Macedon BESS

Macedon BESS – Landscape and Visual Impact Assessment

Macedon BESS Development Pty Ltd

Reference: 527802

Revision: C

2026-03-18

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Document control record

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Document control		aurecon				
Report title		Macedon BESS – Landscape and Visual Impact Assessment				
Document code			**Project number**		527802	
File path						
Client		Macedon BESS Development Pty Ltd				
Client contact		Linh Nguyen	**Client reference**			
Rev	**Date**	**Revision details/status**	**Author**	**Reviewer**	**Verifier** (if required)	**Approver**
A	2024-11-29	Initial Draft	Saman H	James Millar		Bez Hasenfratz
B	2026-02-25	Updated Draft	Saman H	James Millar		Bez Hasenfratz
C	2026-03-18	Final	Saman H	James Millar		Bez Hasenfratz
Current revision		**C**				

Approval			
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Executive Summary

Aurecon Australasia Pty Ltd (Aurecon) has been engaged by Macedon BESS Development Pty Ltd to facilitate the environmental and planning assessments and approvals for the Macedon Battery Energy Storage System (BESS), (the Project).

The Project includes the development of a BESS on the Site located on Black Forest Drive (also referred to as Macedon-Woodend Road), Macedon (formally known as Lot 2 on Plan of Subdivision 444155). The construction phase is expected to span approximately 12-15 months.

This Landscape and Visual Impact Assessment (LVIA) for the Project has been prepared to support the planning approval process, identifying potential adverse impacts with recommended mitigation measures to limit long-term adverse impacts. The LVIA considered the Macedon BESS proposed site layout (Rev A 27-10-2025, South Energy) to determine the scale and type of modification proposed.

The landscape and visual baseline

The LVIA Study Area has been defined within a radius of 1000m from the location of the proposed Site. The Study Area captures where the Project may be observable based upon the topographical characteristics and intervening elements in the surrounding area.

Relevant planning policies and legislation have been reviewed to understand any specific landscape or visual designations relating to the Study Area. A desktop study and site visit has been undertaken to understand the various physical elements that combine to create landscape and visual character.

The Project is subject to the Macedon Ranges Planning Scheme. The Site is zoned Rural Conservation Zone (RCZ1) which values the protection of the existing landscape character. The land is also subject to Vegetation Protection Overlay (VPO9) and Environmental Significance Overlay (ESO5) of the Macedon Ranges Planning Scheme. Both overlays aim to protect the existing native vegetation as an important feature to the existing character and amenity of the Shire.

Landscape and visual assessment findings

The level of visual modification due to the Project is a combination of the degree of change and the ability of the landscape setting to absorb the change. The prominence and level of intrusion of the development within a landscape setting is a key determinant of the level of visual modification.

The baseline assessment identified two Landscape Character Zones (LCZ); ‘Rural Conservation’ (LCZ1) and ‘Rural Living (LCZ2) within the Study Area. The BESS and ancillary structures introduce built form which is larger in extent than farm infrastructure but of a scale that does not influence outside of the Site. It presents a very low magnitude of change to the LCZ1 due to vegetation removal, site clearance and built form. Given that this LCZ is widely dispersed, the proposed works will have a very low impact to the landscape character. Also, the Project is outside LCZ2 and screened via vegetation and will have a negligible impact on LCZ2.

There were seven representative public viewpoints identified within the Study Area that were assessed. These viewpoints were representative of rural residential dwellings and included views from adjacent roads. The assessment determines the modification proposed by the Project during construction, at day one of operation, and residual impacts if recommended mitigation measures are applied. A summary of the visual impacts is outlined in Table E-1.

Table E-1 Summary of landscape and visual impacts

Viewpoint or LCZ	Description	Potential Construction impacts	Potential Operational impacts	Potential Residual impacts
LCZ 1	The Project impact including site clearance and introduction of large hardstand surfaces and built-forms will contrast the existing landscape character. However, due to the dense vegetation buffers, the impacts are not likely to extend beyond the site boundaries.	**Very Low**	**Very Low**	**Negligible**
LCZ 2	The project has negligible direct/indirect bearing on the existing landscape character of this LCZ.	**Negligible**	**Negligible**	**Negligible**
VP1: 62 Black Forest Drive	Vegetation clearance along Black Forest Drive may open a view window to the Project construction activities and project components. However, the views will be filtered by the existing vegetation around residential receivers.	**Low**	**Low**	**Very Low**
VP2: 48 Black Forest Drive	The BESS components may be visible in the backdrop of the existing substation through the existing gap in the tree rows along Black Forest Drive. However, the views will be filtered by the existing intervening structures and vegetation around residential receivers.	**Very Low**	**Very Low**	**Negligible**
VP3: 32 Norton Rd	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**
VP4: 121 Lawson Rd	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**
VP5: Intersection of Mount Macedon Rd and Black Forest Drive	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**
VP6: Allison Lane	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**
VP7: 96 Black Forest Drive	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**

Cumulative visual impacts were considered involving the existing electrical substation adjacent to the Site. Provided the dense vegetation buffer along Black Forest Drive, there is a very low potential that both structures will be visible from the same viewpoint. The only exception to that is VP2 where the BESS components may be noticeable behind the substation components. Nevertheless, the introduction of a new access driveways may visually impact the continuity of tree corridor along Black Forest Drive. This could be mitigated via minimising vegetation removal at the proposed site access driveways to retain the existing landscape visual buffer along Black Forest Drive.

Mitigation

Whilst mitigation is not required given the low visual impacts, design recommendations have been provided. The key beneficial recommendation is to locate and orient the proposed driveways to avoid wider gaps in the roadside vegetation and minimise direct sightlines from the interfacing rural living properties across Black Forest Drive. In addition, recessive materials and finished to the proposed noise walls will further reduce the level of landscape and visual impact of the project.

Abbreviations

Term	Definition
The Applicant	Macedon BESS Development Pty Ltd
Aurecon	Aurecon Australasia Pty Ltd.
BESS	Battery Energy Storage System
CBD	Central Business District
CHMP	Cultural Heritage Management Plan
CMA	Catchment Management Authority
DEECA	Department of Energy, Environment and Climate Action
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPC	Department of Premier and Cabinet
EE Act	*Environment Effects Act 1978*
EES	Environment Effects Statement
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
Foreground	The area that immediately surrounds the project up to 0.5 kilometres.
GSV	Ground Surface Visibility
GHG	Greenhouse Gases
GW	gigawatt
ha	hectares
HO	Heritage Overlay
HSE	Health, Safety and Environmental
km	kilometres
kV	Kilovolt
Landscape	Its constituent elements, its character, and the way this varies spatially, its geographic extent, its condition, the way the landscape is experienced, and the value attached to it.
LCT	Landscape Character Types
LGA	Local Government Area
LVIA	Landscape and visual impact assessment: The assessment of the impacts of the proposal on landscape and visual values.
m	metre
MNES	Matter of National Environmental Significance
MW	Megawatts
MWh	Megawatt hours
NT	National Trust
RAP	Registered Aboriginal Party
SGD	Significant Ground Disturbance
Study Area	The area designated relevant for assessment of the project, determined by viewshed analysis
The Project	Macedon Battery Energy Storage System
The Site	Proposed location for the Project
WWCHAC	Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation
Viewpoint	Moderate or high sensitivity location from which views to the construction process or components of the project may be possible.

Term	Definition
Viewshed	The area visible from a particular viewing location.
Visual amenity	The qualities of a landscape setting that are appreciated and valued by a viewer.
Visual catchment	The area over which an object can be seen within the landscape based on the line of sight.
Visual impact	The result of assessing the sensitivity level of a viewer and the modification level of a development.
Visual sensitivity	The degree to which various user groups would respond to change based on their expectation of a particular experience in a given setting for example the expectation of a high level of visual amenity in a national park.

1 Introduction

1.1 Purpose

Aurecon Australasia Pty Ltd (Aurecon) has been engaged by South Energy Pty Ltd, on behalf of Macedon BESS Development Pty Ltd to prepare this LVIA Assessment for the Macedon Battery Energy Storage System (BESS) (the Project). The purpose of this LVIA report is to provide an assessment of the Landscape and Visual Impacts for the Project, including an assessment of any potential impacts to landscape character of the existing context and sensitive receivers. Matters required to be considered under the Macedon Planning Scheme are identified and addressed in this report.

The scope of the assessment is to:

- Undertake a review of existing planning information for the Project Site
- Understand the natural and built landscape and visual attributes and characteristics in the vicinity of the project, including their relationship to use patterns and history.
- Identify areas of sensitivity to landscape and visual change associated with the project.
- Identify opportunities to improve and enhance the visual environment from a precinct perspective and for the project's components.
- Assess the landscape and visual impacts associated with the project.
- Satisfy regulatory requirements under the *Planning and Environment Act 1987* (VIC).

1.2 Assumptions and limitations

The following assumptions and limitations apply to this LVIA report.

- The LVIA aims to be objective and, as such, seeks to describe any changes factually. Potential changes resulting from the Proposal have been defined. However, the significance of these changes requires qualitative (subjective) judgements to be made. Therefore, the conclusions to this LVIA combine both objective measurement and subjective professional interpretation.
- This LVIA has attempted to be objective, however it is recognised that visual impact assessment can be highly subjective, and individuals are likely to associate different visual experiences to the Study Area
- The LVIA is based on the concept layout for Macedon BESS and collector substation (EHV-MBESS-EL-DR-0110 Rev A 27-10-2025).
- Access to sensitive viewpoints on private land, such as residences or accommodation, were not undertaken for this LVIA. However, impacts from these locations were considered in the assessment.
- Methodology, program, and timing of the construction works are currently indicative and dependent upon planning approvals.
- Desktop and field investigations were undertaken to inform the findings of this report.
- This LVIA does not consider any stakeholder consultation or engagement on environmental matters that may have occurred.
- The preliminary environmental assessments were undertaken based on the Project investigation area mapped in each specialist assessment. Any additional Project area has not been considered by these reports and therefore has not been considered to date.
- The environmental assessments are based on the Project Description as outlined in Section 2. As the design of the Project is not yet finalised, our advice provides a point in time reference that is subject to change.

2 Project Site and Surrounds

The proposed Site is located on Black Forest Drive (also referred to as Macedon-Woodend Road), Macedon and is formally known as Lot 2 on Plan of Subdivision 444155 (refer to Figure 2-1). The Site has an area of approximately 7.28ha and is located in the Macedon Ranges Shire, approximately 59km north-west from Melbourne's CBD. The Site is bordered by Alison Lane to the north, Black Forest Drive/ Macedon-Woodend Road to the east, the Gisborne Substation to the south and the Calder Freeway to the west.

Mature vegetation surrounds the Site's boundaries. The central portion of the Site comprises flat topography, with small patches of mature canopy trees and understorey vegetation.

There is an unnamed waterway located within the western portion of the Site.

The Site surrounds are primarily characterised by cleared, vacant land on the south side of Calder Freeway and agricultural land on the north side of Black Forest Drive/Macedon-Woodend Road. The Site is situated in a rural setting and away from established neighbourhoods. Low-density rural residences are visible within the broader landscape to the north, with the nearest dwelling being opposite Macedon-Woodend Road at approximately 65m to the east. The closest township is New Gisborne, approximately 2.3km to the southeast of the Site and is within the Macedon Ranges Shire Council.

The Registered Aboriginal Party (RAP) associated with the Site is Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWCHAC).

2.1.1 Project Description

The following section provides a summary of the proposal and should be read in conjunction with the accompanying site layout provided by South Energy.

