DEDERANG BESS

Landscape and Visual Impact Assessment October 2024

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Dederang BESS
LVIA

Landscape and Visual Impact Assessment

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MINT RENEWABLES PTY LTD

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1. Introduction

Mint Renewables Pty Ltd (the Proponent) proposes to construct a new Utility-scale Battery Energy Storage System (BESS), with an indicative capacity of 400MWh (megawatt hour), near Dederang in Victoria's northeast. The Site is approximately 2.0km southwest of Dederang township, south of Yackandandah – Dederang Road, and directly south of the existing AusNet Dederang Terminal Station (DDTS). Figure 1-1 shows the proposed location of the Project.

Permanent Project features would include the:

- BESS units, inverters and transformers;
- Civil and structural works including laying of crushed rock;
- Construction of internal access roads and access (and egress) points;
- Underground cabling (33kV) to provide a connection between the battery units and inverters and onsite substation;
- Onsite substation (including transformer to step up from 33 kV to the connection voltage (either 220 kV or 330 kV) and potentially reactive power equipment);
- Underground cabling (220kV or 330kV) to connect the onsite substation to the adjoining DDTS;
- Permanent Operations and Maintenance Facility;
- Water storage (including firefighting water supply and fire water runoff containment);
- Security fencing;
- Car parking;
- Landscaping; and
- Business identification signage, at site entry.

Additionally, works are likely to be required within the DDTS site (e.g. installation of high voltage electrical equipment and associated permanent and temporary buildings and works).

Two access locations have been identified for the Project's construction and operation. A preferred option will be determined through the assessment of impacts and prior to the commencement of construction:

- *Option 1 - AusNet Access:* Access via land adjacent to the DDTS, outside the fenced terminal station.
- *Option 2 - Government Road Access:* Access via the unused government road which runs between AusNet land and the adjoining private property.

Figure 1-1 Site Location

2. Structure of this report.

Landform Architects have been engaged by the Proponent to assess the potential Visual Impacts that might be brought about by the Project, and then to define measures to avoid or reduce the Projects visual impacts. This report has been prepared to accompany a planning permit application for the Project.

2.1 Report Structure

The approach adopted to assess the Projects Visual Impacts set out below, and illustrated in Figure 2-1, opposite.

- Identify and describe the heigh, scale and footprint of the Project.
- Setout an appropriate methodology based on the Project description.
- Define the extent of the study area based on the height of the tallest and therefore most conspicuous feature of the Project.
- Review Planning Controls and Guidelines that apply to land within the study area.
- Impact assessment through viewpoints and photomontages.
- Establish measures that may assist to minimise the Projects visual impacts.

This report has assessed the Projects visual impact from location in the Public Domain. The assessment has also sought to identify nearby and neighbouring dwellings where the Project might also be visible. The closest impacted neighbouring dwelling is approximately 500m to the Projects west. Access to assess the Projects impacts form this dwelling has not yet been granted, therefore this report has sought to understand the likely impacts through a representative view from within the Projects boundaries. This views has assisted in developing mitigation measures that may assist with managing impacts if required.

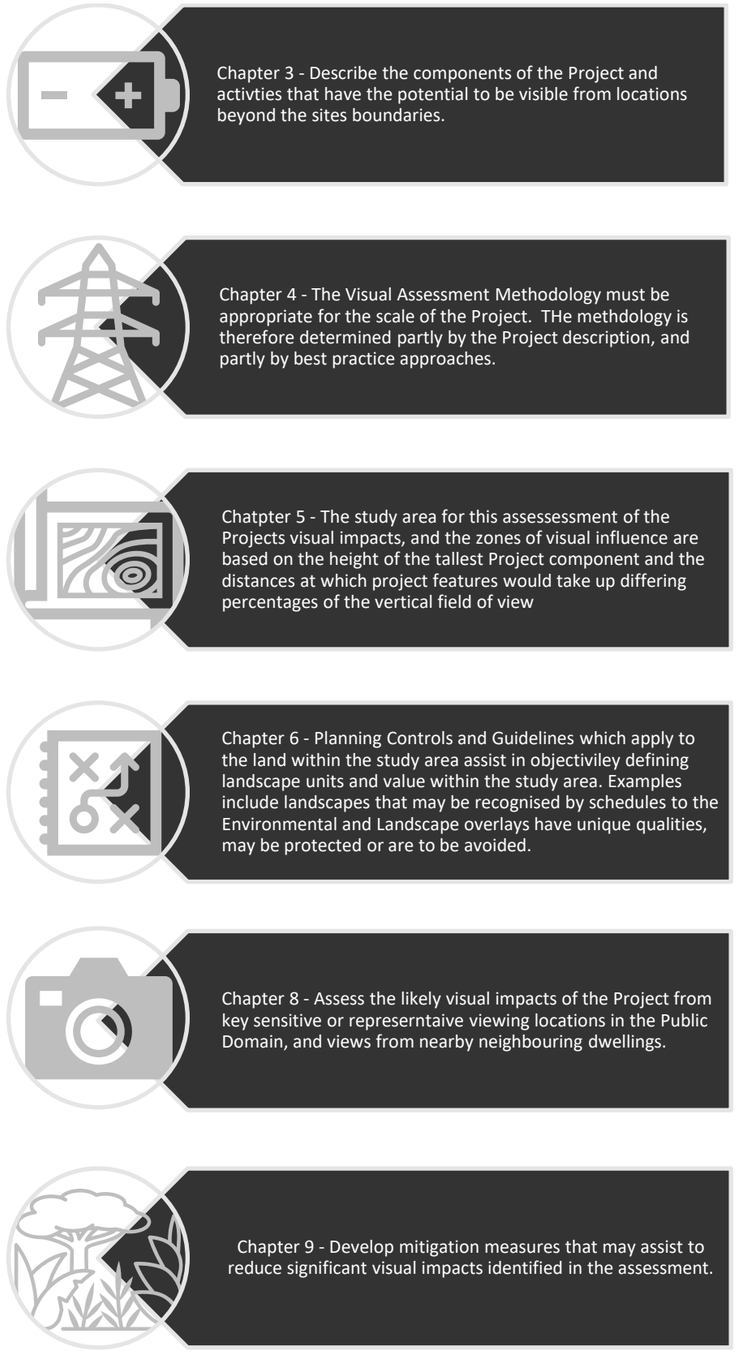


Figure 2-1 VIA Methodology

3. Project Description

This chapter describes the key components of the Project that may contribute to a change in views and amenity from locations surrounding the Project. These features will define the assessment methodology used to assess the Project's landscape and visual impacts.
The final location of infrastructure will be determined through the detailed design once a BESS supplier has been selected and generally in accordance with commitments made within the planning permit application.
Figure 3-1 opposite shows the location and layout of key areas proposed by the Project which are described below.

3.1 BESS footprint

The BESS footprint is proposed in farming land, roughly central to the Site. Construction and operation of the BESS will include the following:

- Chainwire perimeter fence approximately 3.0 m in height;
- A fire break/access tracks (including perimeter access around BESS);
- Containerised battery units and inverters, 33kV transformers all approximately 3.0m in height. The final number of units will depend on the final selected battery supplier, and the systems final size and duration. This assessment has modelled a 37 unit layout;
- Lighting, mounted on poles approximately 6.0m in height; and
- Operations and Maintenance facility approximately 20m L x 8.0 m W x 6m H.

3.2 Onsite substation footprint

An on-site substation footprint is proposed in farming land between the proposed BESS and DDTS, and will connect the BESS to the DDTS.

- Chainwire perimeter fence approximately 3.0 m in height;
- A fire break/access tracks;
- 220 or 330kV/33 kV substation including infrastructure (e.g. transformer, blast wall, switch room, control room, reactive plant equipment, circuit breakers etc. The transformers and/or the blast walls will be approximately 11m in height;
- Lighting, mounted on poles approximately 6.0m in height; and
- Lightning Rods and on-demand security lighting up to 20 meters in height.

3.3 Terminal Station Works

Works will be required within the existing DDTS to allow connection of the Project and may include:

- installation of high-voltage electrical equipment;
- permanent and temporary buildings; and
- Temporary modifications to existing fencing and access.

Underground cabling will connect the BESS footprint, onsite substation, and the Project to the DDTS.

3.4 Construction and Laydown

A temporary construction and laydown areas will be established in areas between the Onsite Substation and DDTS. The access track from the public road to the Project footprint will be approximately 6.0m in width.

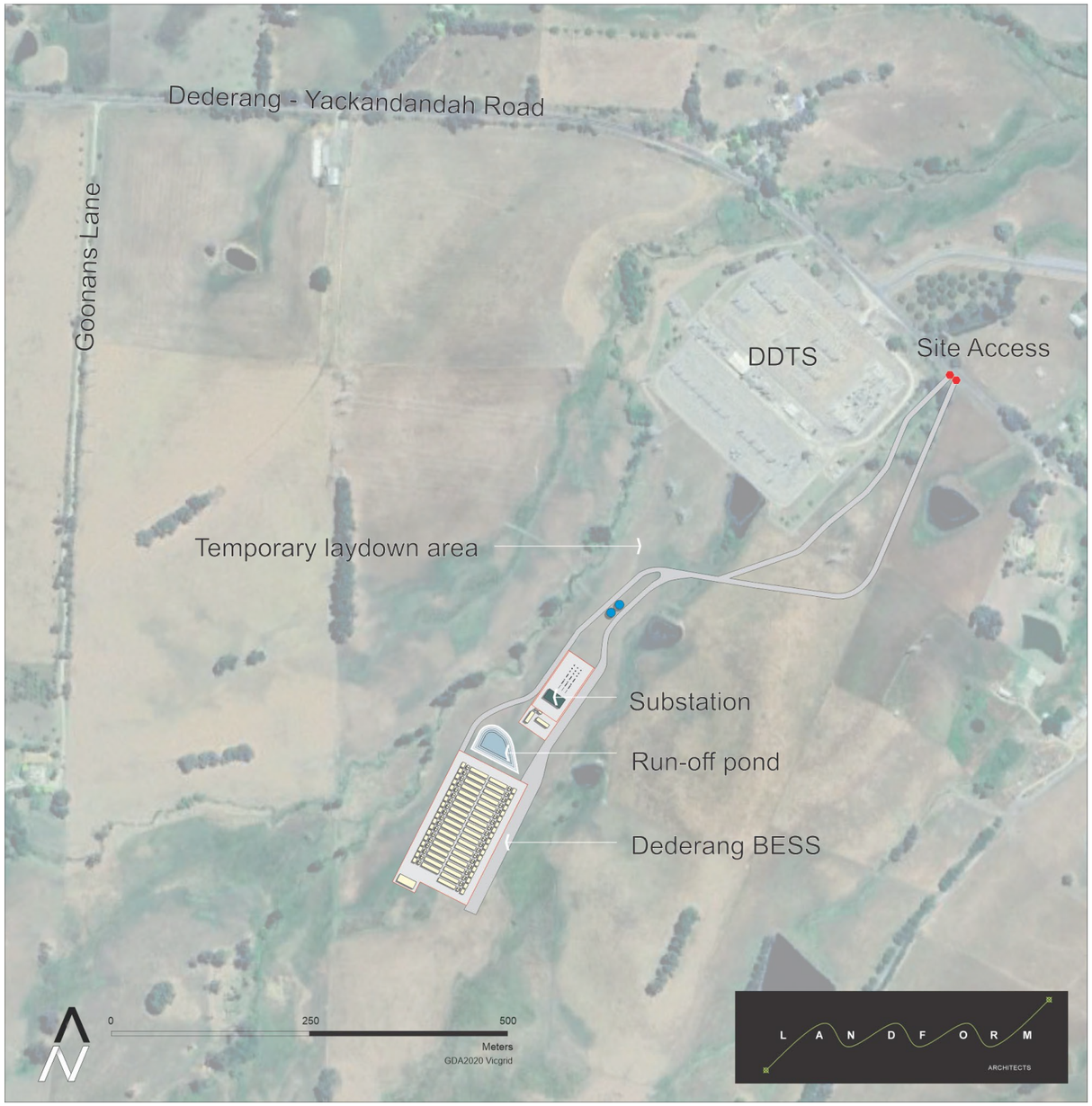


Figure 3-1 Key features and site layout

3.5 Landscaping

Three options for landscaping have been identified to assist with minimising the Projects visual impacts from neighbouring dwellings and have been considered as part of this assessment. Figure 3-2 shows the proximity and indicative extent of plantings in each option, which are described below:

- Option 1 includes revegetation works along the western banks of the un-named waterway to the west of the BESS.
- Option 2 would build upon existing windbreak plantings in farming land roughly midway between the Proposed BESS and Goonans Lane.
- Option 3 would include native windbreak plantings along the eastern edge of Goonans Lane and within the Site.

