



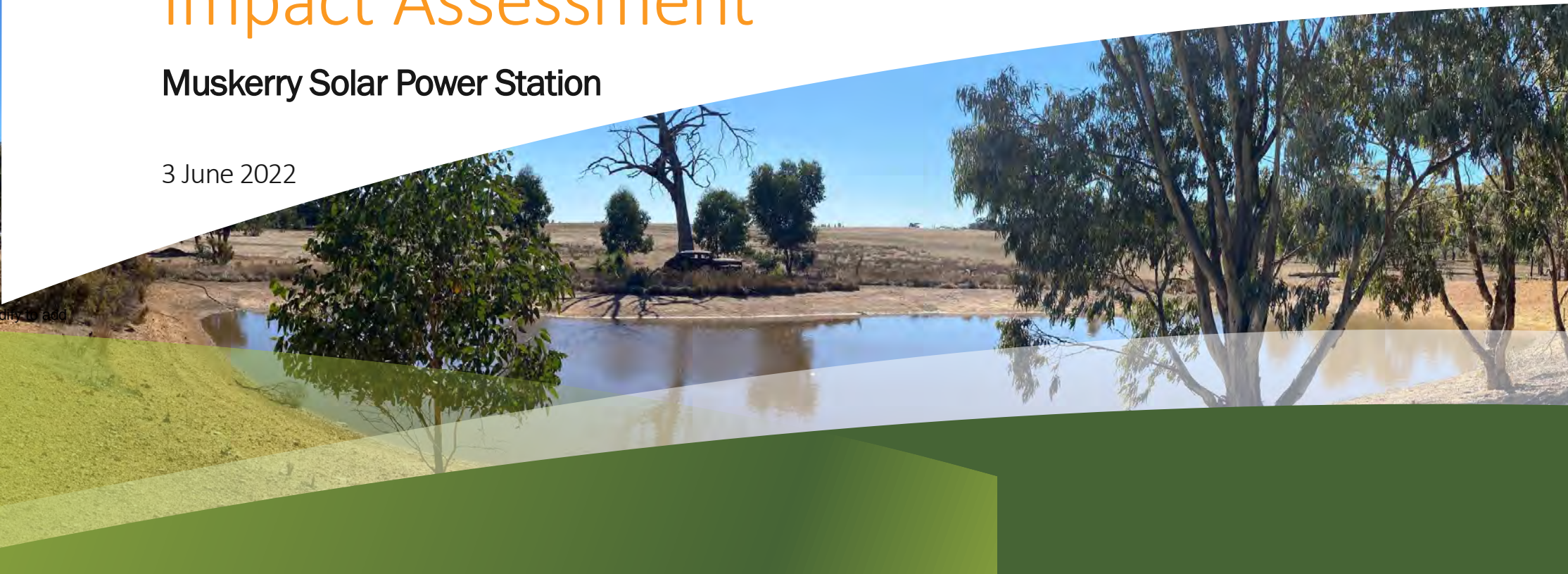
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Landscape Character and Visual Impact Assessment

Muskerry Solar Power Station

3 June 2022




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Landscape Character and Visual Impact Assessment Muskerry Solar Power Station

AE1185
June 2022

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Version V2			
Issued to			
Patrick Dale, Project Manager, Edify Claire Driessen, Project Director, Edify			
Prepared by		Reviewed by	Approved by
Jacqueline Mallinson, Senior Spatial Analyst Lisa Singleton, Environmental Scientist/GIS		Michael Cramer, Director	 Michael Cramer, Director
Previous versions			
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GLOSSARY