The Project will comprise the following:

- Site establishment works including removal of vegetation within the construction area.
- Construction of a BESS with a 501 MWh capacity featuring the following design components: 123 Battery Containers (BCCs) and 41 Power Conversion Units (PCUs)
- Ancillary electrical equipment including sub-station, control rooms, harmonic filter, and connecting ancillary equipment
- Construction of two site access points connecting to Allison Lane and Macedon-Woodend Road respectively, and associated business identification signage.
- Underground or overhead cabling (66kV) to connect the onsite substation to the adjoining Powercor Gisborne Substation (66/22kV).
- An Operations and Maintenance (O&M) Facility.
- Temporary construction facilities including site offices and stores, laydown and hardstand area and construction carpark.
- Water storage including two water supply tanks and pump house.
- Fencing around the perimeter of the BESS and collector substation.
- Permanent car parking spaces for operational staff.
- Installation of a noise wall up to 4m in height and approximately 240m in length on the northeast boundary the BESS.
- Construction of two (2) lightning masts up to 21.4m in height adjacent to the collector substation.
- Construction of light poles up to 10.6m in height around the perimeter of the BESS.
- Construction of a firewater holding pond.

Figure 2-1 Proposed Site Layout

Table 2-1 outlines the key project components of the Project as relevant to potential for landscape and visual changes.

Table 2-1 Project components

Component	Description	Quantity	Indicative scale (l x w x h)
BESS	Battery Containers	123	6.06m x 2.44m x 2. 9m
	Inverters	41	5.22m x 1.65m x 2.46m
O&M building	Simple building for site and subcontractor offices, includes toilet	1	15.0m x 4.7m x 3.5-4m
Switch room	Adjacent to collector substation	1	19.5m x 6.0m x 2.7m height approximately
Collector Substation	66/33kV	1	8.5m x 17.5m x 4.2m approximately
Water tank and pump house	335kL round tanks	2	4.0m height approximately
Noise walls	4-metre-high noise wall	2	4 m high X 240m
Lightning mast	21.4-metre-high poles	2	22m high
Light poles	Up to 10,6 peripheral light poles	24	10.6m high
Car parking	Gravel surface for 3 cars	3	4.9m x 3.2m

The figure below provides indicative illustrations of battery storage units. This application is supported by a concept plan, which identifies the maximum footprint of the proposal. This will provide flexibility in accommodating minor design and layout changes.

Figure 2-2 Example of battery storage units

2.1.2 Construction and Operation Phase

Methodology, program, and timing of the construction works are currently indicative and dependent upon planning approvals. It is anticipated that the construction activities will take place over a 12 to 15-month timeframe and occur over two main phases:

- Site preparation:
  - Site clearing, fencing and establishment of laydown area
  - Earthworks, storage, and removal of spoil (where required).
  - Access roads and drainage
- Equipment delivery and installation:
  - Delivery and construction of batteries, inverters, and associated infrastructure
  - Construction of connection to the transmission network
  - Testing and commissioning

It is expected that that the Project will be operating for approximately 20 years. Following this period, there will be a decision to either refurbish/deploy alternative project on site or decommissioning of site will occur.

Figure 2-3 Birdseye view of Project layout (modelled for use in photomontages)

3 Legislative and policy context

The following sections provide an overview of the legislative and policy framework concerning the assessment of potential landscape and visual impacts as part of a planning application submitted under the *Planning and Environment Act 1987* (P&E Act).

3.1 Planning and Environment Act 1987

The P&E Act establishes a comprehensive framework for the use, development, and protection of land in Victoria. It guides the preparation and application of planning schemes, which serve as subordinate legislation defining permissible land uses and developments. These planning schemes include various controls such as zones, overlays, and both general and specific provisions that dictate the necessity for planning approval.

3.1.1 Planning Policy Framework

The Planning Policy Framework (PPF) provides a spatial planning context and sets decision-making objectives within Victoria, in alignment with the goals outlined in the P&E Act. The Municipal Planning Strategy (MPS) communicates the strategic policy context for local municipalities and highlights significant planning issues. The Study Area is located within the Macedon Ranges Shire Council (LGA) and is subject to the Macedon Ranges Planning Scheme (MRPS).

The following Table 2-1 summarises the key legislative and policy documents relevant to this Study Area.

Table 3-1: Planning provisions applicable to the Study Area

Legislation/Policy Reference	Brief Description – Legislation, Salient Parts, and Intent	How Legislation/Policy is Relevant to the LVIA
Macedon Ranges Statement of Planning Policy (2019)	Establishes a long-term vision to protect the Macedon Ranges as a Distinctive Area and Landscape. Key objectives include conserving landscape character, biodiversity, and rural land use patterns.	The LVIA assesses the potential impacts on the existing landscape character of the site context proposes mitigation measures to address the potential impacts (Section 5).
Clause 12.05-2S – Landscapes *Victoria Planning Provisions (VPPs)*	Clause 12.05-2S sets the objective to *'Protect and enhance significant landscapes and open spaces that contribute to character, identity, and sustainable environments.'* Strategies include avoiding visual intrusion and maintaining scenic qualities.	The LVIA identifies significant landscape features (Section 4) and demonstrates how the proposed development avoids or mitigates visual intrusion (Section 5), consistent with Clause 12.05-2S.

Clause 35.06 - Rural Conservation Zone Schedule 1 (RCZ1) *Macedon Ranges Planning Scheme (MRPS)*	The purpose of the RCZ1 is to protect the existing forest mosaic and unique flora, fauna and landscapes that are fundamental to the character and biodiversity of the area from inappropriate development, and to conserve the landscape values of adjoining public land.	General issues outlined in relation to Project within the RCZ1 require consideration in the LVIA of: - How the proposed use or development conserves the land's identified values; - Whether the use or development protects and enhances the environmental, agricultural, and landscape qualities of the site and its surroundings; - The importance of protecting and enhancing the area's natural environment, including the retention of vegetation and animal habitats; - The need to minimise any negative impacts from siting, design, height, bulk, and the colours and materials used on landscape features, major roads, and views; - The location and design of existing and proposed infrastructure services that reduce visual impact on the landscape; - The importance of minimising negative effects on the character and appearance, particularly relating to natural scenic beauty or significance; and - The design and location of roads and existing and proposed infrastructure services to lessen visual impact on the landscape.
Clause 02 – Municipal Planning Strategy (MPS) *Macedon Ranges Planning Scheme*	The MPS outlines the strategic vision for the municipality area of the Macedon Ranges, including the protection of significant landscapes such as Mount Macedon. It highlights the importance of maintaining rural character, scenic views, and environmental values.	The LVIA aligns with the MPS by assessing how the Project accounts for the strategic landscape values of Mount Macedon, including visual prominence, vegetation cover, and the area's role as a scenic and cultural landmark.

3.1.2 Land Use

The proposed BESS will connect into the Gisborne Substation which operates at 66kVs. Under Clause 73.03 of the Macedon Ranges Planning Scheme, a Utility installation' is defined as:

"'Land used to transmit, distribute, or store power'.

As illustrated in Figure 3-1, the Project will be located entirely within the Rural Conservation Zone (RCZ) and is subject to a number of Overlays outlined in Table 2-3 under the MRPS.

In addition, the Study Area encompasses a variety of rural land uses, including areas of Rural Living Zone (RLZ) to the east of Black Forest Drive and RCZ to the west. There are isolated pockets of General Residential Zone (GRZ) associated with the settlement at New Gisborne. The Calder Freeway and Black Forest Drive are zoned Principal Road Network (TRZ3), while the Macedon Railway is zoned State Transport Infrastructure (TRZ1). The Rosslynne Reservoir, situated to the south-west of the Study Area, is zoned at its margins as Public Use Zone (PUZ1).

Australian Land Use and Management Classification

The Australian Land Use and Management Classification (Version 8) is a national standard that categorises land use across Australia based on land management intent, and the extent of modification. Under this framework the Study Area is primarily classified as "Rural Residential and Farm Infrastructure" and is surrounded by areas of "Grazing modified pastures" and "Other intensive uses", which in this case overlays the surrounding land transport corridors.

The land use classes are discussed in further detail in Table 3-2 below.

Table 3-2: Table of applicable Land Use Classes within the Study Area

Land Use Class	Land Use Features / Requirements	Relevance to LVIA
Rural Residential and Farm Infrastructure And Grazing and Modified Pastures	The Rural Residential and Farm Infrastructure class encompass areas mainly utilised for residential purposes in rural settings, often linked to small-scale or hobby farming. While the Grazing and Modified Pastures class is characterised by intensive grazing practices compared to natural pastures and contains infrastructure such as fencing and water points. Both classes typically lack complete urban services while accommodating both residential and low-intensity agricultural activities.	The Project's impact on visual corridors and sightlines from residential areas is assessed in Section 6 of this LVIA.
Urban Residential	The Project is located within both this class, which also contains part of the residential settlement around New Gisborne. This land use includes a variety of housing types, such as detached houses, townhouses, and apartment buildings, and is characterised by established urban infrastructure and services, including water, sewerage, and electricity. Common features include gardens, driveways, and local roads.	Section 6 of this LVIA analyses the impact of the proposal on views from existing residences and surrounding roads.
Transport and Communication	This land use encompasses areas for the movement of people and goods, relevant to major transport corridor within the Study Area such as the Calder Freeway, Mount Macedon Road, Black Forest Drive, and the Mount Macedon Railway. It encompasses both linear transportation routes and associated infrastructure, including easements and support facilities.	This land use is critical for accessing the project site and shapes the immediate environment. The LVIA will address potential visual impacts on this land use in Section 6.
Reservoir/Dam	This class includes water bodies used for storage, serving purposes such as agriculture and urban supply. In this case the Rosslyne Reservoir, which is surrounded by areas classed as minimal use and nature conservation.	This class is located outside the Study Area and would not be visually impacted by the Project.

3.1.3 Overlays

The Project is subject to several overlays, which are summarised within Table 2-3 below.

Table 3-3: Overlays applicable to the Project Site

Planning Overlay	Land Use Features / Requirements	Relevance to LVIA
ESO5 – Environmental Significant Overlay **Schedule 5** Macedon Ranges – Mount Macedon and surrounds	Protects the environmental and landscape values of the Mount Macedon area. Key objectives include maintaining the natural beauty, biodiversity, and scenic qualities of the landscape. Requires a permit for buildings and works, vegetation removal, and earthworks (Clause 42.01, Schedule 5).	The LVIA assesses the visual impact of the proposed infrastructure on the scenic and environmental values protected under ESO5.
VPO9 – Vegetation Protection Overlay **Schedule 9** Mount Macedon Area	Aims to protect significant exotic and native vegetation that contributes to the character of Mount Macedon. Requires a permit to remove, destroy or trim vegetation (Clause 42.02, Schedule 9).	The LVIA assess the visual impact of vegetation removal on the visual character of the site and surrounding area and proposes mitigation measures to minimise the visual impact in Section 6. .
VPO2 – Vegetation Protection Overlay **Schedule 2** Roadside and Landscape Protection	Protects vegetation along roadsides and in visually sensitive areas. Focuses on maintaining landscape character and biodiversity corridors. A permit is required for vegetation removal (Clause 42.02, Schedule 2).	The LVIA evaluates the visual role of roadside vegetation (Section 5) and assesses the potential visual impact of the proposed changes on the road site vegetation in sensitive areas and proposes mitigation measures to minimise the impact in Section 6.