Viewpoint 4, which is assessed in Section 9.4 below, shows that each option would assist in reducing the visibility of the Project from neighbouring landholders dwelling. The Proponent will continue to attempt to engage with the neighbour to finalise landscape screening option prior to construction, including preferred mitigation options to reduce unintended view loss that may be brought about the landscape screening.

3.6 Relevance to this assessment

The assessment methodology must be relevant to the Projects scale. The tallest feature will be the lightning rods surrounding the onsite substation, up to 20.0 m in height. Although these are narrow features and not overly conspicuous, for the reasons which are set out in Section 4.1 and Chapter 5, the extent of the Study Area and the Zones of visual influence has been on the height of these structures to be conservative.

The methodology adopted to assess the landscape and visual impacts of the Project is set out below. The methodology must be appropriate to Projects key features and scale which are described above.

Figure 3-2 Landscaping Options

4. Assessment Methodology

No Australian or Victorian government legislation, methodology or policies are specifically relevant to landscape and visual impacts. However, planning, environmental, and some heritage policies refer to landscape sensitivity and managing views.

The methodology used within the LVIA for this Project is set out below. The methodology has been adapted based on previous Landscape and Visual Assessment reports for similar projects and guidelines prepared in Australia and overseas, which included:

- *Guidance Note for Landscape and Visual Assessment, AILA Queensland, June 2018* recognises that the "Landscape and Visual Assessment (LVA) should be scoped to reflect the project scale".
- *The Guidelines for Landscape and Visual Impact Assessment, Third Edition*, Landscape Institute and Institute of Environmental Management and Assessment (2013) (UK Guidelines). The UK Guidelines, widely referred to internationally, combine scale, duration and reversibility to evaluate magnitude. Viewer sensitivity and landscape character inform sensitivity. These factors are *combined* to assess the overall visual impact. The UK guidelines also discuss the benefit of theoretical mapping visibility or the area from which projects may be visible. These are referred to as the Zone of Theoretical Visibility (ZTV). The UK guidelines do not consider visual scale or prominence over distance. The UK Guidelines prefer professional judgement be employed in preference to the use of matrices.
- *New Zealand Institute of Landscape Architects, NZ (2010) Best Practice Note: Landscape Assessment and Sustainable Management 10.1.* Landscape characterisation is a process of interpreting how attributes such as geomorphology, natural ecosystems, vegetation cover and land-use history come together to distinguish landscapes. The NZ Guidelines recognise that landscapes are dynamic and *continually* changing and that landscape assessment should reflect project scale. Further, the NZ Guidelines seek to manage the direction and consequences of change, and how to sustain landscape values and attributes over time instead of 'freezing' a landscape in a particular state.
- *Environmental impact assessment practice note EIA-NO4, Roads and Maritime Services, NSW, December 2018* is an established guideline for determining landscape character and visual impact assessment for road projects in NSW. This Guideline assesses visual *sensitivity*, derived from an area's qualities, and the magnitude of the change derived from the scale or prominence of the Project, in a matrix framework to assess the level of impact.

The methodology of all these Guidelines have overlapping similarities. However, one point of divergence is using matrices as the basis for assessment. Matrices are still referred to in the NSW RMS Guidelines, but are not recommended in the more widely applied UK guidelines. The reasoning for this is set out at Section 3.34 of the UK guidelines

4.1 Study area

The study area is the area that may be visually affected by Project features and is the area within which the proposed development could create a recognisable impact. The vertical field of view provides a basis for calculating the extent of the viewshed. Figure 4-1 shows the principles of the vertical field of view and Parameters of the Human Vision relative to the features of this Project.

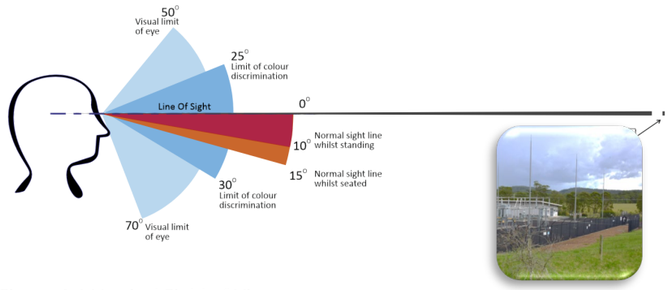


Figure 4-1 Vertical Field of View

The central field of view in human vision is approximately 10° while standing and 15° while seated. An object that takes up less than 5 per cent of this 10° cone of view may still be discernible but will not be a prominent feature in views.

To be conservative, distance calculations for the Study Areas are based on the 20.0m high lighting rods. These are the tallest features within the Project. Although the lighting rods are tall, they are limited to the onsite substation, slender and relatively inconspicuous features.

The extent of the study area is established at a distance where the 20.0m high lighting rods will occupy less than five per cent of the "Normal" vertical field of view or 0.5°. This anthropometric data will form the basis for determining the study area and zones of visual influence for the Project.

A 20 m high lightning rod, when viewed from a distance of 2.5 km, will take up five per cent of the vertical field of view. Therefore, the study area for landscape and visual impact is established at 2.5 km from the Project features. It may be possible to see Project features from beyond the defined study area. However, if they were visible, they would be a background element to views, occupying less than 0.5° vertical field of view and inconspicuous.

4.2 Landscape character and viewer sensitivity

Landscape Character Units are based on physical and natural attributes within the study area. Characteristics that assist in defining the landscape units include geology, topography, vegetation, and drainage patterns as well as modifications to areas from a natural setting, land-use, and policy considerations.

Policy and guidelines within the study area provide guidance on landscape character and objectives that are sought to be encouraged or protected.

4.3 Policy Review

Government policies were reviewed to identify key objectives and considerations for the Project's landscape and visual impact assessment. A focus of this review was to objectively *Characterise the landscape, features, and values of the project area of interest and its environs.*

The review examined relevant legislation and Policy to identify landscape features, sensitive areas or locations such as key roads, tourist attractions, residential areas and communities that Policy may protect. These areas are identified in Chapter 6.

4.4 Visual impact assessment

The potential visual impacts of the Project was assessed through views selected from locations within the public domain.

4.5 Publicly accessible locations

Viewpoints have been from locations that are either representative of key views from roadways or intersections and where it was apparent that the Project have the potential to be visible. From each location, the assessment of the overall visual impact is based on several criteria. Their relevance to the assessment of the overall visual impact from the public domain is set out below:

- **Landscape Change:** The physical change or alteration to a landscape will depend on the nature of the Project. For example, a development such as a residential sub-division, industrial estate or mining Project may alter features such as topography, vegetation and use of an area, causing a transformational change to the landscape. In comparison, a development such as a wind farm or transmission line may be inserted into a landscape without fundamentally altering underlying features such as topography, vegetation, land-use or policy, all of which define landscape character.
- **Visibility:** If a project is not visible, there cannot be a visual impact.
- **Distance:** Infrastructure visibility and dominance will decrease with distance. The ZVI indicates visual dominance and potential impact based on distance.
- **Duration:** The duration of a view is also relevant and must be considered in assessing the overall visual impact. Duration is not necessarily time bound i.e. 10 mins for short or 2 hours for long, rather it is associated with the location or use where people may see the Project. Examples from public areas, include reserves, roadside stops or lookouts. Examples in the private domain may include patios, living rooms or private open space areas. These types of views are given greater weight than views that may be transient or fleeting along roadways or occasional views in the public domain, and service or working areas in the private domain.
- **Landscape character and sensitivity:** The landscape character of an area, which is based upon visual features such as topography, vegetation and the use of the land, the naturalness of the area and planning provisions. Sensitivity may also be influenced by specific landscape studies and assessments within the study area. Typically, a modified landscape prevalent within the study area or the region is less sensitive than one that is ostensibly natural.
- **Viewer numbers:** The overall visual impact level will decrease when there are fewer people who can view the Project. Conversely, the level of visual impact may increase where the viewing location is a recognised key vantage point or tourist route where a greater number of people may view the change.

Viewer sensitivity is based on the nature or purpose of the viewing location. For example, the sensitivity of a person viewing a project from a recreation reserve, public lookout or trail will be higher than the same viewer travelling the local road network or from a town.

The overall visual impact is not assessed numerically or through a matrix, rather, it is the examination of the qualitative aspects observed at each selected viewpoint, which is supported by the criteria listed above. This method is supported by the *UK Guidelines for Landscape and Visual Impact Assessment, Third Edition published by the* Landscape *Institute, Institute of Environmental Management and Assessment 2013 (GLVIA3)*. Each of the Criteria, and their relationship to the overall visual impact are shown in Figure 4-2.

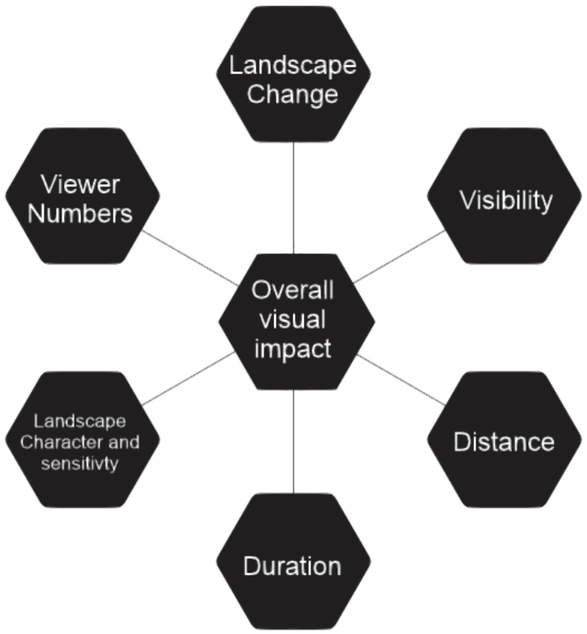


Figure 4-2 Visual impact – public realm

The overall visual impact at each viewpoint will range from Nil to High. The definition for each scale is discussed in Section 4.6 below.

4.6 Scale of effects

The following table 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.

Table 1 Scale of effects

Overall visual impact	Definition
Nil visual impact	An overall assessment of **Nil** will be arrived at where the 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.
Negligible visual impact	An overall assessment of **Negligible** is a minute effect barely discernible over ordinary day-to-day views. A 'negligible' level of visual impact would typically occur where the 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 be where the Project is added to views that already include many similar features.
Low visual impact	An overall assessment of **Low** will be arrived at where the 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 the Project, or where views are transient rather than stationary.
Moderate visual impact	An overall assessment of **Moderate** may occur where several criteria are higher than "low", or the visual effects would be mitigated/remedied from an initial rating of High.
High visual impact	An overall assessment of **High** will be arrived at where significant adverse effects cannot be avoided, remedied, or mitigated. For example, a highly sensitive landscape, viewed by many people, with the Project in close proximity and largely visible, will lead to an assessment of a high level of visual impact.

4.7 Mitigation options

Mitigation measures can reduce high visual impact at sensitive locations and visual receptors. The primary mitigation measure for visual impacts of BESS facilities from vantage points that are static such as dwellings, reserves, and recreation areas. is landscape screening Options for such methods are set out in Chapter 10.

4.7.1 Photographs

A 60mm lens on a Nikon D850 digital camera has a picture angle of 33o and a horizontal angle of view of approximately 22°.1

4.8 Photomontages

Photomontages are used within the report to show the anticipated change to the existing landscape created by the development of the telecommunication facility.

4.8.1 Lens size and photos used within the photomontages

Photomontages typically show the changes in a 60° horizontal field of view. The 60° horizontal field of view represents the central cone of view in which symbol recognition and colour discrimination can occur. When defining a vertical field of view, either 10° or 15° can represent the central field of view of human vision as shown in Figure 4-3.

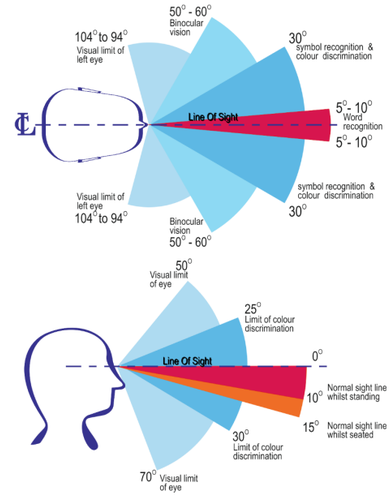


Figure 4-3: Horizontal and Vertical field of view (Human Dimension and Interior Space, Julius Panero & Martin Zellnik, Witney Library of Design, 1979)

Similar data can be found in the recent publication, 'The Measure of Man and Woman, Revised Edition', Henry Dreyfuss Associates, John Whiley & Sons, 2012.

