form and infrastructure within an already altered agricultural setting. While the Project introduces new vertical and geometric elements, these are limited in footprint and are visually consistent with existing rural utility features in the area, including the adjacent substation and transmission lines. Given the extent of LCU1 across the region and the consolidation of development within an existing infrastructure node, impacts to this LCU are assessed as low.

### 12.2 Impacts to LCU2 – Remnant Bushland

LCU2 comprises areas of remnant native vegetation occurring between cleared agricultural lands, including patches of bushland west of the Project and broader vegetated areas beyond the immediate site. This LCU is considered highly sensitive to change due to its natural character, ecological value and limited extent relative to cleared farmland.

The Project does not directly encroach upon LCU2, and no clearing of remnant bushland is proposed as part of the Project. Limited roadside vegetation may require removal to facilitate access and connection to the Project and existing Kojonup Substation; however, any such works would be subject to the relevant approvals, and appropriate permit applications would be submitted where/if clearing is required. No clearing is proposed in LCU2. Visual interactions with this LCU are limited to distant or filtered views where infrastructure may be perceptible above intervening landform or vegetation. In these instances, the Project is read in the context of existing Kojonup Substation infrastructure rather than as an intrusion into the bushland itself. As a result, impacts to LCU2 are assessed as low to negligible, with no substantive change to its landscape character or integrity.

### 12.3 Impacts to LCU3 – Modified Landscapes

LCU3 encompasses areas already defined by substantial human modification, including the existing Kojonup Substation, mast towers, transmission infrastructure and associated access tracks. This LCU has a low sensitivity to change and a high capacity to accommodate additional infrastructure of a similar character.

The proposed Project is directly associated with and visually integrated into this LCU, reinforcing its function as an established electrical infrastructure precinct. The introduction of containerised battery units, associated equipment and lightning protection structures represents an intensification of existing land use rather than a change in landscape typology. Consequently, impacts to LCU3 are assessed as negligible, with the Project considered visually consistent with the prevailing character of this unit.

## 13. Policy Implications

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The Project has been assessed against the relevant state and local planning policies with respect to landscape character and visual amenity. Overall, the Project is considered to be consistent with applicable policy objectives, with no significant policy conflicts identified in relation to visual impacts.

### **13.1 Shire of Kojonup Town Planning Scheme No. 3 – Rural Zone**

The Project is located within the Rural Zone, which seeks to protect rural character while accommodating compatible infrastructure. The Project is co-located with the existing Kojonup Substation and associated transmission infrastructure, within a landscape already characterised by agricultural use and utility development. Visual impacts are localised and limited, and the development does not introduce an incompatible or visually intrusive land use. The Project is therefore considered to be generally consistent with the objectives of the Rural Zone.

### **13.2 Visual Landscape Planning in Western Australia (2007)**

The assessment has been undertaken in accordance with the principles of *Visual Landscape Planning in Western Australia* (2007), including identification of LCUs, evaluation of landscape sensitivity, and assessment of visibility and viewer exposure. The Project is primarily located within low-sensitivity landscapes, and where higher-sensitivity areas occur, visual effects are minimal, filtered or distant. The use of landscape mitigation further supports integration with the surrounding landscape. The Project is considered consistent with the intent of the guideline.

### **13.3 State Planning Position Statement – Renewable Energy Facilities (2020)**

The State Planning Position requires renewable energy proposals to address landscape sensitivity, visual exposure and mitigation. This assessment demonstrates that the Project responds appropriately through careful siting adjacent to existing energy infrastructure, limited visual prominence and identification of screening measures. Cumulative visual impacts are low, with the Project perceived as an extension of an existing energy node. Whilst not strictly 'Renewable Energy Infrastructure', the Project is consistent with the intent of the State Planning Position.

### **13.4 Local Planning Policy No. 10 – Wind Farms / Wind Turbines**

While this policy applies to wind energy development, its visual assessment principles remain relevant. The assessment applies a comparable methodology, including viewpoint analysis and consideration of sensitive receptors. Visual impacts are assessed as low to negligible, indicating that the Project aligns with the broader intent of the policy.

## 14. Mitigation

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There were no locations identified or assessed where the visual impact is greater than low.

The proposed focus of the landscape screening described in Chapter 3 of this report is on establishing vegetation buffers to filter views and visually integrate the Project into the surrounding landscape. Landscape mitigation is provided through perimeter planting buffers, including a 5 m wide buffer along the northern, eastern and western boundaries of the BESS footprint, and a reduced 3 m planting width along sections of the southern boundary adjoining the onsite substation and the diagonal eastern connection between the substation and the BESS. This approach balances screening performance, defensible space requirements, asset protection and maintenance needs.

Plant selection will prioritise endemic species suited to the Kojonup region, with emphasis on structure, density and long-term screening performance rather than purely ornamental value. Planting layout, species selection and final spacing will be refined during detailed design in coordination with bushfire management requirements to ensure compliance with vegetation setback parameters, canopy separation and Asset Protection Zone (APZ) considerations.

Engagement with neighbouring landholders may be undertaken to discuss mitigation measures, and the landscape screening will be developed to avoid unintended view obstruction or amenity impacts and shading impacts. The landscaping strategy will be further developed during detailed design, including refinement of species palettes, densities and potential staging of planting to achieve progressive screening benefits as vegetation matures.

## 15. Conclusion

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This Landscape and Visual Impact Assessment demonstrates that the Project will result in low to negligible visual impacts within the surrounding landscape. Visibility will be limited, generally localised to nearby road corridors and filtered views. The Project will be consistently perceived as an extension of the existing electrical infrastructure rather than a new or visually intrusive element.

Impacts to LCUs will be limited and appropriately managed. The Project is primarily located within cleared and modified landscapes with a high capacity to accommodate change, while higher-sensitivity landscapes experience minimal or distant visual effects, with proposed landscape mitigation to further reduce visibility over time.

The assessment confirms that the Project is consistent with relevant state and local planning policy, including visual landscape guidance and renewable energy policy. With appropriate siting, design and mitigation measures, the Project maintains rural landscape values and visual amenity while being consistent with the existing electrical infrastructure.

Overall, the proposed Project is considered acceptable from a landscape and visual perspective, with no significant residual impacts anticipated.