Further information is within the *Planning Report (Aurecon, 2026).*

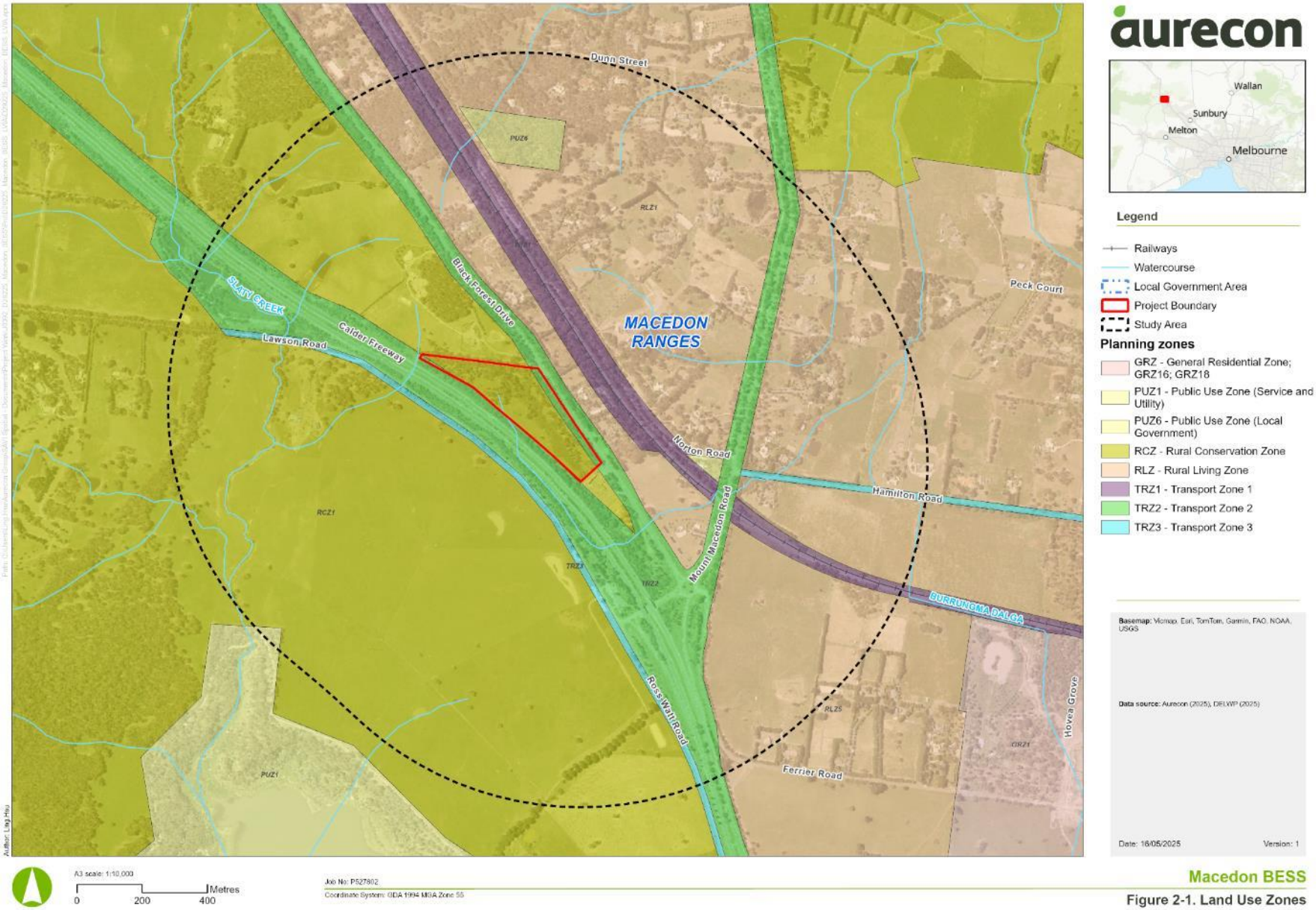

Figure 3-1 Land Use Zone Types

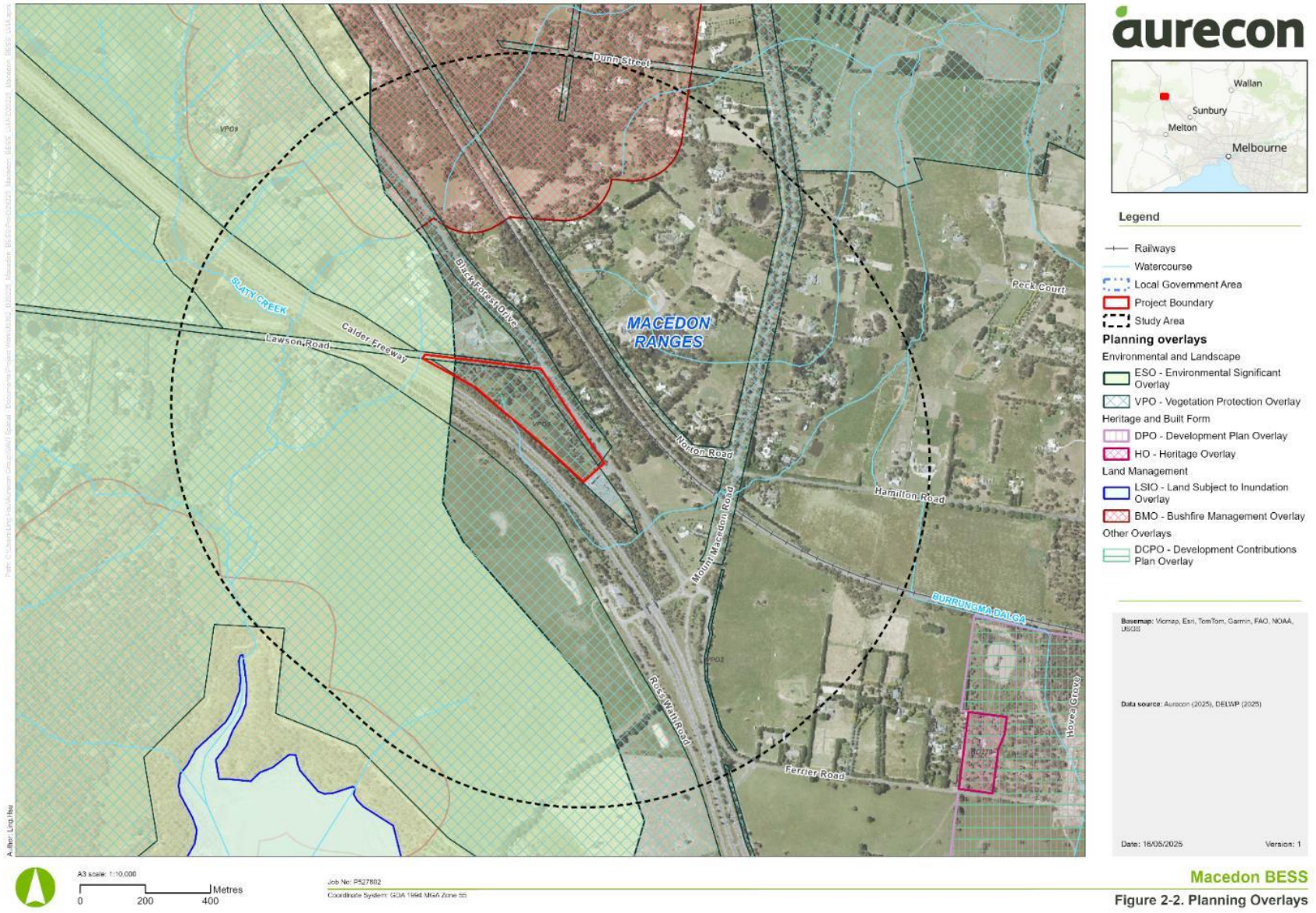

Figure 3-2 Planning overlays

4 Methodology

4.1 Approach to the assessment

The following industry accepted guidelines are used as a basis for the methodology of this LVIA:

- The Guidance for Landscape and Visual Impact Assessment (GLVIA), Third Edition (2013), prepared by Landscape Institute and Institute of Environmental Management & Assessment (IEMA, UK);
- Guidance Note for Landscape and Visual Assessment (June 2018), Australian Institute of Landscape Architects.

The LVIA comprises a desktop evaluation of the Project and its various components, identifying sensitive viewpoints with potential for high adverse impacts. A field visit was conducted on 14 May 2025 by a Field Consultant, guided by a Registered Landscape Architect (the assessor), to photographically document and ground truth the desktop analysis.

A determination of the prominence of the proposed development within a landscape setting is treated as being of a lower relevance to assess the visual impact than the sensitivity or perception of a viewer. The LVIA's key focus therefore is on the visual sensitivity being the tolerance of the viewer and the landscape setting to change as a result of the proposed development. The visual impact of the Project is determined by evaluating the degree of its visual fit in the context of the visual sensitivity of the surrounding land uses (based on the land use zones of the applicable planning scheme).

The LVIA makes consideration of the potential impact of the proposed Macedon BESS on private and key public viewpoints.

4.2 Defining the Study Area

The Study Area is initially defined through the production of a Zone of Theoretical Visibility (ZTV), which illustrates the theoretical area from which the Project could be visible, based on the height of proposed elements. This is a helpful tool for providing an overview as the extent to which the proposal elements, would be visible. It is important to note that the ZTV is, by its nature, approximate only and generated to represent a worst-case scenario.

For this LVIA, the Study Area has been concentrated within a two-kilometre radius of the Project area. Within this area the potential effects of the proposal are likely to be more acute for both landscape and visual effects.

4.3 Impact Assessment Criteria

The potential level of impacts associated with the proposed development on landscape character and visual amenity have been assessed based on themes of magnitude and sensitivity. The assessment method is demonstrated in Figure 4-1.

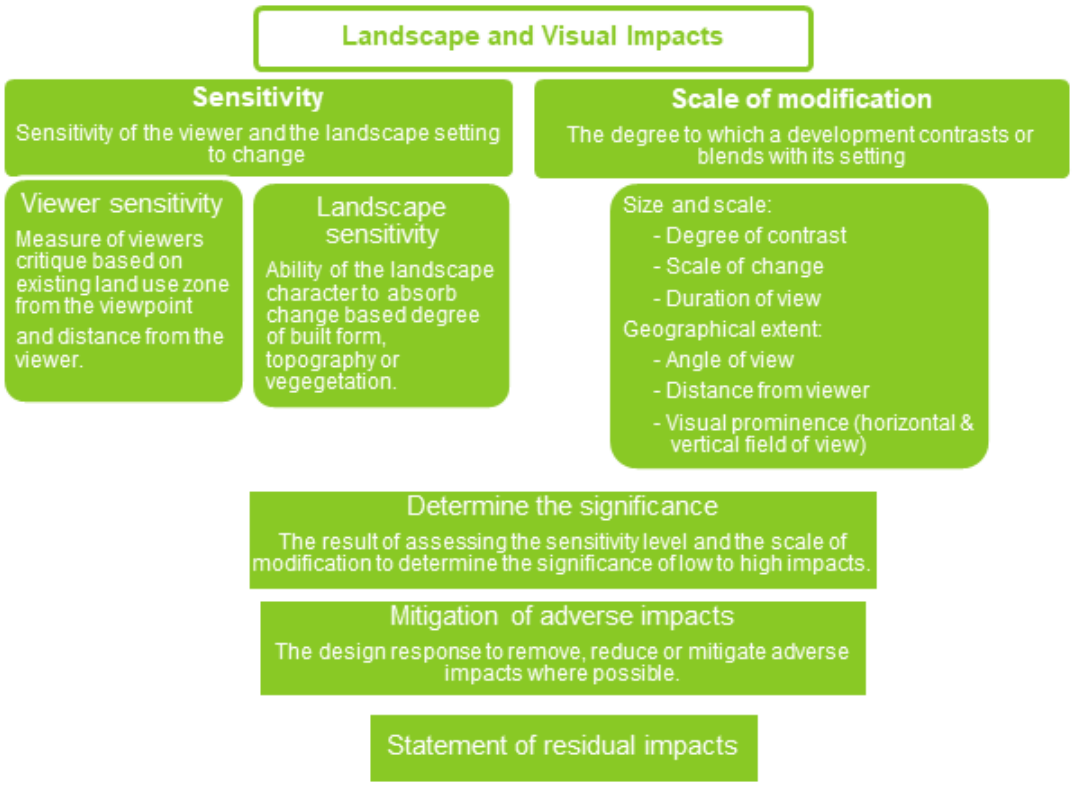

Figure 4-1 LVIA assessment method

4.3.1 Sensitivity

Landscape sensitivity

The sensitivity of a landscape is judged based on the extent to which it is considered able to accept change of a particular type and scale without adverse effects on its character. Sensitivity varies according to the type of development and the nature of the landscape, including:

- Its inherent landscape value (its condition, perceptual qualities, cultural importance, and any specific values that may apply, such as landscape planning designations); and
- The likely congruency of the proposed change (i.e. the extent to which the proposal may fit or be 'visually absorbed' into the scale, landform, land use, pattern, texture of the existing landscape).