The 60° horizontal field of view is important if the photomontage images represent the change in the landscape. The A3 photomontages, which are appended to this report in Appendix C, include a 60° horizontal field of view. One of the sheets within the photomontage set shows a wireframe view of the computer model to illustrate how the photomontages were derived. Vertical 'poles' within this wireframe are merely points on the landscape such as a group of trees, a corner of an existing building etc., which allow the computer model (prepared in 3D Studio Max) and the photograph to be accurately aligned. This ensures that the proposed telecommunication facility is accurately located within the photograph, and then the rest of the model is removed, and the tower and compound are rendered into the image.

[1] https://shotkit.com/field-of-view.

5. Study area

The study area is established at a distance of 2.5km from the whole of the Project footprint. This is the distance at which a 20.0 m high lightning rod would occupy 0.5° in the vertical field of view, and may be recognisable where visible. The study area is different to the extent of visibility, as it may be possible to see the tallest feature from locations outside the study area. The study area and ZVI for the taller lighting rods have been applied to the whole of the Project footprint which includes lower-level features, such as the units within the BESS which are approximately 3.0m in height, and are proposed on a bench that is cut into the site.

5.1 Zones of visual influence

The prominence or visual scale of Project features will decrease with increasing distance. This is referred to in this assessment as Zones of Visual Influence (ZVI), which is one of several criteria considered when evaluating the overall visual impact from selected viewing locations. The Zones of Visual Influence is also based on the parameters of the Human Vision, described in Section 4.1 of the methodology.

The ZVIs, which will form part of the visual impact assessment, are set out in Table 2. Distances have been rounded to the next (greater) 50m.

Table 2 Study area and Zones of Visual Influence based on a 20.0m lightening rod

Vertical View angle	Distance to 20m high lightning rod	Zones of Visual Influence
<0.5	>2.5km (Actual 2.291km)	**Visually insignificant – Extent of the project study area** The Project will be a small element in views, difficult to discern, and invisible in some lighting or weather circumstances.
0.5-1.0	1.2m to 2.5km	**Discernible, but will not be dominant in views** The Project will be visible, however, will not be a dominant feature in views or the landscape.
1.0-2.5	500m to 1.2m	**Potentially noticeable and can dominate the landscape** Where visible, the Project has the potential to be noticeable in view.
2.5-5.0	250m to 500m	**Highly visible and will usually dominate the landscape** 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.
>5.0	<250m	**Will be visually dominant in the landscape – Where visible** Dominates the landscape in which they are sited and were visible in full.

Figure 5-1 shows the extent of the study area for visual impact and the Zones of Visual Influence established in Table 2. The approximate location of known neighbouring dwellings are shown marked in red.

It is recognised that the apparent visual scale will not change dramatically when a viewer moves from one distance band to another, for example, from 450m to 500m. For this reason, the Zones of Visual Influence is considered a guide only and is one of several criteria considered in assessing each viewpoint.

The study area for the LVIA has been established at a distance of 2.5 km from the 20.0 m lightning rods. The majority of the remaining features within the BESS are approximately 3.0 m in height. The study area for these features would be approximately 350m and well within 2.5 km study established by the 20.0 m high lightning roads.

Figure 5-1 Study area and ZVI (Source Google Earth Pro)

6. Policy Review

The whole of the Site and the Study Area is within an area covered by the provisions of the Alpine Shire Planning Scheme.

Figure 6-1 shows the land-use zones and schedules to the Environment and Landscape overlays within the study area. An overview of the land-use zones and schedules to overlays relevant to assessing landscape and visual impact is set out below.

6.1 Land Use Zones

The Site is primarily located within the Farming Zone (FZ), whilst connection works (underground cable and works within the existing Dederang Terminal Station) and access (AusNet Option) will be located within the Special Use Zone – Schedule 3 'GPU Powernet Pty Ltd Terminal Station' (SUZ1). Land use zones applied within the broader study area include:

- Yackandandah-Dederang Road is within a Transport Zone Category 2 'Principal road network'.
- State Forests to the north and south are within the Public Conservation and Resource Zone (PCRZ)
- Dederang Township is within the Township Zone (TZ)
- Dederang Football and Netball Club is within the Public Park and Recreation Zone (PPRZ).

The subject site and most of the land within the study area is within the Farming Zone. The primary purpose of this zone is to protect the ongoing use of these areas for agriculture against incompatible uses with higher expectations on amenity such as dwellings and hobby farms or lifestyle properties.

6.2 Overlays

Schedule 1 Upper Kiewa Valley Significant Landscape area (SLO1) to Clause 42.3 Significant Landscape Overlay applies to the Site and much of the study area east of Goonans Lane. This area includes the existing Dederang Terminal Station, overhead transmission lines, and Dederang Township.

The SLO1 recognises that *The landscape of the Upper Kiewa Valley has a distinct character with significant contrasts between the cleared flat to undulating valley floor and the steep treed mountains. The valley narrows in the upper reaches and the contrast is emphasised. The visual boundaries are definite in this landscape not only between natural features but also the townships which are generally well contained with little urban sprawl. A key element of this landscape is the majestic views across the cleared valley floor to Mount Bogong.*

Landscape character objectives to be achieved by SLO1 seek to:

- *Contain urban development, specifically housing, to existing townships with definite visual boundaries.*
- *Encourage appropriately sited development to reduce ribbon development along the Kiewa Valley Highway.*
- *Encourage rural development of a "human" scale and form.*
- *Maintain existing vegetation on the steeper slopes of the valley to maintain its integrity.*
- *Maintain the contrasts in landform and land use between the valley floor and the steep vegetated valley walls.*
- *Maintain the existing rural landscape.*

The decision guidelines direct the responsible authority to consider as appropriate when consider the following when reviewing an application in land affected by SLO1:

- *The impact of the proposed buildings and works on the landscape due to siting.*
- *The extent to which the site of the buildings and works will be landscaped and the type of vegetation used.*
- *The document Landscape Planning & Conservation in North-East Victoria, National trust of Australia (Victoria), 1977.*

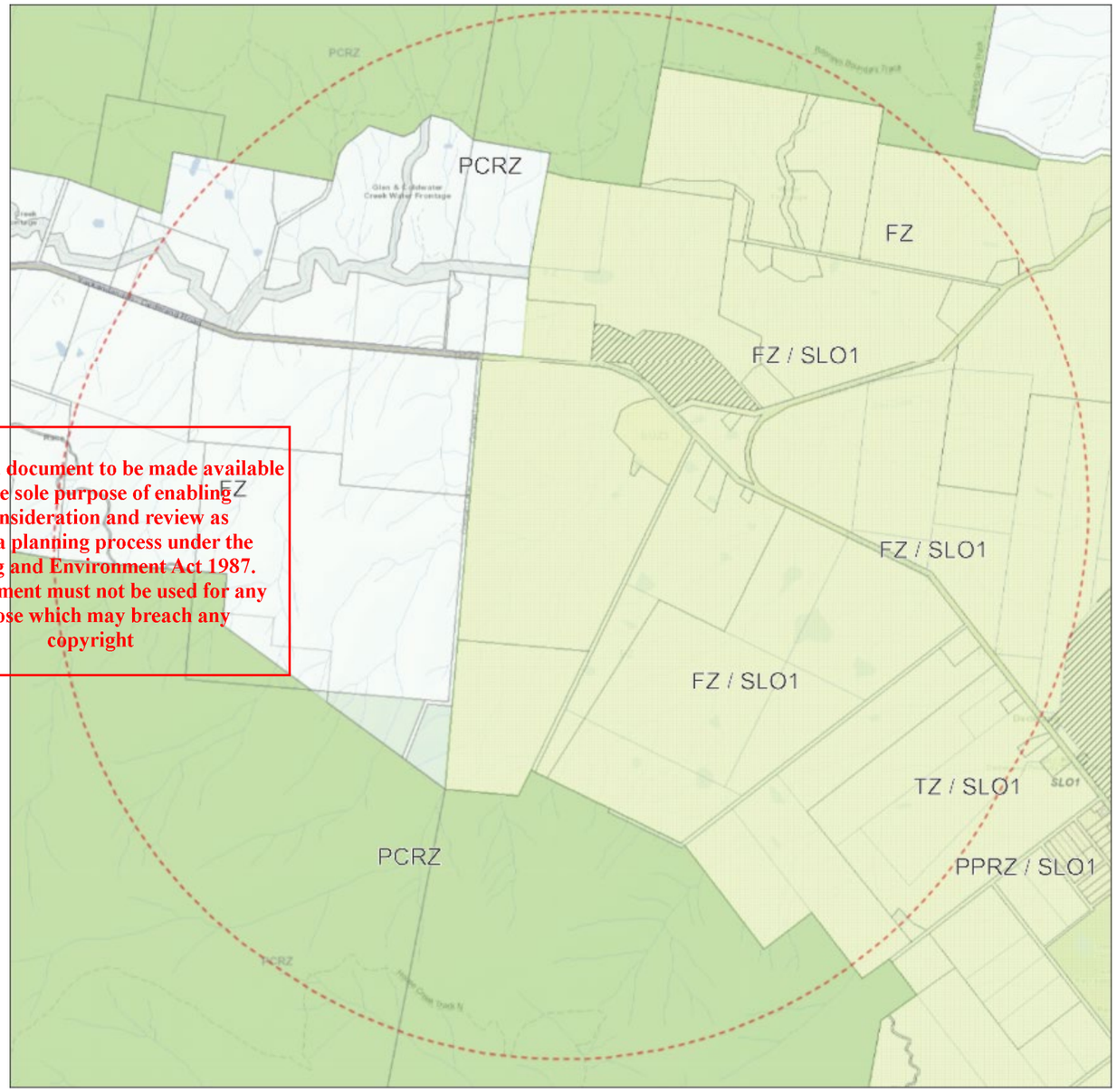


Figure 6-1 Zones and Overlays

7. Cumulative Considerations

The UK Guidelines define cumulative visual impacts as 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. A similar definition is adopted by the NatureScot 2021 guidelines *Assessing the cumulative landscape and visual impact of onshore wind energy developments.* While both methodologies broadly refer to development, both methodologies consider cumulative impacts the combined effect of similar projects (multiple wind farms) rather than any or all development.

This section will identify existing, approved and proposed developments that may bring about a cumulative visual impact, to be considered in the assessment of viewpoints selected from locations within the study area.

Existing features that may contribute to cumulative visual impacts are limited to the existing High-voltage transmission lines connected through the DDTS. Known transmission lines are summarised below:

Transmission lines to the west include the:

- 220 kV Dederang Terminal to Glenrowan Terminal
- 330 kV South Morang Terminal to Dederang Terminal
- 330 kV Wodonga Terminal to Dederang Terminal

Transmission lines to the north include the:

- 330 kV Murray to Dederang Termina
- The transmission line to the southeast includes the:
- 330 kV Murray to Dederang Terminal

At the time of this review, the Kiewa Valley BESS was the only Project proposed within the 2.5 km Study Area. The DDTS, existing transmission lines and the Proposed Kiewa Valley BESS are shown in Figure 7-1.

The Dederang BESS is proposed in low lying farming land between the DDTS to the north and the proposed Kiewa Valley BESS to the south.