The attributes which influence the sensitivity of landscape character are outlined in Table 4-1.

Table 4-1 Landscape sensitivity criteria

Landscape sensitivity rating	Description
High	Landscapes which by nature of their character would be unable to accommodate change of the proposed type. Typically, these would be: • Of high value with distinct elements and features making a positive contribution to character and sense of place • Likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale. • Areas of special recognised value, through use, perception or historic and cultural associations. • The extent of alteration would result in the landscape losing significant natural landscape features, its character and/or sense of place. • The viewer is highly sensitive to changes in their immediate surroundings such as residents or 'natural' areas such as National Parks.
Moderate	Landscapes which by nature of their character would be able to partly accommodate change of the type proposed. Typically, these would be; • Comprised of commonplace elements and features creating generally unremarkable character but with some sense of place. • Locally designated, or their value may be expressed through non-statutory local publications. • Containing some features of value through use, perception of historic and cultural associations. • Likely to contain some features and elements that could not be replaced. The extent of alteration would result in the landscape partially losing some natural or designed landscape features, its character and/or sense of place. • Open, expansive and moderately vegetated landscapes including canopy trees. • Elevated and vegetation landscape including canopy trees. • The viewer is moderately sensitive to changes in their immediate surroundings such as users of regional and local reserves.
Low	Landscapes which by nature of their characteristics would be able to accommodate change of the type proposed. Typically, these would be; • Containing few, if any, features of value through use, perception or historic and cultural associations • Likely to contain few, if any, features and elements that could not be replaced. • Built-up landscapes typically interspersed with canopy trees. • The viewer is aware of the change but not overly sensitive to changes in their immediate surroundings such as users of commercial areas and farming land.
Very Low	Landscapes which by nature of their characteristics would be able to accommodate change of the type proposed. Typically, these would be; • Comprised of some features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place. • Modified landscapes with an abundance of built form and limited natural characteristics. • The viewer is aware of the change but not overly sensitive to changes in their immediate surroundings such as users of industrial areas.

Visual sensitivity

The sensitivity of the viewers at the viewpoints is considered to be dependent upon factors including:

- The importance (scenic quality) of the view;
- Viewer exposure, typically assessed by measuring the number of viewers exposed to the resource change and the type and duration of viewer activity; and
- The nature of the visual receptor (type and volume of sensitive receptors or viewers) experiencing the view.
- Distance of the proposal from the identified land use area

Table 4-2 Evaluating level of visual sensitivity

Visual sensitivity rating	Description
High	Large numbers of viewers or those with proprietary interest and prolonged viewing opportunities such as residents and users of attractive and/or well-used recreational facilities. Views from a regionally important location such as a scenic lookout whose interest is specifically focussed on the landscape. • Residential areas and rural villages • Recreation, cultural or scenic sites and viewpoints of National or State significance. • Any buildings, historic rural homesteads/residences on the State or local Government Heritage List
Moderate	Medium numbers of residents and moderate numbers of visitors with an interest in their environment. Larger numbers of travellers with an interest in their surroundings. • Schools and other institutional buildings, and their outdoor areas • Rural dwellings • Tourist and visitor accommodation • Recreation, cultural or scenic sites and viewpoints of regional significance
Low	Small numbers of visitors with a passing interest in their surroundings. Viewers whose interest is not specifically focussed on the landscape. • Indoor workers • Users of main roads or arterial roads • Rural dwelling • Tourist and visitor accommodation • Recreation, cultural or scenic sites and viewpoints of regional significance • Users of recreational facilities where the purpose of that recreation is not related to the views
Very Low	Small numbers of viewers with little interest in their surrounds • Industrial workers • Road users, farm workers with proposal in middle-ground or background views

The next critical component to rating the viewer sensitivity is the distance of the Project element from the identified viewpoint as provided in Table 4-3

Table 4-3 Visibility distance zones

Distance zone	Distance of view
Near foreground	0 – 500 m
Mid foreground	500 m – 1 km
Far foreground	1 – 2 km
Near middle-ground	2 – 4 km

4.3.2 Magnitude of change

The magnitude of change affecting a landscape or visual receptor depends on the nature, scale and duration of the particular change that is expected to occur. It describes the extent of change and identifies elements which are removed or added, changed in colour or texture, and the compatibility of new elements with the existing landscape. Visual modification can result in an improvement or reduction in visual amenity.

Table 4-4 outlines the four categories of modification used for determining the degree of visual modification potentially resulting from the Project which include:

- Scale - with respect to the loss of addition of features in the view and changes in its composition.
- Degree of contrast or integration - form, scale and mass, line, height, colour, texture.
- Nature of view in relation to the proposal - angle, distance and extent.
- Mitigation - the degree to which mitigation would reduce the effect.

Table 4-4 Criteria for determining the visual modification level.

Modification level	Description
High	The proposal is highly visible and intrusive in regard to the size, scale and geographical extent, and would disrupt views currently experienced from sensitive land use areas and/or strongly contrasts with the existing landscape setting which has limited capacity for change and/or the extent of area over which the changes would be visible from sensitive land use areas is significant.
Moderate	The proposal partially intrudes in regard to the size, scale and geographical extent or somewhat obstructs current views from sensitive land use areas and/or a noticeable compositional change to the existing landscape setting in which there is moderate capacity for change and/or the extent of area over which the changes would be visible from sensitive land use areas is moderate.
Low	The proposal is barely perceptible resulting in minor deterioration to the view currently experienced from sensitive land use areas; and/or results in a small change to the existing landscape setting in which change is possible without harm and/or the extent of area over which the changes would be visible from sensitive land use areas is limited.
Very low	There is minimal compositional contrast and a high level of integration of form, line, shape, pattern, colour or texture values between the proposal and the environment in which it sits. In this situation, the proposal may be noticeable but does not markedly contrast with the existing landscape setting and/or the extent of area over which the changes would be visible from sensitive land use areas is negligible.
Negligible	There are no views of the proposal components and as such, there is no impact.

4.4 Assigning a level of impact

The impact significance ratings have been determined through a combination of the sensitivity and magnitude of change assessments, in accordance with the scale defined within Table 4-5.

The consequence of the application of the matrix is that (except where there are no visible works) the Project would have low, moderate or high impacts, depending on the level of visual modification and viewer sensitivity from the location at which the project can be viewed. If the Project is not visible, the impact is negligible.

Table 4-5 Impact determination matrix

		LEVEL OF SENSITIVITY			
		HIGH	**MODERATE**	**LOW**	**VERY LOW**
MAGNITUDE OF CHANGE	**HIGH**	HIGH	HIGH	MODERATE	LOW
	MODERATE	HIGH	MODERATE	LOW	VERY LOW
	LOW	MODERATE	LOW	LOW	VERY LOW
	VERY LOW	LOW	VERY LOW	VERY LOW	VERY LOW
	NEGLIGIBLE	NEGLIBIBLE	NEGLIBIBLE	NEGLIBIBLE	NEGLIBIBLE

4.5 Cumulative impacts

Cumulative landscape and visual effects result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it) or actions that occurred in the past, present or are likely to occur in the foreseeable future (Landscape Institute et al, 2002).

The potential cumulative visual impact is considered in relation to the potential visual impact when viewed sequentially. If a number of electrical infrastructure sites are viewed in succession as a traveller moves through the landscape (i.e. roads or walking tracks) this may result in a change in the overall perception of the landscape character.

Scottish Natural Heritage (2005) describes a range of potential cumulative landscape impacts, including:

- Combined visibility (whether two or more projects will be visible from one location).
- Sequential visibility (e.g. the effect of seeing two or more projects along a single journey, e.g. road or walking trail).
- The visual compatibility of different projects in the same vicinity.

- Perceived or actual change in land use across a character type or region.
- Loss of a characteristic element (e.g. viewing type or feature) across a character type caused by developments across that character type.

4.6 Photomontages

A photomontage is a technique whereby an image of the Project is produced using an existing photograph, overlayed with a render of proposed Project elements, to provide an indicative visual representation.

The process involves inserting a computer–generated model of the Project into a photograph taken from a geographically referenced viewpoint, using existing landscape elements of a known size, location, and scale to suitably locate the digital elements within the photograph. Existing elements, such as buildings, have been modelled to create a reference point to match in the photos.

The methodology used to produce the photomontages included:

- Undertake site photography including overlapping photo to create a 180-degree panoramic image to depict the existing scene, with the proposed facility to the centre of that image.
  - The location of each viewpoint was recorded on site to accurately depict the location of the photo and match to the 3d digital model of the key design components.
  - Existing site elements were measured to match with the scale of elements within the model.
- Model the facility in 3D max applying known dimensions and material finishes. Render of the model, matching with the photograph.

The photomontages are produced using the proposed site layout (Rev A 27-10-2025, EHV Consulting and Design) (Figure 2-1) which is subject to detailed design. As such, there may be minor changes to details which are not captured within the photomontages. It is assumed that minor changes will not have any bearing on the level of visual modification presented by the Project. A ‘birds’ eye’ view of the Project as modelled, has been provided in Figure 2-3.

Project photomontages

Photomontages were produced for two of the seven assessed viewpoints (see Section 6.2):

- VP1 – 62 Black Forest Drive
- VP2 - 48 Black Forest Drive

The photomontages at day 1 of operation depict the current design of key elements available at the time of preparing this report, as represented in Section 6.2.

5 Existing environment

5.1 Site context

The Project is located approximately 3.4 kilometres south of Macedon in central Victoria, north-west of Melbourne. Key markers relevant to this study, are:

- The Project is located between Black Forest Drive (also referred to as Macedon-Woodend Road) and the Calder Freeway
- The Project is 2.9km from New Gisborne

The following sections outline the existing biophysical and cultural aspects of the Study Area.

5.1.1 Land use

As identified in Macedon Ranges Planning Scheme, the Study Area is classified a Rural Living Zone (RLZ1). The land zoned within the area is typically larger than that of surrounding neighbouring residential suburbs – Macedon and New Gisborne. These small acreage residential lots allow for some smaller scale agricultural activity including grazing cattle and sheep, with some paddocks used for crops.

The land cover of the Project Site is a mosaic of semi-natural and modified environments. There is a significant presence of native vegetation, ranging from scattered individual trees and pockets of woodland or open forest to more managed grasslands and pastures used for low-intensity grazing. Interspersed within this are residential properties on small acreage lots with their associated gardens, lawns, and driveways.

There are approximately six rural residential dwellings within one kilometre of the Site. Some of these are associated with adjacent farms. Residents are likely to commute a short distance (3.4km) to Macedon or (2.4km) to New Gisborne for services (schools, businesses, shopping etc).

Norton Road to the North-East of the site is an unsealed one-way local access rural road, connecting local residents from Mount Macedon Rd, as well as to their properties and the centre of Macedon. Mount Macedon Rd to the immediate east of the site connects local residents and visitors to the Macedon Ranges and Calder Freeway link to Melbourne's CBD (62.7km).

Figure 5-1 Residential rural dwelling on small acreage lot along Black Forest Drive; adjacent to the Site (14 May 2025).

Figure 5-2 End of driveway, 48 Black Forest Drive(14 May 2025).

5.1.2 Topography, landform and waterways

The Project Site gently slopes from north-west to south-east, with surface elevations ranging from approximately 470m Australian Height Datum (AHD) to 500 m AHD as the Site is located at the foot of the Macedon Ranges.

Slaty Creek, running north-west to south-west, is located 500m west of the Project. It flows south into Rosslyne Reservoir. Slaty Creek is a natural waterway that has been integrated into infrastructure to serve a critical ecological function as part of a wildlife crossing. It aids in facilitating biodiversity and habitat connectivity across the Calder Freeway.

Figure 5-3 Rolling agricultural farming zone hills in Macedon, visible from Lawsons Road (14 May 2025).

Figure 5-4 View of Macedon Ranges from the intersection of Black Forest Drive and Mount Macedon Road (14 May 2025).

5.1.3 Vegetation

The Project is located within the Central Victoria Uplands bioregion. Characterised by undulating to hilly terrain, the Central Victorian Uplands bioregion around Norton Road and the Calder Freeway boasts a diverse array of ecosystems, encompassing wet, damp, and dry sclerophyll forests, woodlands, and patches of grassland, all underpinned by a geology derived from Palaeozoic deposits that often includes granitic and sedimentary rocks alongside remnants of old volcanic formations.

This geological foundation supports a rich vegetation cover featuring eucalypt forests with species such as Manna Gum, Messmate, and various string barks and peppermints, complemented by grassy understories, which in turn contributes to a significant biodiversity that includes a range of native fauna, some facing threats to their survival.

The Study Area is divided into two distinct habitat zones. Habitat Zone 1 (HZ1), which forms the majority of the Study Area, features a robust canopy dominated by eucalypt species such as Manna Gum (Eucalyptus viminalis), Messmate Stringybark (Eucalyptus obliqua), Narrow-leaved Peppermint (Eucalyptus radiata), and Broad-leaved Peppermint (Eucalyptus dives) indicating a mature forest structure. The understorey in HZ1 is rich with native flora, including grasses like Red-anther Wallaby-grass, Weeping Grass, and Kangaroo Grass, alongside herbs such as Bulbine Lily, Pale Sundew, and Slender Sun-orchid, and shrubs like Black Wattle, Blackwood, and Grey Parrot-pea. However, a significant infestation of Gorse, a noxious weed, dominates the central understorey of HZ1, disrupting the native vegetation. (Macedon BESS Ecological Assessment, September 2024).

In contrast, Habitat Zone 2 (HZ2), located in the southern portion of the Study Area, lacks a tree canopy but supports a vibrant ground layer dominated by native grasses and herbs. Key grass species include Kangaroo Grass, Spear Grass, and Wallaby Grass, complemented by herbs such as Onion Orchid, Slender Speedwell, Pale Sundew, Slender Sun-orchid, and Wiry Buttons. A small area in the southeast, heavily infested with Gorse, rendering it devoid of native vegetation (*Macedon BESS Ecological Impact Assessment, Aurecon 2026))*

Figure 5-5 Photo 1: HZ1 (along Macedon-Woodend Road)

Figure 5-6 Photo 2: Eastern section of HZ1

Figure 5-7: Large Manna Gum in HZ1

Figure 5-8: Section of HZ1 with Gorse (weed infestation) in understorey

Figure 5-9: Native ground layer of HZ2

Figure 5-10 Slender Sun-orchid (Thelymitra pauciflora) recorded in HZs 1 and 2

5.1.4 Cultural heritage

Aboriginal heritage

The relevant Registered Aboriginal Party (RAP) for the Project Site is the Wurundjeri Woi wurrung Cultural Heritage Aboriginal Corporation (WWCHAC).

The Study Area is located within the Registered Aboriginal Party (RAP) area of the Wurundjeri Woi wurrung Land and Waters.

The Project Site does not intersect with any areas of Cultural Heritage Sensitivity (CHS).

Within 2 km of the Site, there are 15 registered Aboriginal places, comprising 43 components (refer to Macedon BESS-Planning and Heritage Red Flags Assessment). The Aboriginal places comprise nine artefact scatters, five Low Density Artefact Distributions (LDADs), and one object collection. There are no Aboriginal places registered within the Site.

Non-Aboriginal heritage

There are approximately 6 heritage sites identified within the Study Area. These sites are as identified within the Victorian Heritage Register (VHR) and Victorian Heritage Inventory (VHI). Heritage sites are primarily located in the southeastern quadrant and northwestern quadrant of the Study Area. No heritage sites are located within the project boundary itself.

A total of five registered historical places are present within 2 km of the Site (refer to Macedon BESS-Planning and Heritage Red Flags Assessment), these are made up of VHI sites and HOs Heritage Overlays (HOs) as part of the Macedon Ranges Planning Scheme. No VHI sites are located within the project boundary itself.

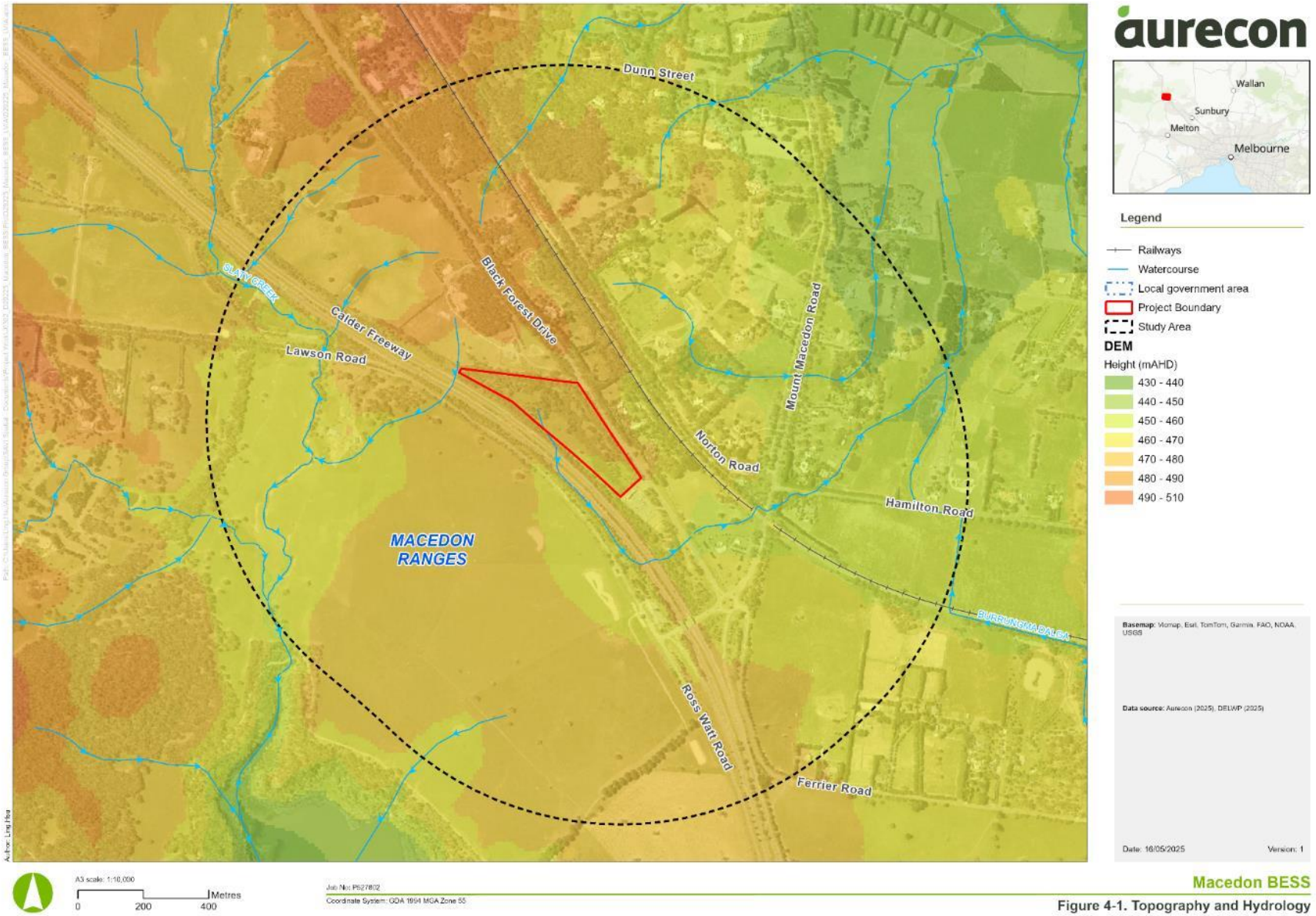

Figure 5-3 Topography and Hydrology

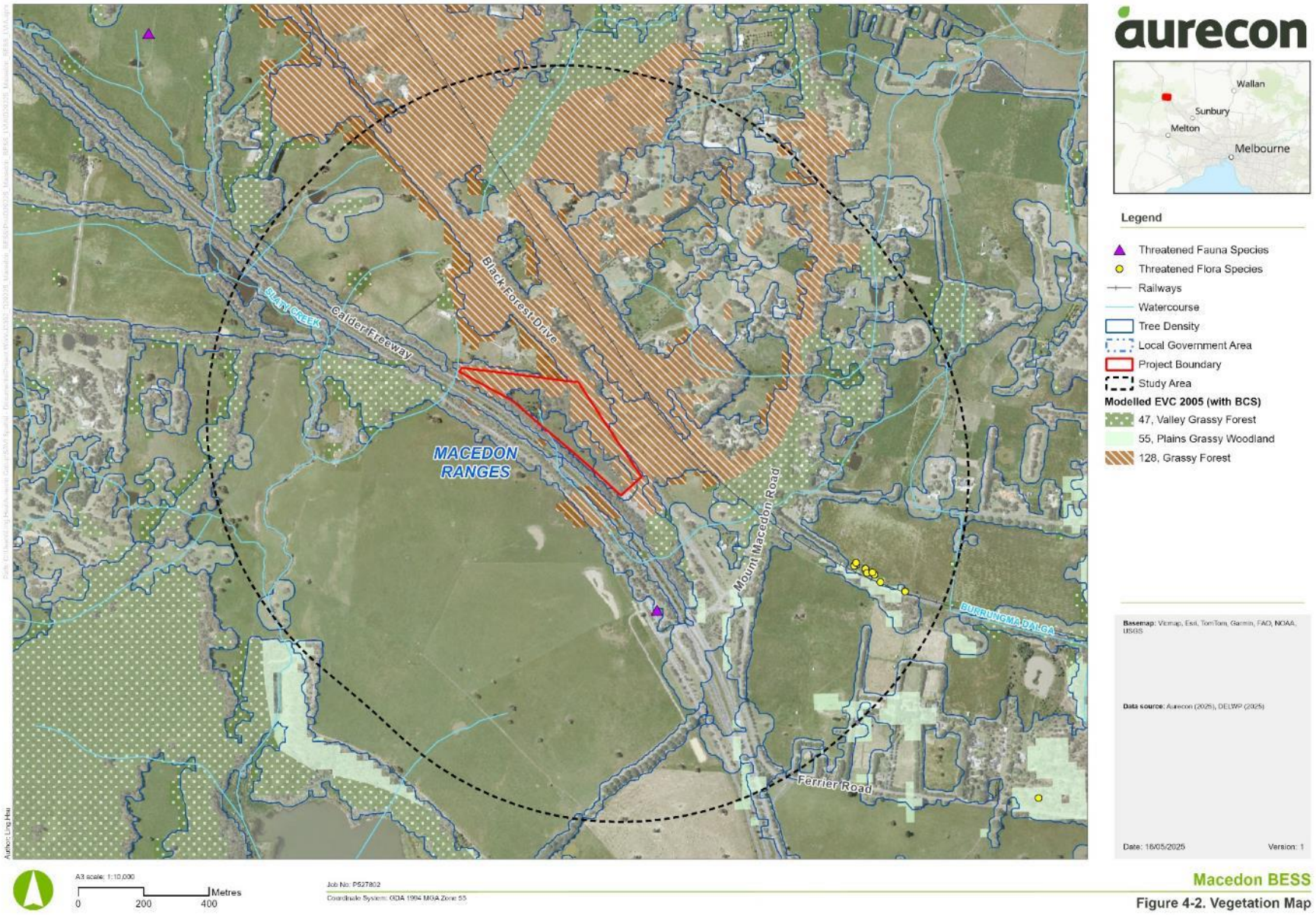

Figure 5-4 Vegetation cover

Figure 5-5 Cultural Heritage

5.1.5 Landscape character

Landscape Character Zones (LCZs) help to identify unifying aspects of the landscape and distinguish why one landscape is distinct from another. The LCZs have been determined through a desktop assessment and confirmed through a site visit. Each LCZ identified is based on the consideration of the following attributes:

- landscape value, i.e. landscape designated for their scenic or landscape importance or valued recreational function.
- landscape elements that contribute to defining character, i.e. residential, commercial and landform.
- landscape character attributes, including scale, grain, perceptual characteristics such as connection to natural landscape, or degree of modification to the area
- observed land uses and current and future land use zones outlined in strategic planning documents and Local Environmental Plans.
- topography and vegetation.