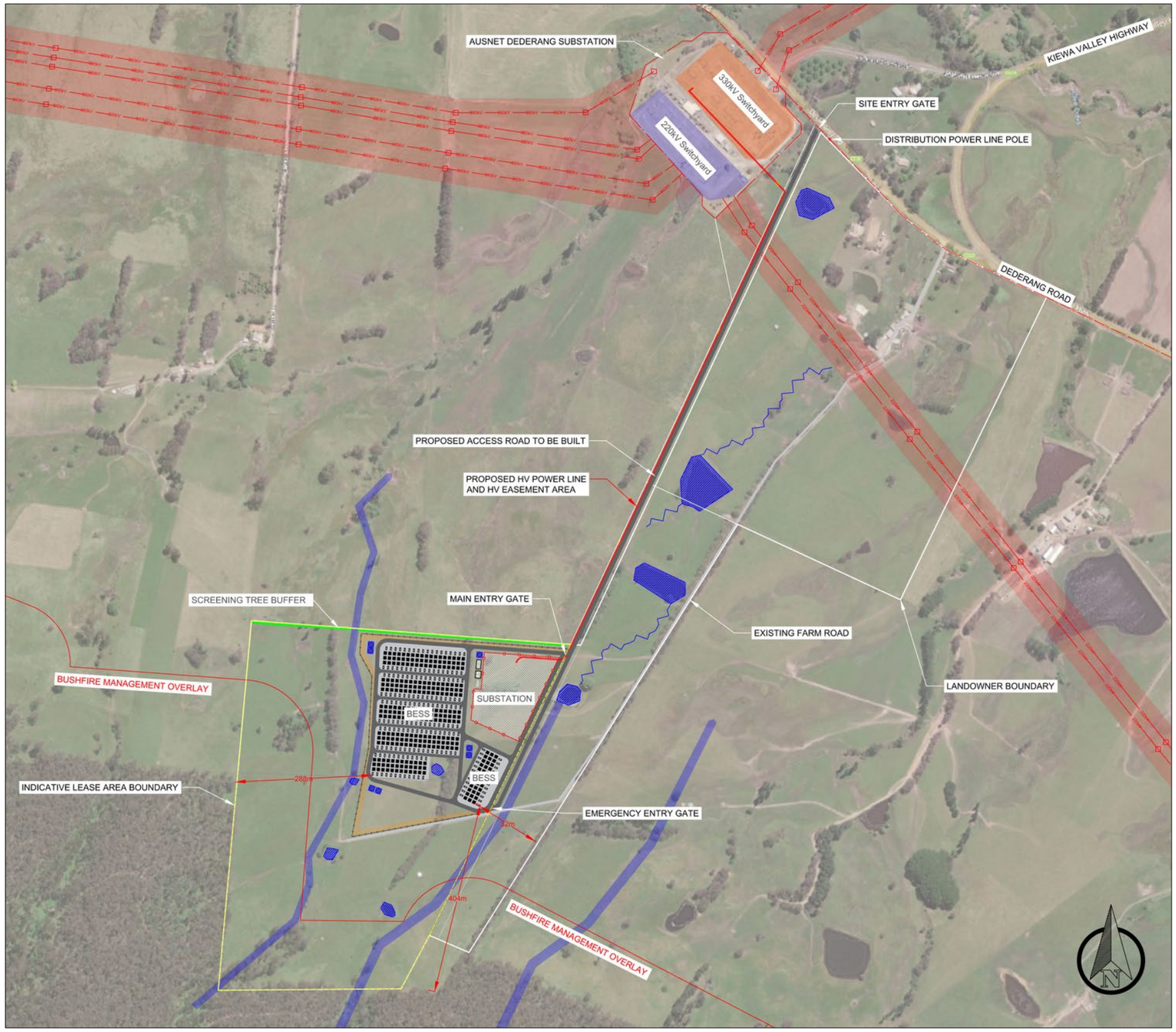


Figure 7-1 Existing Overhead HV transmission Lines and Proposed Kiewa Valley BESS (Source https://kiewavalleybess.com.au/)

8. Theoretical Visibility

Zones of Theoretical Visibility (ZTV) mapping identifies locations that have the potential to view the Project. The ZTV is a theoretical model based solely on topography and the key Project features. The ZTV does not consider ameliorating features such as vegetation in farming areas, along roadsides, or dwellings and associated structures such as sheds or other developments such as the existing Dederang Terminal Station, that might screen or filter views in the Projects direction.

The ZTV establishes patterns of visibility to guide site inspections and the selection of viewpoints which are assessed in Chapter 9.

Figure 8-1 (Opposite) shows the areas that have the potential to see the tip of a 20.0m high lightning rod located within the onsite substation.

8.1 Relevance of this analysis to visual assessment

Views from the majority of nearby locations in public and private domains to the north, northeast, east and west would be screened by topography. While visibility is predicted from a section of the Kiewa Valley Highway to the Project's northeast. It is apparent when on site that views to the southwest from this section of the highway are screened by a combination of local topography and vegetation found along roadsides, surrounding farming land and dwellings.

Visibility from elevated and vegetated areas in state forests to the south, and north, and from dwellings along Speers Lane are approximately 1.5km north of the Project.

There were no elevated lookouts or public viewing locations identified in the state parks. Dwellings along Speers Lane are elevated enabling views to the south towards the Project. The Project views would be added to the baackground of views, which include the existing DDTS and connecting overhead transmission lines.

Nearby Public realm views are therefore limited to a short section of Yackandandah – Dederang Road to the north of the DDTS and Speers Lane, a local Road further to the north.

The following section will examine views from three (3) public locations along Yackandandah – Dederang Road, one (1) location indicative of views from a nearby neighbouring dwelling to the Projects west, one (1) view from the Kiewa Valley Highway to the northeast and one (1) view from Speers Lane directly to the north.

Figure 8-1 Areas of theoretical visibility

9. Impact Assessment

This chapter will assess the visual impacts of the Project summarised in Chapter 3 of this report.

This section examines views from public realm locations. All viewpoints are from locations where ZTV predicated visibility of the 20.0m high lightning rods within the onsite substation and where breaks in roadside and other vegetation permits views in the Projects direction.

The assessment will be undertaken by analysing selected viewing locations from the public realm.

The overall visual impact from each viewpoint has been assessed based on the five criteria described in section 4.5, which include visibility, distance, duration, viewer numbers and the qualitative aspects of the view. A summary table (visibility, landscape change, duration, distance, viewer numbers, and landscape sensitivity) is provided at the conclusion of each viewpoint. As stated in the introduction to Chapter 3, the summary table is to be read in conjunction with the qualitative analysis to consider factors such as modifications to a view, the nature of the viewing location, and mutable factors such as screening provided by local topography, vegetation, and buildings. These aspects cannot be captured or summarised in a table format or assessed through metrics.

The levels of assessed impact from each viewpoint will be rated in accordance with the scale of visual effects defined in section 4.6 and shown repeated in Figure 9-1

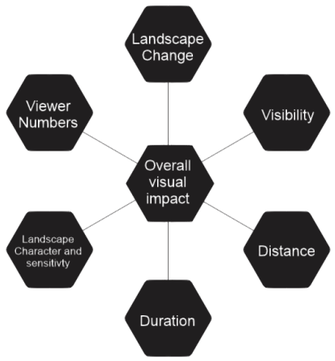


Figure 9-1 Visual impact – public realm

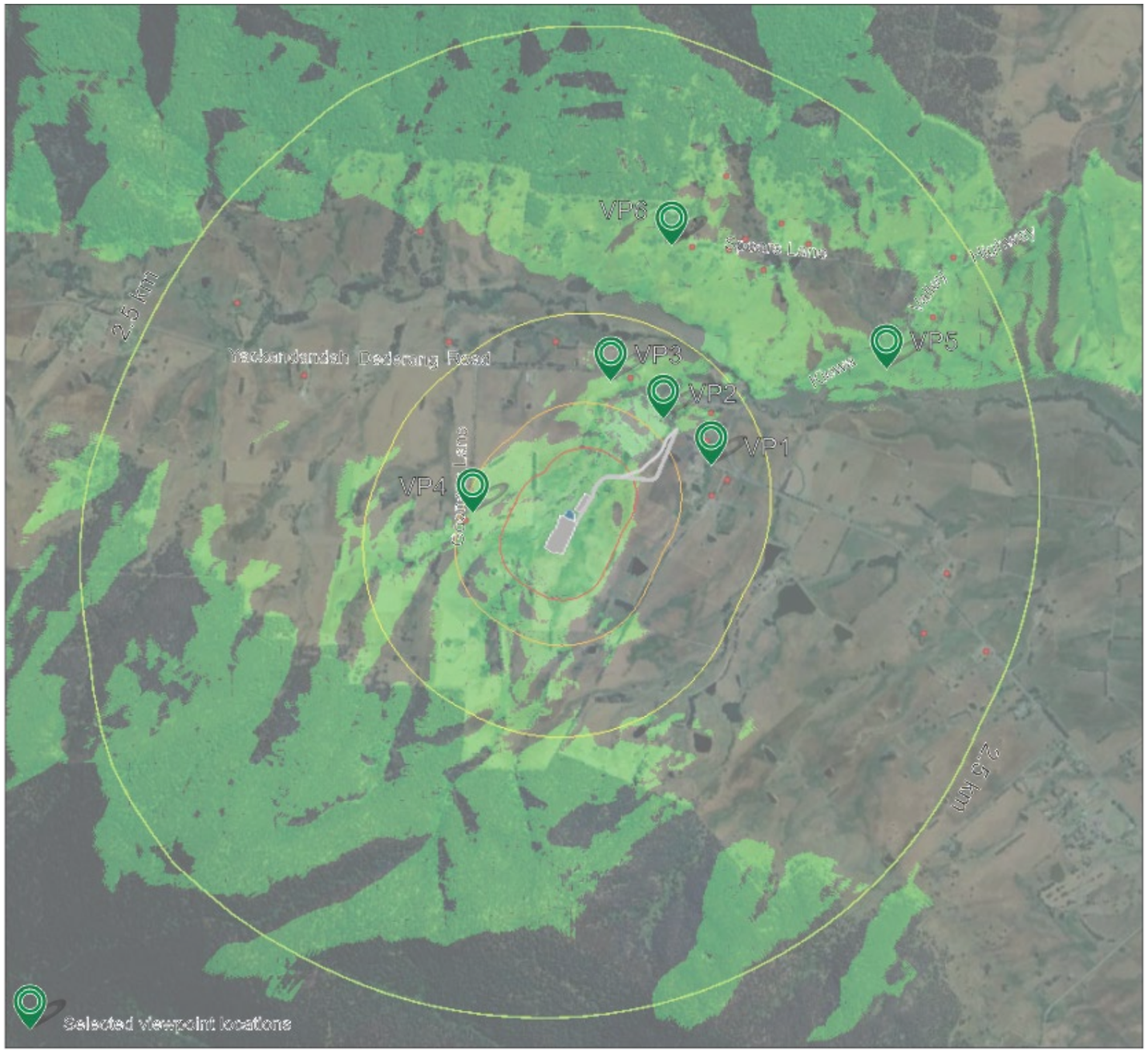


Figure 9-2 Viewpoint location map – All

9.1 Viewpoint 1 – Yackandandah – Dederang Road #1

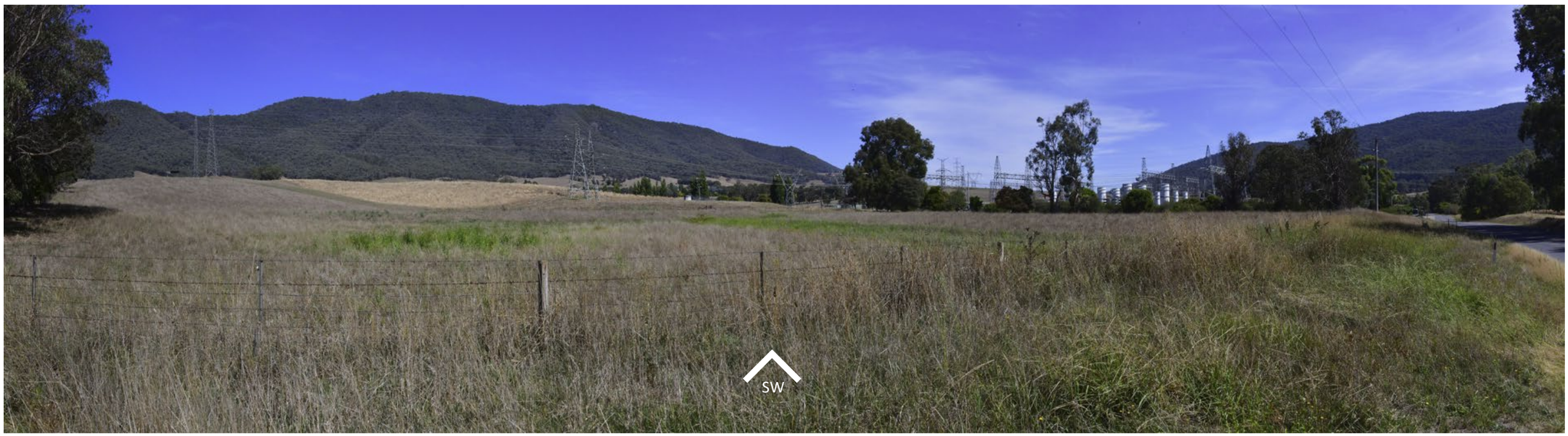


Figure 9-3 Yackandandah - Dederang Road #1 – Existing View

Assessment Criteria		Existing setting and change in views	Assessment
Visibility	Partially screened to filtered	Figure 9-3 shows a view from Yackandandah – Dederang Road, northeast of the Project. This location is one of the first locations travelling west along Yackandandah – Dederang Road, where the existing terminal station is visible. The proposed site entrance would be approximately 150m to the northwest. The Projects substation would be approximately 650m to the southwest. The Project will be beyond the towers along the existing 220kV transmission line seen in the views background. The tops of the lightning roads within the BESS may be visible above the low rise. The proposed BESS and substation would be low in the landscape and screened by the low rise seen in the foreground of the view.	The majority of the surface-level infrastructure will be screened by topography, limiting the visual change to the tops of the lightning rods within the BESS. These features would be added to the views' background, which includes towers along the existing 220kV transmission line and overhead structures in the existing terminal station. The addition of the lightning rods to these views would not be a discernible change. The overall visual impact of the Project would be Nil - Negligible.
Landscape Change	Additive		
Distance	650 m SW		
Duration	Short		
Viewer type/numbers	Road Users / Low		
Landscape Character / Viewer sensitivity	Cleared Farmland		
Overall Visual Impact	**Nil – Negligible.**		