The Study Area comprises two Landscape Character Zones - LCZ1: Rural living and LCZ2: Rural conservation which is shown in Figure 5-10. The Site is located at the transition space between the two landscape character zones.

LCZ1: Rural conservation

This landscape character zone mainly located southwest of Black Forest Drive including the Project area and covered by Environmental Sensitivity Overlay – Schedule 5 (ESO5) for the sensitivity of water resources and Vegetation Protection Overlay. This LCZ encompasses large, grassed areas with agricultural use fenced with perimeter windrow. There are patches of native vegetation classes such as Grassy Woodland and Plain Grass Woodland as well as planted native and exotic trees along the paddock boundaries and roads.

Key characteristics for this LCT include:

- Modification including planted pasture and trees
- Patches of native vegetation especially along Black Forest Drive
- Predominantly flat and disperse farm buildings, dwellings or infrastructure
- Windrows parallel to/within road reserves
- Relatively flat plains and frequent gaps in roadside vegetation providing wide open views Mount Macedon as a key natural landscape feature to the north.
- Calder Freeway acting as a visual and movement barrier dividing this landscape character on the east and west side.

Considering the modified landform and vegetation and the presence of canopy trees at the edges of road corridors this LCZ has a moderate ability to absorb change.

LCZ 2: Rural living

Rural living LCZ is predominantly located north of Calder Freeway including the Project Site. It is characterised by rural small acreage properties located on undulating topography. This LCZ is within Rural Living Zone (RLZ1) planning zone of the Macedon Ranges Shire Planning Scheme.

Key characteristics for this LCT include:

- Undulating topography with a ridge line along Black Forest Drive.
- High density native vegetation corridors of the Grassy Forest EVC along road connecting patches of low-native vegetation dispersed across the LCZ.
- Small Scale properties with rural dwellings, farm buildings, utilities, and a mix of exotic and native trees and modified landscape.

- Rural dwellings typically set back from roads and having a greater presence of planted and native landscaping at the property boundaries and near to the dwellings.
- Influenced by regional rail line and Black Forest Drive as two major transport routes running in parallel from southeast to northwest. Mount Macedon Road to the east of the project site intersects with the railway line and Calder Freeway via grade separated crossings.
- Dense roadside vegetation creating an enclosed landscape experience.

Provide the presence of treed road and rail corridors with high density mature vegetation as well as other built structures, this landscape character zone has a moderate ability to absorb change.

Figure 5-6 Agricultural infrastructure on small acreage on Allison Lane (14 May 2025)

Figure 5-7 Pastoral plains and views of Macedon Ranges, Lawson Road (14 May 2025)

Figure 5-8 Pastoral plains, Lawson Road Macedon (14 May 2025)

Figure 5-9 Dense treelined rural road verge, Allison Lane, Macedon (14 May 2025)

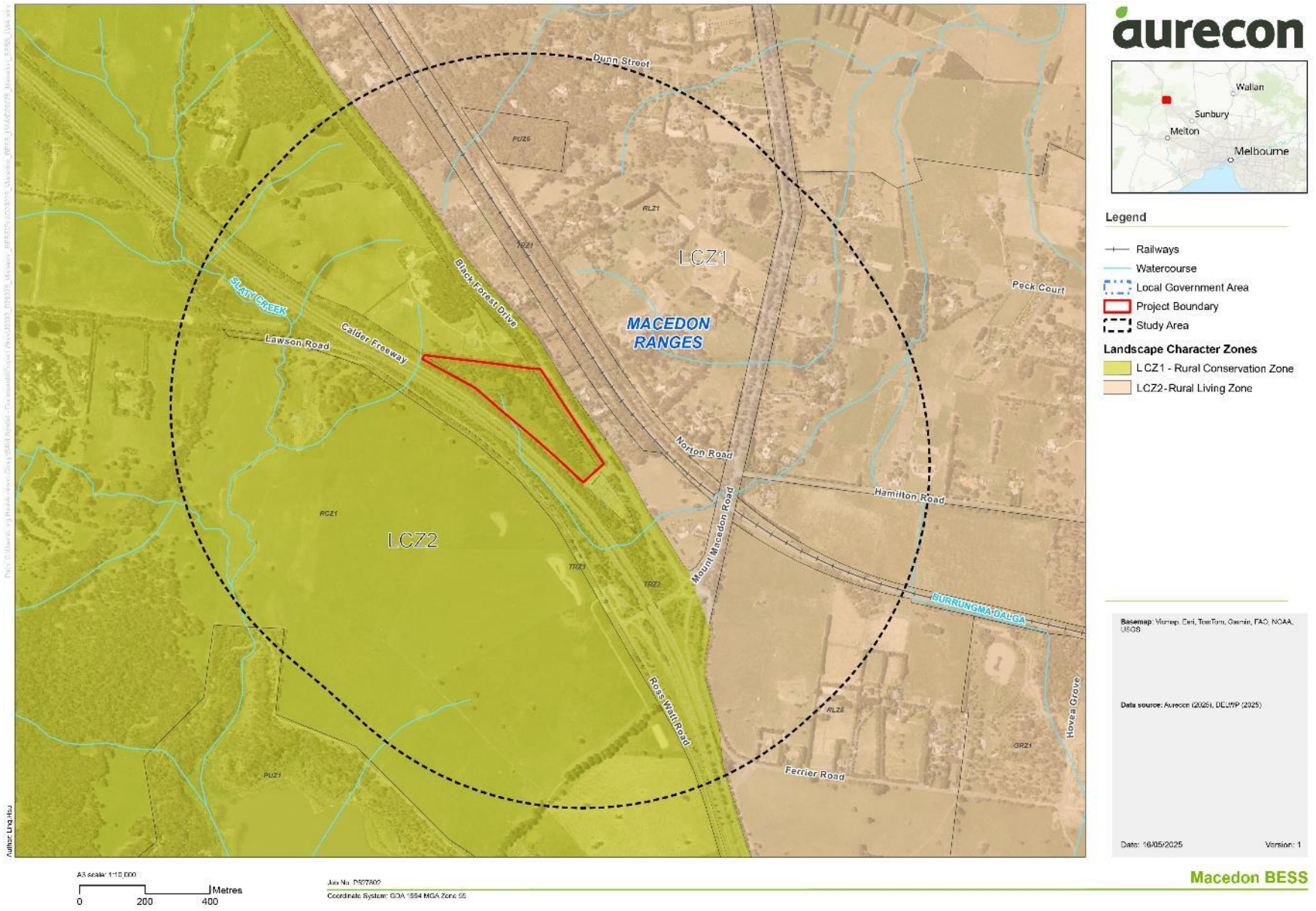

Figure 5-10 Landscape Character Zones

6 Assessment of Landscape and Visual Impacts

6.1 Assessment of Landscape character impacts

The level of modification to the existing landscape character has been assessed based on the broad effects of the Project as outlined below in Table 6-1.

Due to the low-lying proposed components by the Project and the existing vegetation buffer to the surrounding public roads,

Due to the visual influence dictated by the height and large hardscape areas of key Project components, the landscape character impacts are likely to influence the area immediately surrounding the site. The potential for landscape character impacts has been considered during construction and Day 1 of operation.

Table 6-1 Impacts to landscape character

		Construction impacts	Operational impacts
Landscape Character Area	**Sensitivity**	**Magnitude of change**	
LCZ 1 **Rural conservation**	**Moderate** The rural landscape is modified landscape with windrows and planted tree corridors along roads and property boundaries. These trees provide visual buffer reducing the sensitivity and provide capacity to absorb further changes.	**Very Low** Construction activity inclusive of site clearance, earthwork, cranage and installation of present a very low magnitude of change to the LCZ, which is widely dispersed.	**Very Low** The BESS equipment and ancillary structures introduce built form and hardscape areas which is larger than rural dwellings and farm buildings but of a scale that does not influence outside of the site. It presents a very low magnitude of change to the LCT, which is widely dispersed.
LCZ 1 **Rural living**	**Moderate** The rural living landscape is modified benefitting from vegetation buffer and undulating landforms which reduce the sensitivity and provide capacity to absorb further changes	**Negligible** The construction activities are not likely to impact the landscape character of this LCZ considering the presence of Black Forest Drive between the Site and this LCZ.	**Negligible** The BESS and ancillary structures are outside this LCZ and are not likely to have a notable visual or landscape impact on this otherwise extensive LCZ due to the existing vegetation buffer.

6.2 Assessment of Visual impacts

Seven viewpoints were identified for visual assessment of the Project based on the design, viewing distance, aspect, and sensitivity of receptors. The viewpoints are located within a 1 km radius of the Project boundary, which include the nearest neighbouring rural residences. Beyond this distance, views of the Project are likely to diminish, with intervening topography, vegetation and built form obscuring the site. Therefore, these viewpoints are considered *worst-case* scenarios for potential visual impacts of the Project. The location of the assessed viewpoints and the above ground structures used for the viewshed analysis are shown in Section 6.2. For the full site layout, please refer to Figure 2-1.

Photos (14th May 2025) in the direction of the Project are included from each of the viewpoints, demonstrating the existing visual conditions. The photos have been taken from publicly accessible positions and are representative of views from adjacent private dwellings.

Table 6-2 identifies the viewpoints within the Study Area which have been assessed.