9.2 Viewpoint 2 – Yackandandah – Dederang Road #2

Figure 9-4 Yackandandah - Dederang Road #2 – Existing View

Assessment Criteria		Existing setting and change in views	Assessment
Visibility	Partially screened to filtered	Figure 9-4 shows the view looking north from the intersection of Yackandandah – Dederang Road and Dederang Link Road. This location is also adjacent to a local bus stop. The proposed site entrance would be approximately 140m to the southeast. The Projects substation would be approximately 620m to the south. The Project will be beyond the existing terminal station and transmission lines.	The visual impact from this location is NIL. The Project will be screened by the existing terminal station and not be visible.
Landscape Change	Additive		
Distance	620 m SW		
Duration	Short		
Viewer type/numbers	Road Users / Low		
Landscape Character / Viewer sensitivity	Transmission Infrastructure		
Overall Visual Impact	**Nil – Negligible.**		

9.3 Viewpoint 3 – Yackandandah – Dederang Road #3

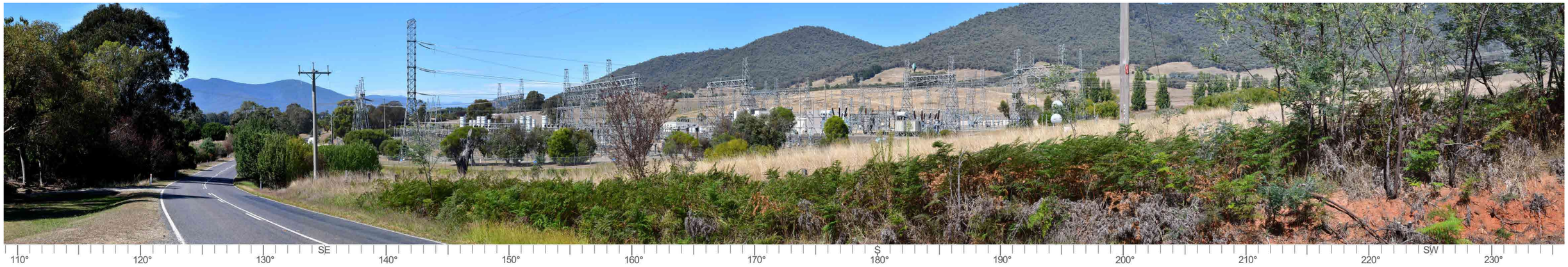


Figure 9-5 Yackandandah - Dederang Road #3 Existing View

Assessment Criteria		Existing setting and change in views	Assessment
Visibility	Partially screened to filtered	Figure 9-5 shows a view from Yackandandah – Dederang Road, north of the Project. This location is adjacent to the driveway of a neighbouring dwelling and is one of the first locations travelling east along Yackandandah – Dederang Road, where the existing terminal station is clearly visible. The proposed site entrance would be approximately 410m to the southeast. The Projects substation would be approximately 660m to the south. Figure 9-6 (below) shows an enlargement of the view looking south. Figure 9-7 shows a photomontage of the same view with the Project superimposed into the view. The Project will be beyond the local roadside cutting and behind the existing terminal station. The tops of the lightning roads within the BESS may be visible above the low rise. The proposed BESS and substation would be low in the landscape and screened by the low rise seen in the foreground of the view.	The overall visual impact of the Project would be Negligible. The BESS would be added to the views' background, which includes the existing 220kV transmission line and terminal station. However, most of the surface-level infrastructure will be screened by topography, existing vegetation and terminal station.
Landscape Change	Additive		
Distance	660 m SW		
Duration	Short		
Viewer type/numbers	Road Users / Low		
Landscape Character / Viewer sensitivity	Transmission Infrastructure		
Overall Visual Impact	**Nil – Negligible.**		

Figure 9-6 Yackandandah - Dederang Road #3 Existing View

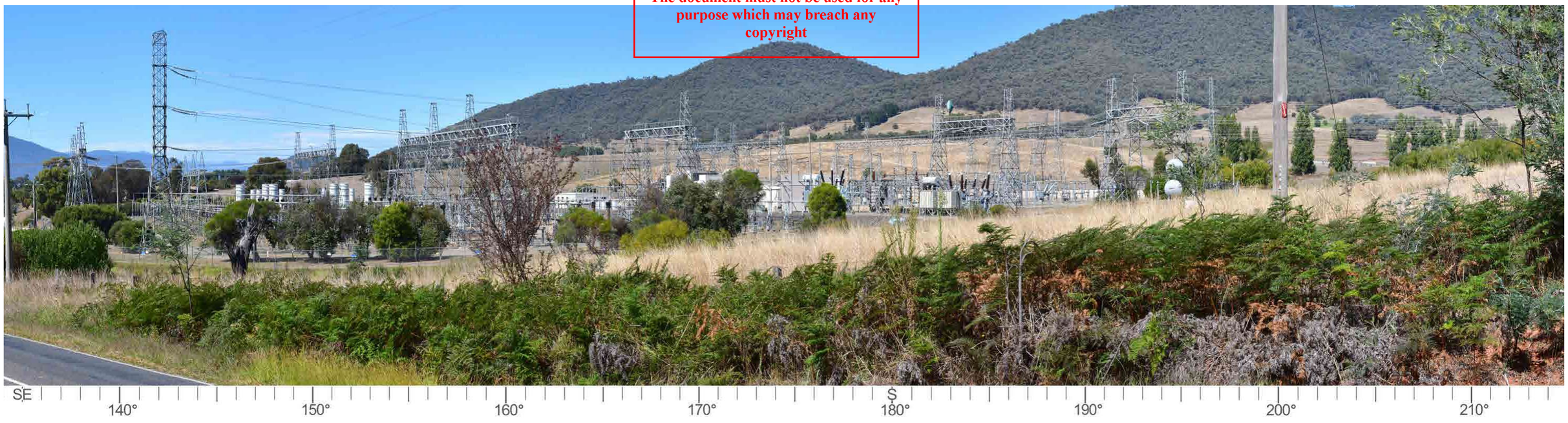


Figure 9-7 Yackandandah - Dederang Road #3 - photomontage

9.4 Viewpoint 4 – Goonans Lane

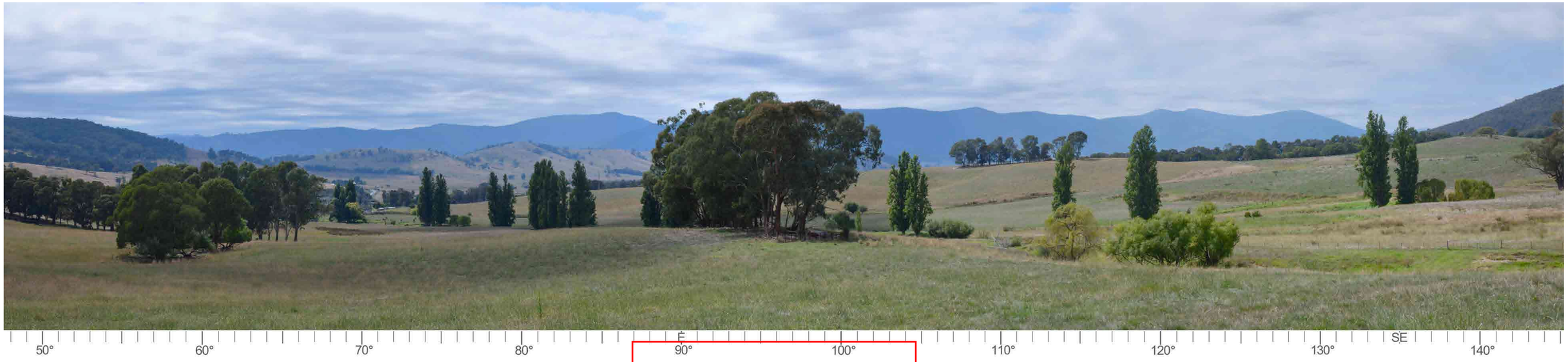


Figure 9-8 Goonans Lane – Existing View

Assessment Criteria	Existing setting and change in views	Assessment
Visibility	Partially screened to filtered	This viewpoint assists in understanding potential views from a neighbouring dwelling west of Goonans Lane. Impacts from dwellings is linked to the use of areas within and surrounding the dwelling. For example, views from internal living rooms such as kitchen, dining or alfresco areas are inherently more sensitive than views from secondary rooms or service areas. Such uses cannot be observed remotely. Figure 9-8 shows a view from within the boundaries of the Site adjacent to the southern end of Goonans Lane. Goonans Lane is a local gravel laneway that terminates at a neighbouring dwelling west of the Site. Most of the view from Goonans Lane are screened by topography and vegetation along within the laneway and subject site. The BESS would be approximately 400m to the east of this viewpoint and approximately 450m east of the dwelling. Figure 9-9 (below) shows an enlargement of the view looking south. Figure 9-10 shows a photomontage of the same view with the Project superimposed into the view. The units within the southern end of the BESS footprint will be visible from this location. Topography and vegetation will screen views of the units located at the Projects northern end, and the proposed substation.	Impact from the dwelling is subject to the orientation of the dwelling, location, nature of views and screening of significant or sensitive views. Figure 9-10 below shows that the Project would be visible, albeit low in the landscape and partially screened by topography and existing vegetation. Vegetation seen in the photomontage also demonstrates that landscaping would be effective in screening views of the Project if required by the occupants of the neighbouring dwelling. Options may include new riparian plantings along the western banks of the unnamed waterway west of the Project, extending the internal planting seen roughly central to the view, or plantings along the subject sites western boundary shared with Goonans Lane.
Landscape Change	Additive	
Distance	400 m SW	
Duration	Short	
Viewer type/numbers	Low Road / Low	
Landscape Character / Viewer sensitivity	Transmission Infrastructure	
Overall Visual Impact	Public Realm **Nil – Negligible.**	