Table 6-2 Viewpoints representative of private receivers and public viewpoints

ID	Location	Receiver type	Distance/ direction from Project site
VP1	62 Black Forest Drive, Macedon	Rural residential Local motorists	60m
VP2	48 Black Forest Drive, Macedon	Rural residential Local motorists	80m
VP3	32 Norton Rd, Macedon	Rural residential	280m
VP4	121 Lawson Rd, Macedon	Rural residential Local motorists	540m
VP5	Intersection of Mount Macedon Rd and Black Forest Drive, near 11 Mount Macedon Road, Gisborne.	Rural residential Local motorists	420m
VP6	Allison Lane, Macedon	Rural residential	400m
VP7	96 Black Forest Drive, Macedon	Rural residential	250m

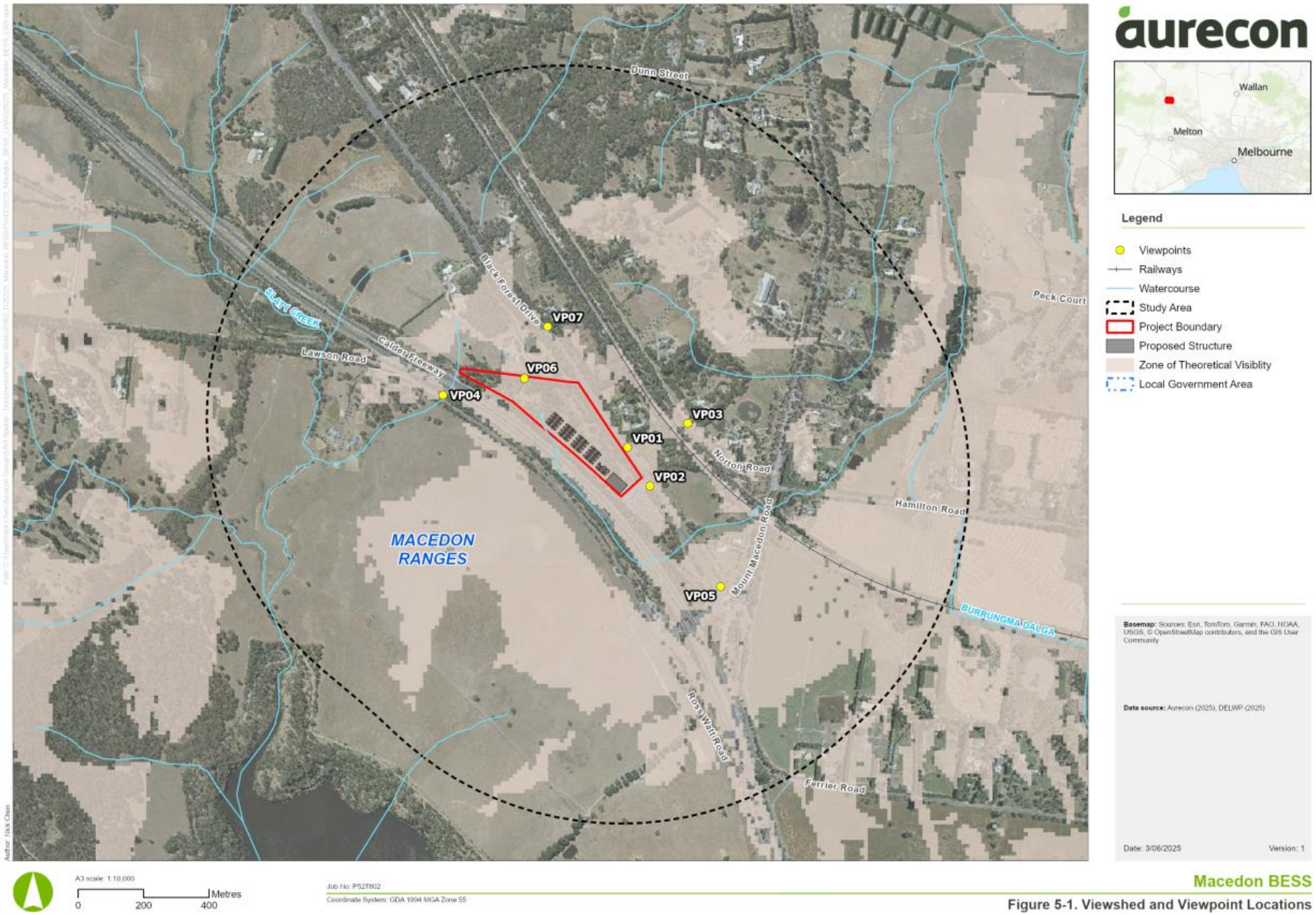

Figure 6-1 Viewpoint locations

Viewpoint 1: 62 Black Forest Drive

Figure 6-2 VP1: View from Black Forest Drive looking southwest (14 May 2025)

Location and view	62 Black Forest Drive looking southwest		
Visual receiver type	Representative of views experienced by motorists on Black Forest Drive and residence at 62 Black Forest Drive.		
Description of existing setting	The image shows a view from Black Forest Drive directed southwest towards the Project area. The foreground comprises the two-way local road and the native vegetation on the north edge of the Project Area comprising mature eucalyptus trees, shrubs, bushes, and understorey plants which almost completely screen the background. This view is mostly experienced by local residences and motorists. The Project Area, background and horizon are almost completely screened by the vegetation along Black Forest Drive.		
Viewing context	Static – neighbouring residents and Dynamic – motorists on Black Forest Dr	**Viewing angle**	Perpendicular (Residences) Peripheral (motorists)
Land use	RLZ1- Rural Living Zone	**Distance to nearest component**	60m

Figure 6-3 VP1: Indicative photomontage of the BESS compound

Visual modification	Sensitivity	Magnitude of change	Visual Impact
Construction	Moderate - Rural residences within proximity to the Project area benefiting from existing vegetation screening	A segment of the native vegetation along Black Forest Drive will be cleared to provide a driveway for emergency access to the site. The vegetation clearance activities will be visible from Black Forest Drive. In addition, this will open views to the construction activities including site clearance, earthworks and construction machinery within the Site. Given the presence of existing dense vegetation screening on the edge of rural residences north of Black Forest Drive and the narrow extent of vegetation removal at the edge of Black Forest Drive, the magnitude of change experienced by the visual receivers in this view is LOW.	Low
Day 1 of operation		There is potential for narrow views to the project structures including the proposed noise walls, BESS units, 10m high light poles and ancillary structures from the road. At the distance viewed, the Project elements will appear small and are screened by foreground, presenting a low contrast to the existing setting. The magnitude of change at operation is LOW.	Low

Viewpoint 2: 48 Black Forest Drive

Figure 6-3 VP2: View from Black Forest Drive near 48 Black Forest Drive looking west (14 May 2025)

Viewing location	View near rural residence at 48 Black Forest Drive looking west toward the existing electrical substation and the Project area.		
Visual receivers	Representative of views adjacent nearest rural residential dwelling, to the east of the Project and to the views of motorists along Black Forest Dr.		
Existing setting	The view is directed west towards the Project along Black Forest Drive/Macedon Woodend Road. The foreground comprises a two-way local road with grassed shoulders, an existing electrical substation and power lines breaking the otherwise continuous dense vegetation corridor along Black Forest Drive via a wide driveway which opens views to the canopy trees in the middle-ground. Background is almost fully screened by the trees along Black Forest drive and within the Project Area as well as substation structures.		
Viewing context	Dynamic – typically experienced for a short period by motorists	**Viewing angle**	Perpendicular- residences Peripheral- motorists
Land use	RLZ1- Rural Living Zone	**Distance to nearest component**	80m

Figure 6-4 VP2: Indicative photomontage of the BESS compound

Visual modification	Sensitivity	Magnitude of change	Visual Impact
Construction	Moderate - Rural residences within proximity to the Project area benefiting from existing vegetation screening	Construction activities visible from this viewpoint include construction machinery for the installation of Project components. Site clearance and earthworks for the project will be visible in the middle-ground behind the existing substation. The view to the construction activities will be predominantly obstructed by existing substation structures and vegetation. The proposed structures will be commensurate to the existing substation structures and the existing vegetation along Black Forest Drive and around the rural residential properties screen views to the construction works. The magnitude of change in this viewpoint is Very Low.	Very Low
Day 1 of operation		Once built, the visible elements will include: • Security fences, battery compounds, 21.4 m lightning mast, 10m high light poles, ancillary structures The existing substation compound access driveways will open views from nearby residences and motorists to both utility compounds. However, BESS components are predominantly screened by the existing substation structures and existing vegetation along Black Forest Drive. The BESS structures will be generally commensurate with the existing substation structures and transmission lines. In addition, the views from residences are screened by the existing vegetation along the property boundaries. The magnitude of change in this viewpoint is Very Low.	Very Low

Viewpoint 3: 32 Norton Rd

Figure 6-5 VP3:Norton Rd looking west towards the Site (14 May 2025)

Viewing location	32 Norton Rd, looking west towards the Site			
Visual receivers	Residents of large agricultural farming lots and local traffic along Norton Rd.			
Existing setting	The view is directed looking west towards the project site from Norton Rd. The foreground comprises grassed undulating landforms and power distribution poles at the edges of Norton Road which is a local dirt road. Along the south edge of Norton Freeway in the middle-ground, a dense cluster of native grassy forest trees, shrubs, bushes and understorey plants screens the view towards the Project Site and Horizon.			
Viewing context	Static – no views of site visible due to dense bush lining the street facing towards the site.	**Viewing angle**	Perpendicular	
Land use	RLZ1- Rural Living	**Distance to nearest component**	280m	
	Sensitivity	**Magnitude of change**		Visual Impact
Construction	Low - Rural residence benefiting from dense vegetation buffer to the Project area	Construction works and modifications are not likely to be noticeable from this viewpoint due to the dense vegetation corridor screening the project site. The residential dwellings are located at a minimum 280 m distance from the Project area and therefore are unable to see past the dense foliage across Norton Rd. The magnitude of change experienced from this viewpoint is NEGLIGIBLE.		Negligible
Day 1 of operation		The Project components are not likely to be noticeable from this viewpoint due to the dense vegetation corridor screening the project site. The residential dwellings are located at a minimum 280 m distance from the Project area and therefore are unable to see past the dense foliage across Norton Rd. The magnitude of change experienced from this viewpoint is NEGLIGIBLE.		Negligible

Viewpoint 4: 121 Lawson Road

Figure 6-6 VP4: Lawsons Rd looking east across the Calder Freeway (14 May 2025)

Viewing location	Lawsons Road west of the Project Area across Calder Freeway			
Visual receivers	Representative of views adjacent rural residence and farmland to the west of the Project and motorists along Calder Freeway. The dwelling is 320m west (behind) this viewpoint, with a patch of native and planted vegetation near the dwelling which completely screens this view.			
Existing setting	The view is directed east towards the Project area across Calder Freeway. The foreground comprises a treed regional freeway with native trees, shrubs and understory species on either side, almost completely screening views to the project area. A small gap in the tree line south of Calder Freeway provides views to Carriageways, grassed road shoulders and ultimate the tree line to the north edge of Calder Freeway in the middle-ground. These trees screen views of the Project Area, background and horizon.			
Viewing context	Static – views from rural residence typically experienced for long periods Dynamic – motorists along Calder Freeway		Viewing angle	Peripheral- to the side of the viewpoint
Land use	RCZ1- Rural Conservation		Distance to nearest component	540m
	Sensitivity	**Magnitude of change**		**Visual Impact**
Construction	Moderate - Rural residences benefiting from dense vegetation buffer to the Project area	Construction works and modifications are not likely to be noticeable from this viewpoint due to the dense vegetation corridor screening the project site. The magnitude of change experienced from this viewpoint is NEGLIGIBLE.		Negligible
Day 1 of operation		The Project components are not likely to be noticeable from this viewpoint due to the dense vegetation corridor screening the project site. The magnitude of change experienced from this viewpoint is NEGLIGIBLE.		Negligible

Viewpoint 5: Intersection of Mount Macedon Rd and Black Forest Drive

Figure 5-7 VP 5: Junction of Mount Macedon and Black Forest Drive (14 May 2025)