Figure 9-9 Goonans Lane – Existing View

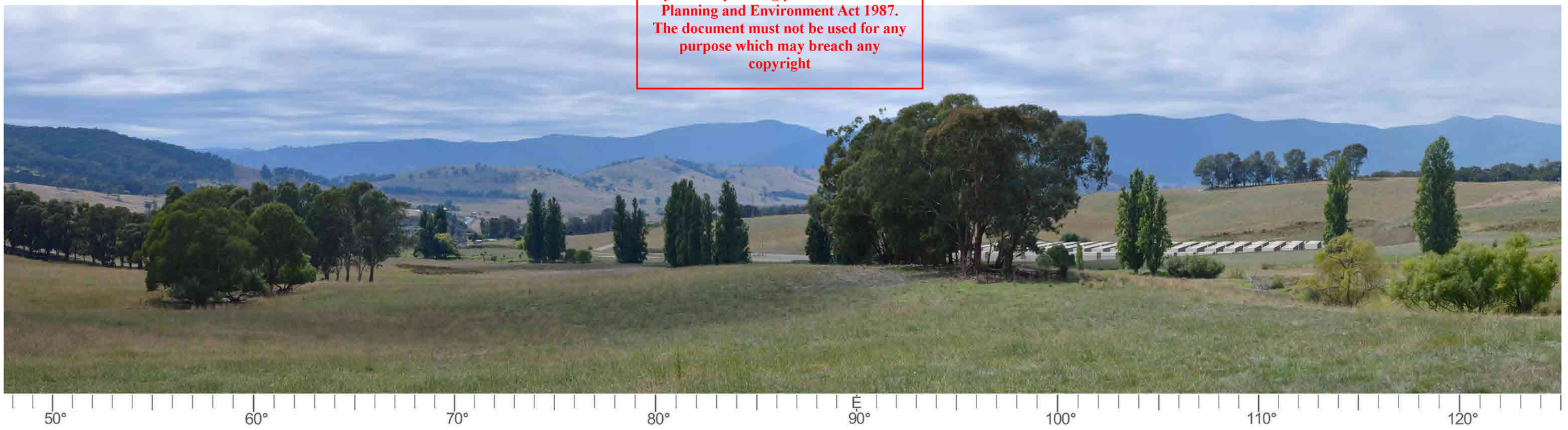


Figure 9-10 Goonans Lane – Photomontage

9.5 Viewpoint 5 – Kiewa Valley Highway

Figure 9-11 Kiewa Valley Highway – Existing View

Assessment Criteria		Existing setting and change in views	Assessment
Visibility	Partially screened to filtered	Figure 9-3 shows a view from Kiew Valley Highway northeast of the Project. This location is one limited location travelling southwest along the Kiew Valley Highway, where the existing terminal station is visible. The proposed site entrance would be approximately 1.2km to the southwest. The Projects substation would be approximately 1.7km also to the southwest. The Project will be beyond the towers along the existing 220kV transmission line seen in the views background. The proposed BESS and substation would be low in the landscape and partially screened by a low rise within site and exisitng vegetation within the site and surrounding areas.	The overall visual impact of the Project would be Nil – Negligible, due to partly to distance, screening litimed duration of views.
Landscape Change	Additive		
Distance	1.2 km SW		
Duration	Short		
Viewer type/numbers	Road Users / Low		
Landscape Character / Viewer sensitivity	Cleared Farmland		
Overall Visual Impact	**Nil – Negligible.**		

9.6 Viewpoint 6 – Speers Lane

Figure 9-12 Speers Lane – Existing View

Assessment Criteria		Existing setting and change in views	Assessment
Visibility	Open views	Speers Lane is a local gravel road that is truncated at its western end. Figure 9-3 shows the view looking south from Speers Lane directly north of the Project. This view is one few locations along Speers Lane, where the existing terminal station and the Project site are visible.Views from locations further east are screened by either topography, existing vegetation or a combination of both. The proposed site entrance would be approximately 1.05km to the south. The Projects substation would be approximately 1.5km also to the south. The Project will be beyond the towers along the existing 220kV transmission line seen in the views background. The BESS units will be visible in the cleared farming land beyond the existing terminal station	Units within the BESS will be added to the background of views, including The addition of the lightning rods to these views would not be a discernible change. The overall visual impact of the Project would be Negligible – Nil..
Landscape Change	Additive		
Distance	1.4 m S		
Duration	Short		
Viewer type/numbers	Road Users / Low		
Landscape Character / Viewer sensitivity	Cleared Farmland		
Overall Visual Impact	**Nil – Negligible.**		

10. Mitigation

There are no locations where the Visual impact has been assessed a greater than **negligible**. This is due to the limited visibility of the Project, short duration of views, low viewer numbers and sensitivity of the landscape to the visual change proposed by the Project.

Three options for landscaping have been identified to assist with minimising the Projects visual impacts from the neighbouring dwelling west of the Project. Figure 3-2 shows the indicative location and extent of plantings in each option, which are described below. The final location and extent would be subject to permit conditions and discussions with the host and neighbouring landholder :

- Option 1 includes revegetation works along the western banks of the un-named waterway to the west of the BESS.
- Option 2 would build upon existing windbreak plantings in farming land roughly midway between the proposed BESS and Goonans Lane.
- Option 3 would include native windbreak plantings along the eastern edge of Goonans Lane and within the subject site.

In all options, species would be selected Ecological Vegetation Classes (EVC's) from the local area, and relevant to the setting (e.g. Riparian).

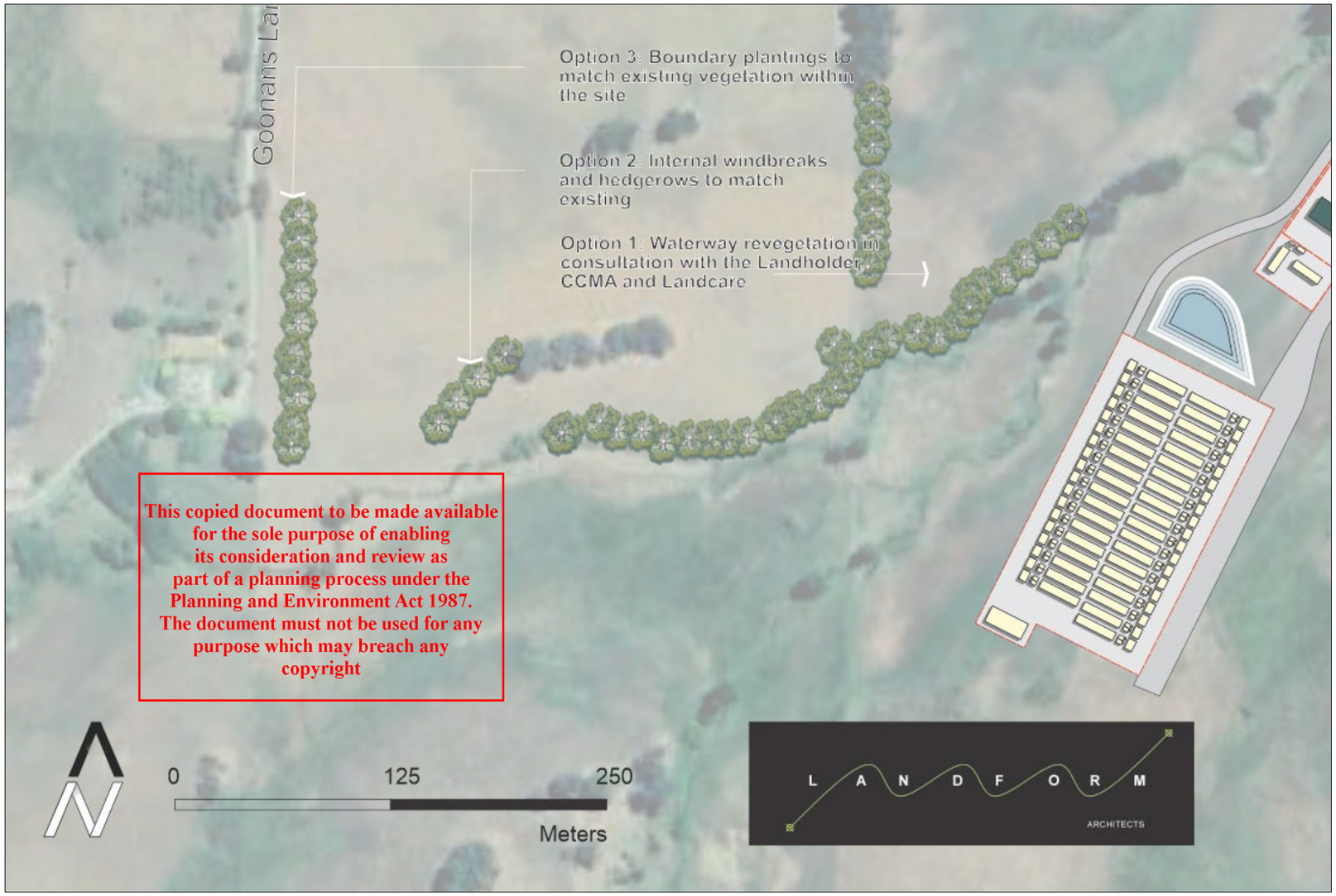
It is understood that the Proponent commits seeking to work with the neighbour to select the preferred option to screen the Project whilst mitigating any unintended impacts or view loss that may be brought about by landscaping.

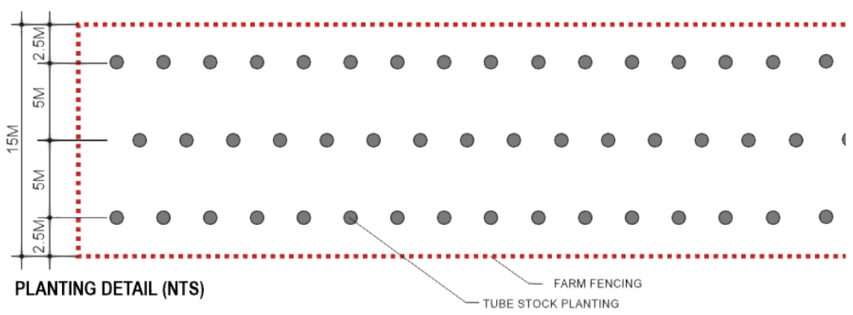
The following mitigation measures will ensure potential visual impacts are further reduced.

Any landscape screening should consider design requirements such as canopy separation, defendable space and distance from structures provided by the Country Fire Authority (CFA).

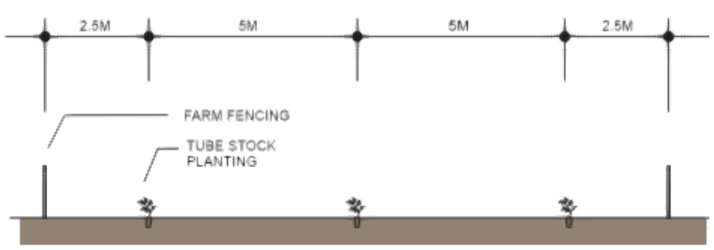
Table 3 Visual Impact – key mitigation and management measures

Mitigation Measure	Construction	Operation
Where practicable, materials and finishes of onsite infrastructure (except for the batteries) will be non-reflective and of a colour that will blend with the landscape.	✓	✓
If required by the neighbouring landholder to the west (and shown opposite) be implemented and maintained to provide natural filtering and screening from views.	✓	✓
Design and install Project lighting at terminal stations in accordance with relevant standards, including but not limited to Australian Standard 4282 – Control of the obtrusive effects of outdoor lighting (AS 4282 – 1997).	✓	✓





PLANTING DETAIL (NTS)



PLANTING DETAIL (NTS)

11. Summary of Landscape and Visual Impact Assessment

Based on the above review, there appear to be no landscape or visual reasons that would preclude the establishment of the Project at the Site. This is supported by the following:

- There are limited locations along public roads within the study area where the Project would be visible.
- From these areas, the overall visual impact has been assessed as Negligible. The assessment of Negligible is due to the limited visibility of Project features, few people who would see the Project, short duration in which the Project would be visible and low sensitivity of the landscape in which the Project would be visible.
- There are no locations within Dederang Township where the Project would be visible.
- No formal viewing locations or lookouts were identified in locations within the nearby area of State Forests where the Project would be a feature in views.
- There may be locations beyond the defined study area. These locations are in privately held farmland where there would be few people who would see the Project. These views would also be a distance if the Project were visible, which would be a minor element in the background of views such that impacts would be negligible.
- The closest dwellings along Speers Lane are approximately 1.5km north of the Project. Although dwellings are elevated, the Project views would be added to the background of views, which include the existing Dederang Terminal Station and connecting overhead transmission lines.
- Nearby views from neighbouring dwellings are limited to the dwelling at the southern end of Goonans Lane, approximately 460 m west of the Project. The photomontage prepared from and indicative location within the subject sites boundaries shows that the BESS will be low in the landscape and partially screened by topography and existing vegetation. Vegetation seen in the photomontage also demonstrates that landscaping would be effective in screening views of the Project if required by the neighbouring dwelling owner. Any requirement for screening and the preferred configuration is subject to discussions with the affected landholder.
- Recognising the level of assessed impacts for this project would be negligible. The potential for cumulative visual impacts would not be significant.

APPENDIX 1 - Photomontages

Dederang Road

Distance to site boundary 490m SE

Existing View

110° 120° 130° SE 140° 150° 160° 170° S 180° 190° 200° 210° 220° SW 230°

Photomontage

110° 120° 130° SE 140° 150° 160° 170° S 180° 190° 200° 210° 220° SW 230°

Wireframe view

110° 120° 130° SE 140° 150° 160° 170° S 180° 190° 200° 210° 220° SW 230°

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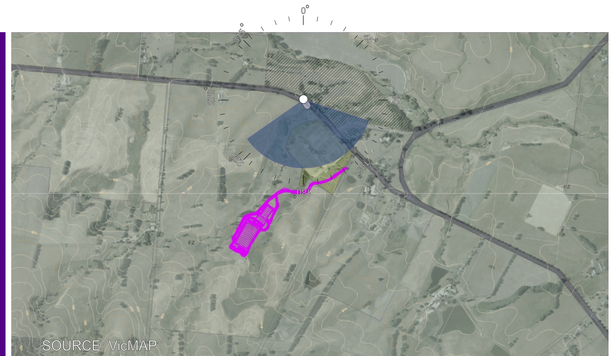
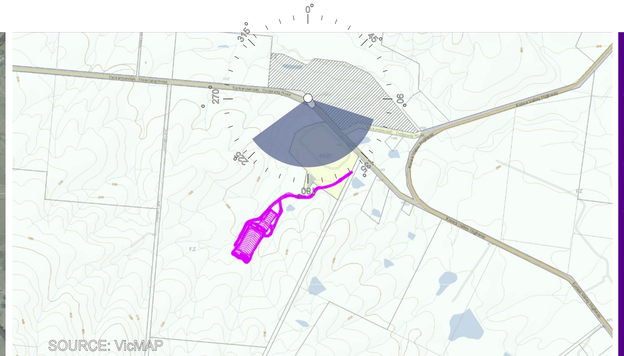




Project | Dederang BESS

Project No: PJ 00041
Date: 29.01.2024

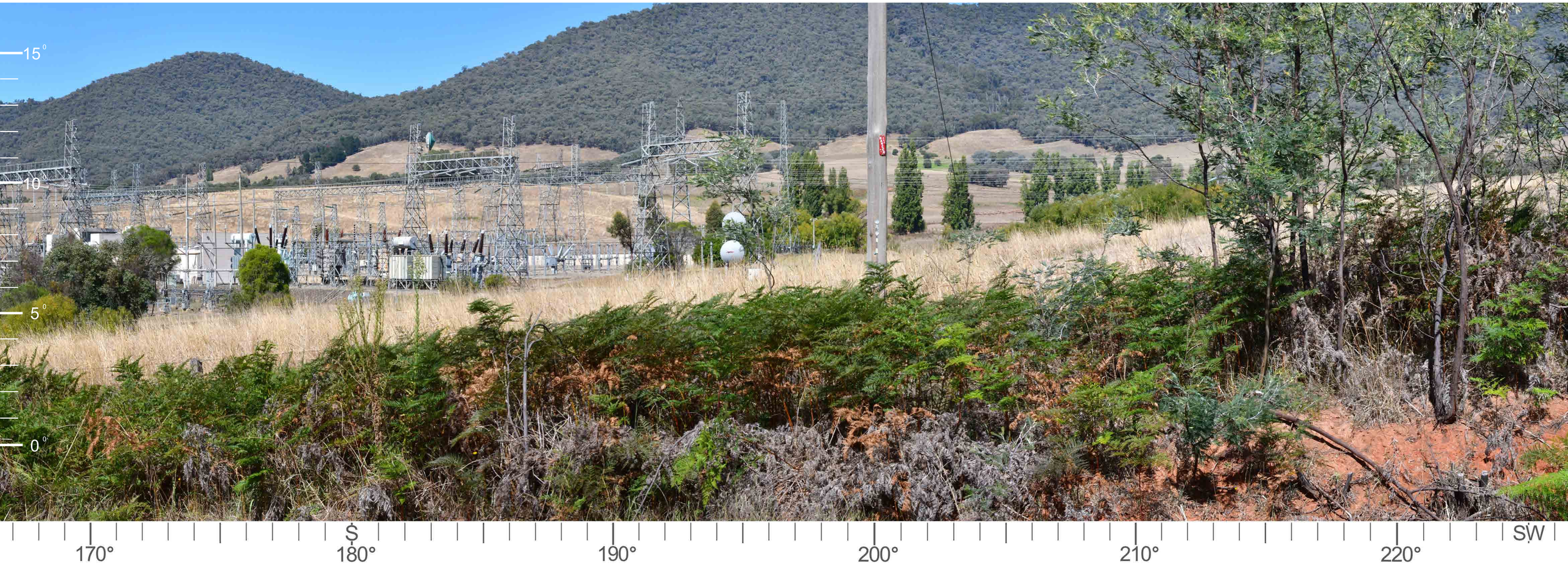
Photography Information

LAYOUT	DRB-EL-DRG 202
CAMERA	NIKON D850
LENS	60mm
GPS	5H 499180.00 m E, 5965954.00 m S
DATE	6/10/2023

1

Dederang Road

Distance to site boundary 490m SE



Existing view

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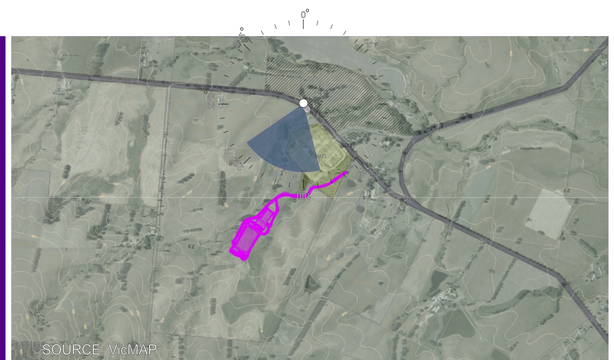

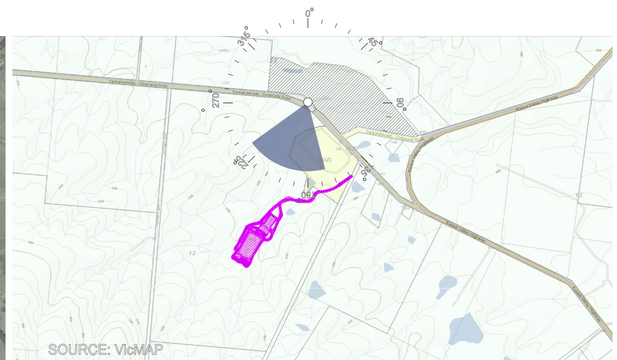

Project | Dederang BESS

Project No: PJ 00041
Date: 29.01.2024

Photography Information

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CAMERA	NIKON D850
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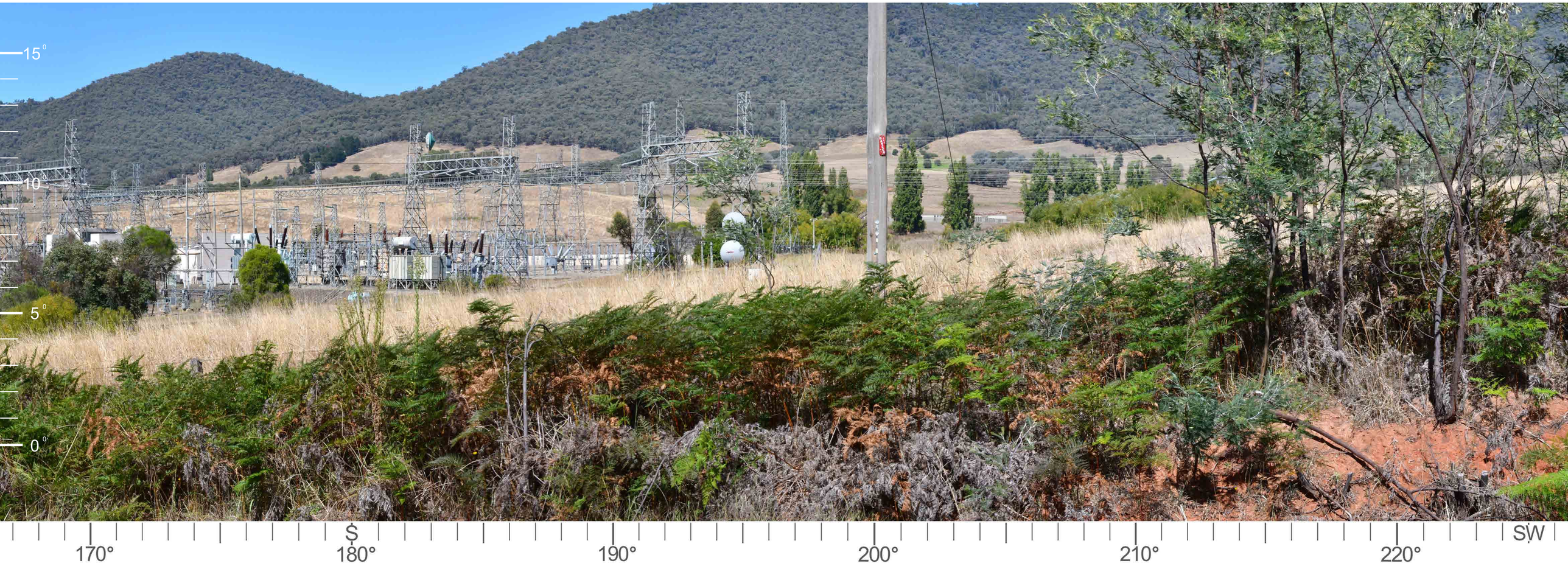
DATE	6/10/2023

2

Dederang Road

Distance to site boundary 490m SE



Photomontage

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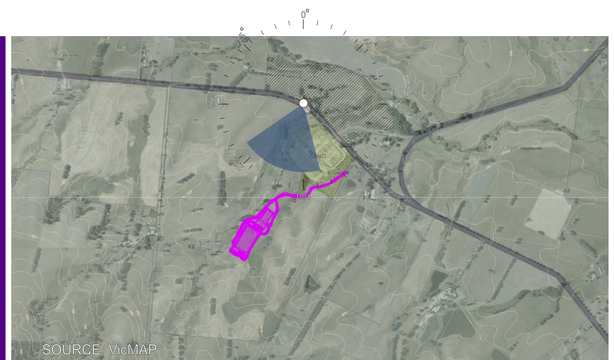

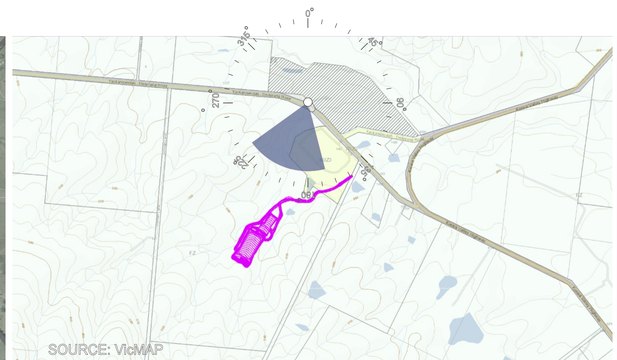

Project | Dederang BESS

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Photography Information

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CAMERA	NIKON D850
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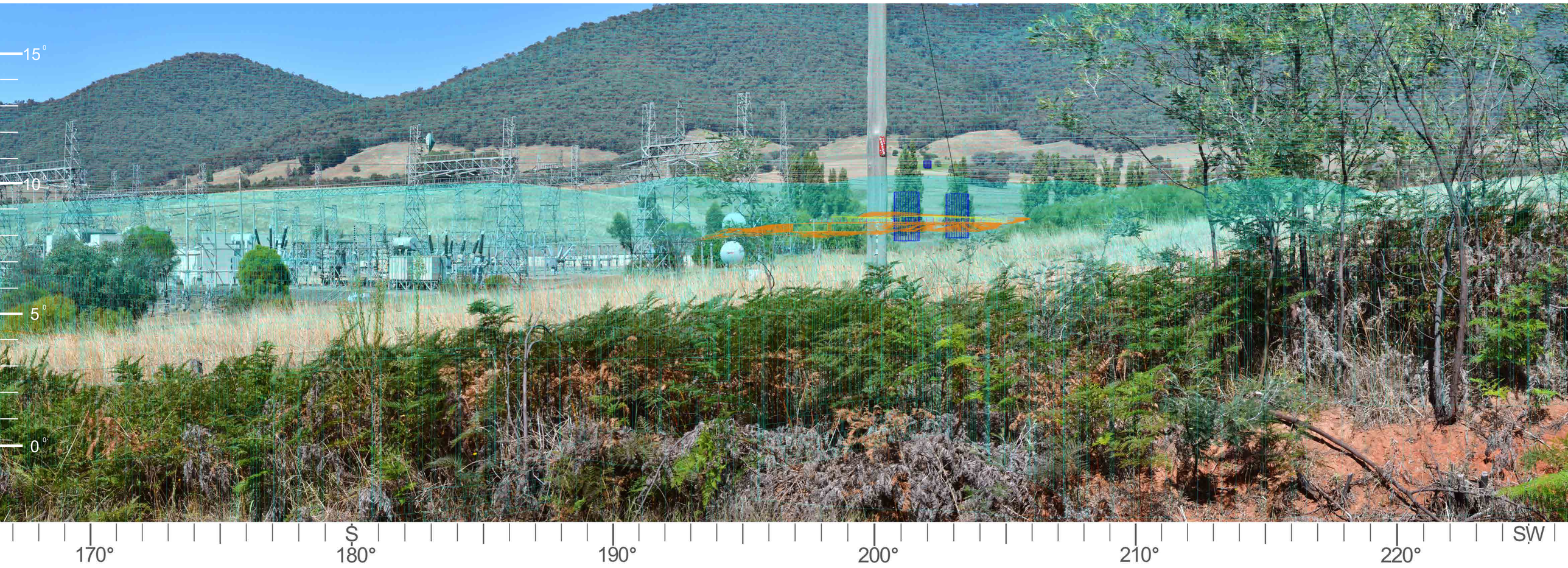
DATE	6/10/2023