Viewing location	Intersection of Black Forest Drive and Mount Macedon Rd looking west			
Visual receivers	Representative of views to site by motorists along Mount Macedon Rd and Black Forest Drive and rural residence located to the north of the viewpoint (right end of the view)			
Existing setting	The view is directed west towards the Project along Black Forest drive In the foreground, the scene is shaped by a mix of road infrastructure—sealed carriageways, grassy verges, traffic islands, streetlights, power poles, and various road signs. On the left, a line of dense, mature trees defines the southern edge of the road, creating a strong visual barrier and leading the eye along the route. This vegetated edge continues into the middle-ground, where the Calder Freeway overpass becomes a prominent built feature, partially screened by trees. Some rural dwellings and larger canopy trees are also visible here, both within private lots and along the road reserve. In the background, the distinctive outline of Mount Macedon rises clearly above the tree line, offering a strong visual landmark in the broader landscape.			
Viewing context	Static – views from dwelling typically experienced for long periods Dynamic _ motorists along road corridors		**Viewing angle**	Peripheral by motorists and residences
Land use	RLZ1- Rural Living Zone		**Distance to nearest component**	420 m
	Sensitivity	**Magnitude of change**		**Visual Impact**
Construction	Moderate – Experienced by rural residences and motorists benefiting from dense vegetation buffer	Construction works and modifications are not likely to be noticeable from this viewpoint due to the dense vegetation corridor screening the project site. The magnitude of change experienced from this viewpoint is NEGLIGIBLE.		Negligible
Day 1 of operation		The Project components are not likely to be noticeable from this viewpoint due to the dense vegetation corridor screening the project site. The magnitude of change experienced from this viewpoint is NEGLIGIBLE.		Negligible

Viewpoint 6: Allison Lane

Figure 6-8 VP6: From Alison Lane looking southeast (14 May 2025)

Viewing location	View from Alison Lane; looking southeast towards the Site		
Visual receivers	Representative views from a private rural residence with access from Alison Lane located 280m behind the viewpoint location.		
Existing setting	The foreground of the viewpoint is the dirt road of Allison Lane, with mature native vegetation at the edge of the road screening most of the patches of native shrubs, trees and grassland within the project area in the middle-ground. These vegetation in the foreground and middle-ground completely screen the background and horizon.		
Viewing context	Static – views from rural dwelling and farm buildings typically experienced for long periods	**Viewing angle**	Perpendicular
Land use	RCZ1- Rural Conservation Zone	**Distance to nearest component**	400m

	Sensitivity	**Magnitude of change**	**Visual Impact**
Construction	Low- Experienced predominantly rural workers and rural residences located away from the project area benefiting from dense vegetation screening.	Given the high density of vegetation buffer to the project components, it is unlikely that the construction activities for BESS would have any visual bearing on the sensitive receivers from this viewpoint. The magnitude of change is NEGLIGIBLE	Negligible
Day 1 of operation		Given the high density of vegetation buffer to the project components, it is unlikely that the BESS components would have any visual bearing on the sensitive receivers from this viewpoint. The magnitude of change is NEGLIGIBLE	Negligible

Viewpoint 7: 96 Black Forest Drive

Figure 6-9 VP7: From 96 Black Forest Drive looking south (14 May 2025)

Viewing location	End of driveway of 96 Black Forest Drive			
Visual receivers	View near rural residence at 96 Black Forest Drive looking west toward the existing electrical substation and the Project area. Representative of views adjacent nearest rural residential dwelling, to the east of the Project and to the views of motorists along Black Forest Dr.			
Existing setting	The foreground comprises the two-way local road and the native vegetation on the north edge of the Project Area comprising mature eucalyptus trees, shrubs, bushes and understorey plants which almost completely screen the background. This view is mostly experienced by local residences and motorists. The Project Area, background and horizon are almost completely screened by the vegetation along Black Forest Drive.			
Viewing context	Static – views from dwelling typically experienced for long periods		**Viewing angle**	
Land use	RLZ1- Rural Living Zone		**Distance to nearest component**	250m
	Sensitivity	**Magnitude of change**		**Visual Impact**
Construction	Low- Experienced predominantly rural workers and rural residences located away from the project area benefiting from dense vegetation screening.	The dense vegetation north of the site completely screens views of the Project Area. Given the main accessway is to be located at Allison Lane, no change to Black Forest Drive is anticipated from this viewpoint. The magnitude of change during construction phase is NEGLIGIBLE.		Negligible
Day 1 of operation		The dense vegetation north of the site completely screens views of the Project Area. Given the main accessway is to be located at Allison Lane, no change to Black Forest Drive anticipated from this viewpoint. The magnitude of change during construction phase is NEGLIGIBLE.		Negligible

6.3 Cumulative impacts analysis

The structures proposed for the Project together with the existing landforms, the treed road corridors and patches of mature native and exotic vegetation minimise the cumulative impact of any structures located away from the immediate context of the Project Area.

Within the immediate context of the Project Area, there is an electrical substation directly abutting the proposed project components. This Site is already cleared of vegetation and comprises hardstand surfaces and electrical equipment and utilitarian buildings. This substation includes two driveways breaking the continuous tree line south of Black Forest Drive. The BESS site layout will have a larger hardstand area compared to the substation which connects to the hardstand surface of the substation and creates a larger area contrasting the small acreage rural areas in the surrounding context.

In addition, the BESS site layout includes two new accessways, one of which will likely open new views into the project site from Black Forest Drive. These driveways are located as the landscape character transitions from more densely vegetated road verge with effectively enclosed views at the north to vegetation blocking and cleared small acreage, with views spanning more significant distances to the south reaching the intersection with Mount Macedon Road.

As the driveways introduced by the Project are at the transition between these two landscape character types, from the perspective of vehicles travelling along Black Forest Drive, the impact of the additional Driveways is likely to be negligible at speed. In addition, one of the proposed accessways to the Project is aligned to Allison Lane which minimises the impact on the existing tree line along Black Forest Drive.

6.4 Management of impacts

The following recommendations are included as a guide to assist the development of the detailed design of the Project and during construction management. These are not intended as compulsory mitigation measures due to the absence of significant adverse impacts, however, would contribute to minimise adverse visual impacts.

6.4.1 Construction phase recommendations

The potential impact on the existing viewpoints is negligible in most cases. However, there are potential low and very low visual impacts during the construction phase of the Project which occur to a low number of neighbouring rural dwellings. These occur due to partial visibility of the earthworks and set up of construction compounds within the site.

The following mitigation measures are recommended to be included in a Construction Environmental Management Plan (CEMP).

- Minimise the width of construction and operation accessway to the minimum practical width to avoid any unnecessary vegetation removal at the edge of Black Forest Drive and maintain the existing visual buffer as much as possible.
- Site lighting is to be designed to minimise glare and light spillage into adjacent residential areas consistent with the requirements of Australian Standard 4282.2023 - Control of the obtrusive effects of outdoor lighting.
- Existing trees adjacent to the works will be retained and protected where possible to screen construction support sites, minimising clearing where possible.
- All areas disturbed by construction and not required for operation of the project are to be restored to existing condition.

6.4.2 Operational phase recommendations

The potential impact on the existing viewpoints is negligible in most cases. However, there are potential low and very low visual impacts of the Project which occur to the closest rural residential dwellings. The key modification factors include the introduction of built form in a vegetated land comprising native trees, shrubs and understorey plants.

The following mitigation measures are recommended to minimise and reduce the landscape and visual impacts during operation.

Built form

- Architectural materials - cladding, materials and colour used to mitigate appearance of bulky structures. 'Environmental green' colouring adopted for structures visible beneath the horizon, to blend with vegetation and ground surfaces.
- Signage to place on proposed fencing, within site entranceway to limit visual distraction of passing motorists.

Vegetation

- Planting along the south and west boundaries of the site, including shrub and tree planting would screen views of the Project from neighbouring properties.
- Earthworks – use of landform to integrate the facility components into the surrounding landscape, including planted embankments for additional visual screening. This is subject to operational requirements and fire hazard offsets.

Application of these mitigation measures has the potential to reduce the adverse visual impacts of the Project from viewpoints where it is noticeable, including VP1 and VP6.

The following section provides a summary of the landscape and visual impact assessment at construction, operation, and the resulting residual impacts.

Table 6-3 Summary of landscape character impacts

Landscape Character Zones	Description	Potential Construction impacts	Potential Operational impacts	Potential Residual impacts
LCZ 1	The Project impact including site clearance and introduction of large hardstand surfaces and built-forms will contrast the existing landscape character. However, given the dense vegetation buffers, the impacts are not likely to extend beyond the site boundaries.	**Very Low**	**Very Low**	**Negligible**
LCZ 2	The project has negligible direct/indirect bearing on the existing landscape character of this LCZ.	**Negligible**	**Negligible**	**Negligible**

The viewpoint assessments are representative of rural residential dwellings from publicly accessible locations and the closest local road. The assessments take into consideration the representative viewpoint panoramic image which indicates the clearest view in the direction of the Project, as well as screening elements that are present surrounding the dwelling.

Table 6-4 Summary of visual impacts

Viewpoint no. and location	Description	Potential Construction impacts	Potential Operational impacts	Potential Residual impacts
VP1: 62 Black Forest Drive	Vegetation clearance along Black Forest Drive may open a view window to the Project construction activities and project components. However, the views will be filtered by the existing vegetation around residential receivers.	**Low**	**Low**	**Very Low**
VP2: 48 Black Forest Drive	The existing substation accessway opens views to the project components. However, the views will be partially obstructed by intervening substation structures and filtered by the existing vegetation around residential receivers.	**Very Low**	**Very Low**	**Negligible**
VP3: 32 Norton Rd	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**
VP4: 121 Lawson Rd	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**
VP5: Intersection of Mount Macedon Rd and Black Forest Drive	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**
VP6: Allison Lane	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**
VP7: 96 Black Forest Drive	Project construction works and components are not likely to be noticeable from this viewpoint.	**Negligible**	**Negligible**	**Negligible**

7 Conclusion

The Project is in Rural Conservation Zone in Macedon Shire Ranges Planning Scheme, which values and protects the existing character and landscape. Under the Planning Scheme, the Site is covered by a Vegetation Protection Overlay and Environmental Significance Overlay which places further emphasis on the protection of native vegetation and landscape character of the Site and its context.

The assessment to the Landscape Character indicates that the Project will have very low impacts to LCZ 1 Rural Conservation and negligible impact on LCZ 2 Rural Living. It is adjacent to an existing electrical substation, within land that is modified by farming practices. The Project will introduce land use change to a small area in what is a widely distributed character zone.

There are a limited number of sensitive receivers identified within the Study Area, with main visual receivers of the site including motorists on Black Forest Drive and rural residences. Seven viewpoints were assessed that are representative of the nearest rural dwellings, at different aspects and distances, to determine the extent of impact.

The visual impact ratings during construction are negligible within most viewpoints, while there would be low to very low impacts on adjacent rural residences, as would be experienced temporarily by the nearest receivers.

The visual impact ratings during operational phase include:

- **Low** visual impacts for rural residences and motorists on Black Forest Drive as assessed from VP1. The Project will introduce electrical infrastructure and noise walls that would be noticeable from the dwellings, though appear from a narrow gap through the existing foliage along Black Forest Drive at the proposed accessway for the Project.
- **Very Low** visual impacts for rural residences and motorists on Black Forest Drive as assessed from VP2. Views to the Project infrastructure and noise walls will be predominantly obstructed by the existing vegetation and substation structures in the foreground. Subsequently, the structures will be barely noticeable from the dwellings, though would appear from a narrow gap through the existing foliage along Black Forest Drive at the existing substation accessway.
- **Negligible** visual impacts are experienced by the other assessed viewpoints (VP3 to VP7), due to intervening vegetation and topography screening views of the Project.

The introduction of new electrical infrastructure adjacent to the existing substation together with the introduction of a new driveway to the existing dense vegetation along Black Forest Drive will likely have very low cumulative impacts on the residences and motorists along Black Forest Drive.

In the absence of high adverse impacts, the recommended mitigation measures provide an opportunity to soften the appearance of new infrastructure. Minimising the extent of vegetation clearance at the interfaces with Black Forest Drive is recommended, as is vegetation planting to the northeast and southeast site boundaries which diminish views of the Project as experienced (at low to very low impact ratings) by several rural dwellings and local motorists.

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Aurecon, South Energy, P527802 Rev A: Macedon BESS Ecological Assessment Report, 2024-11-29

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