3

Dederang Road

Distance to site boundary 490m SE



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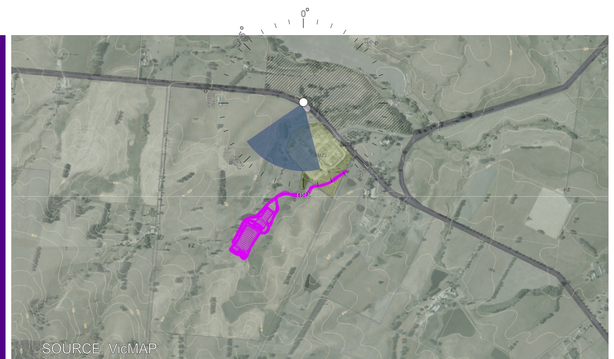

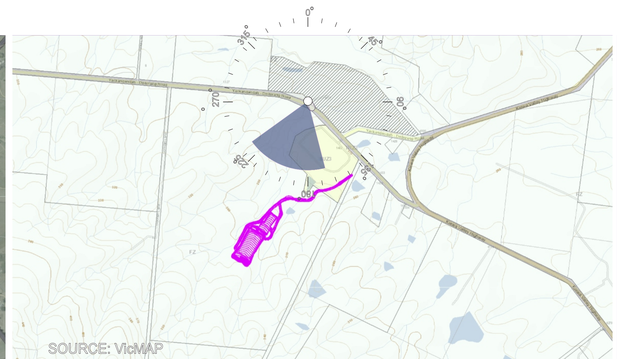

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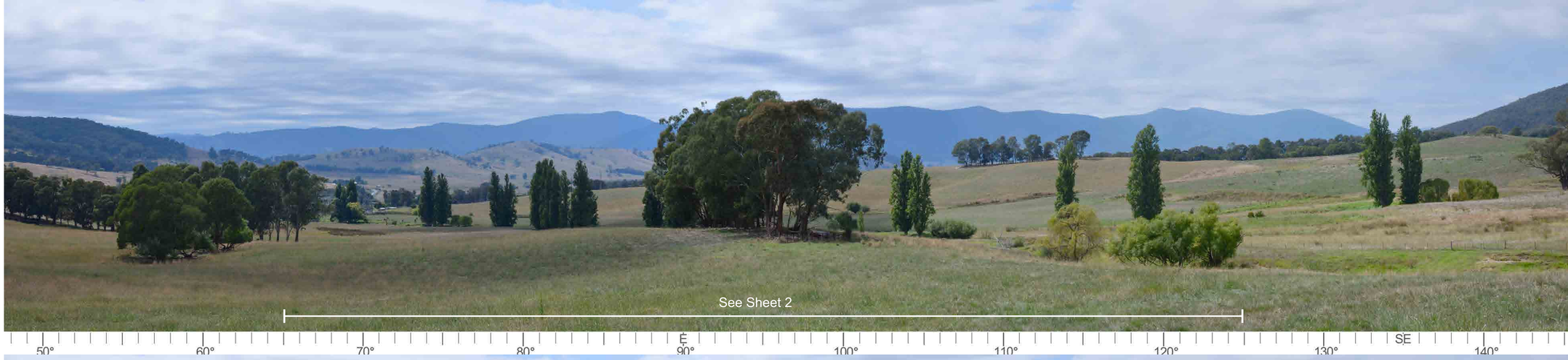
Project No: PJ 00041
Date: 29.01.2024

Photography Information

LAYOUT	DRB-EL-DRG 202
CAMERA	NIKON D850
LENS	60mm
GPS	5H 499180.00 m E, 5965954.00 m S
DATE	6/10/2023

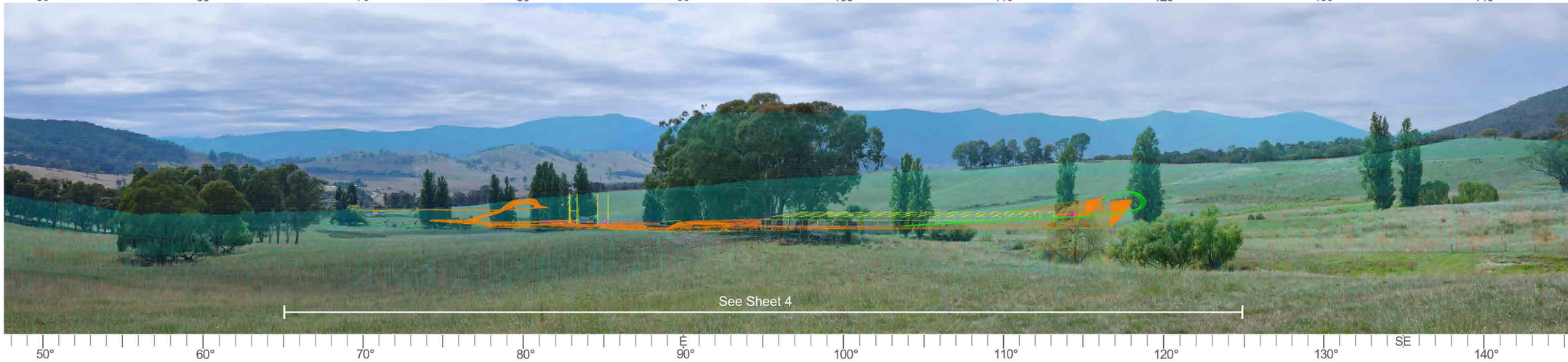
Goonans Lane

Existing View



Photomontage

Wireframe view



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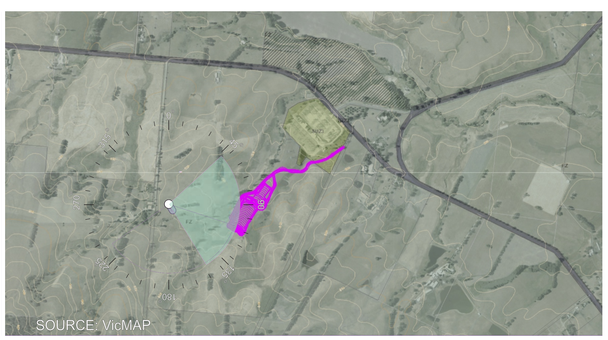

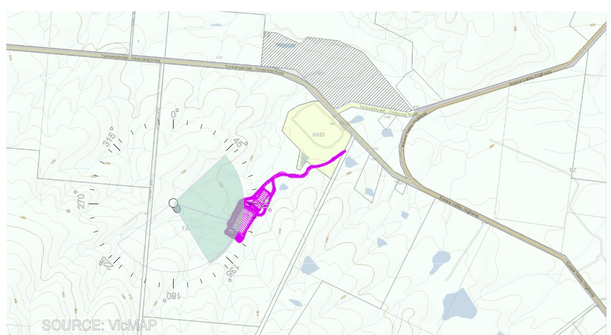

Project | Dederang BESS

Project No: PJ 00041

Photography Information

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CAMERA	NIKON D850
LENS	60mm
GPS	55H, 498367.98 m E, 5965218.81 m S
DATE	01/07/2024

1

Goonans Lane

Existing View

ADVERTISED
PLAN

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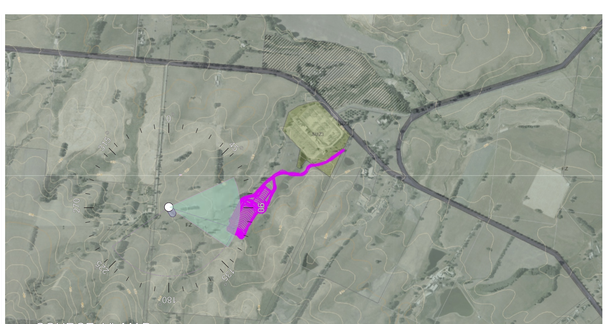

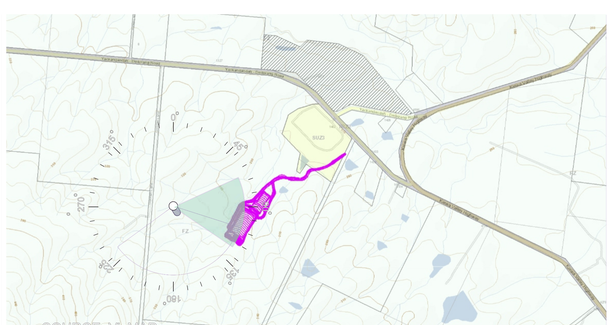

Project | Dederang BESS

Project No: PJ 00041

Photography Information

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CAMERA	NIKON D850
LENS	60mm
GPS	55H, 498367.98 m E, 5965218.81 m S
DATE	01/07/2024

2

Goonans Lane

Photomontage

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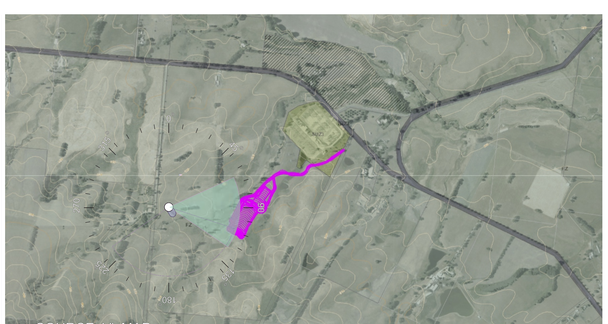

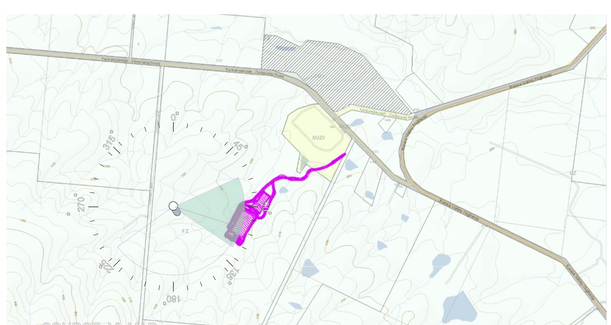

Project | Dederang BESS

Project No: PJ 00041

Photography Information

LAYOUT	Dederang cad tin file 2024-06-06.dwg Dederang EW concept package for review dated 2024-06-07.pdf Dederang BESS-Gen6-50degC_GA_R00_06.05.2024.pdf
CAMERA	NIKON D850
LENS	60mm
GPS	55H, 498367.98 m E, 5965218.81 m S
DATE	01/07/2024

3

Goonans Lane

Wireframe

LANDFORM ARCHITECTS

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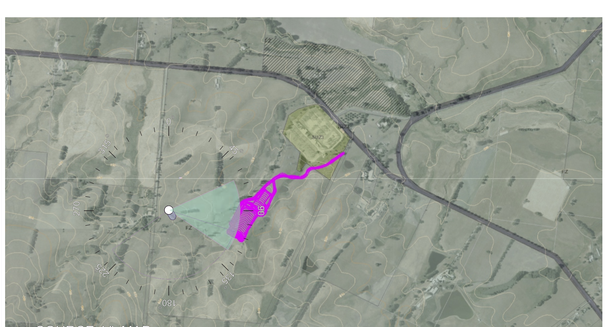
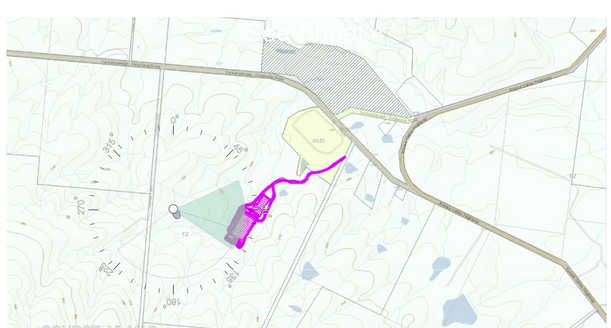
Mint





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