Applicant	Entity applying for development consent under the EP&A Act, in this case, Edify Energy (may also be termed proponent).
alternating current	Alternating current (AC) is an electric current which periodically reverses direction, in contrast to direct current (DC) which flows only in one direction.
direct current	An electric current flowing in one direction only.
project site	The project site, is the area within which the solar arrays, BESS, substation, office and supporting facilities will be located.
magnitude	The measurement of the scale, form and character of a development proposal when compared to the existing condition. In the case of visual assessment this also relates to how far the proposal is from the viewer. Combined with sensitivity, magnitude provides a measurement of impact (TfNSW 2020a).
mitigation	The action of reducing the severity and magnitude of the impacts of the proposed project.
power conversion unit	Device used to convert power from one form to another e.g. from DC to AC or changing the voltage or frequency.
project site boundary	The boundary around the project site.
SCADA system	SCADA is an acronym for supervisory control and data acquisition. SCADA refers to an industrial computer system that monitors and controls a process. In the case of the transmission and distribution elements of electrical utilities, SCADA will monitor substations, transformers and other electrical assets.
Sensitivity	The sensitivity of a landscape character zone or view and its capacity to absorb change of the nature of the proposal. In the case of visual impact this also relates to the type of viewer and number of viewers (TfNSW 2020a).
Substation	A set of equipment reducing the high voltage of electrical power transmission to that suitable for supply to consumers.
Transformer	Transformers are used to increase or decrease the alternating voltages in electric power applications.

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ABBREVIATIONS

AC	alternating current
BESS	battery energy storage system
DC	direct current
DPIE	Department of Planning, Industry and Environment
DELWP	Department of Environment, Land, Water and Planning
EIS	environmental impact statement
ha	hectares
IBRA	Interim Biogeographic Regionalisation for Australia
km	kilometre
kV	kilovolt
LGA	Local Government Area
LIIEMA	Landscape
m	metres
MW	megawatts
PCT	plant community type
PCU	power conversion unit
PPA	planning permit application
SCADA	supervisory control and data acquisition
SPS	solar power station
TfNSW	Transport for New South Wales
VIA	visual impact assessment

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1 INTRODUCTION

1.1 Project overview

Accent Environmental Pty Ltd (Accent) has been commissioned by Edify Energy Pty Ltd (Edify) to undertake a visual impact assessment to support a Planning Permit Application (PPA) to the Department of Environment, Land, Water and Planning (DELWP) for the construction and operation of the utility-scale Muskerry Solar Power Station (Muskerry SPS) located 33 km east of Bendigo in Victoria.

As part of the broader Planning and Environmental assessment being conducted for the project by NGH, a visual assessment of the proposed development has been carried out by Accent Environmental to determine any likely landscape character and visual impacts.

This landscape character and visual impact assessment delivers an objective statement of the probable impacts on the visual environment resulting from the construction of the proposed development. The report outlines the results from site assessment, describing the present landscape character. It documents the assessment of visual impact resulting from the proposal and proposes suitable management measures.

1.2 Study Area

The proposed Muskerry SPS is located within two planning schemes the Bendigo Shire Council (BSC) and Campaspe Shire Council (CSC) local government areas (LGAs), as shown on Figure 1.1. The two LGAs are located within the Goldfields sub-region of the Victorian Midlands IBRA v.7 Region (IBRA 2020).

The region's main land use is for agriculture (CSC 2021). The nearest major road to the Muskerry SPS is the Northern Highway (B75) approximately 2.6 km east of the project.

The project site is divided into two areas with a northern portion and southern portion with a combined area of 927 ha of rural land. The project footprint occupies 496.21 ha of land within the project site, with the remaining land excluded from development, primarily to minimise environmental impacts. It is anticipated that both portions of the site will be accessed via Toolleen-Angle Road to the north of the northern portion of the development footprint with an access road between the two portions being improved to enable access to the southern portion. This access road is also the planned route for the electrical connection line between the northern and southern portions. The northern portion is traversed by the existing AusNet Bendigo- Fosterville- Shepparton transmission line with an easement running northeast/ southwest through the footprint.

Due to a long history of agriculture and grazing, the site is highly modified.

The site has favourable topography for visual amenity with undulating land across the site. There are also clusters of vegetation within the site to be retained and trees bordering two of the adjacent public roads, Axedale-Toolleen Road and the Toolleen-Angle Road.

There are two small creeks flowing through the study area. The creeks are Burke Creek and Back Creek and their small tributaries which flow into Campaspe River. All creek and river systems flow north into the Murray. Other rivers in this region include the Wimmera, Avoca, Loddon, and Goulburn Rivers.

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- Project site - north
- Project site - south
- Railway
- Existing transmission lines
- Road
- National Park (NP)
- Nature Conservation Reserve (NCR)
- Lake/reservoir
- Main watercourse
- Watercourse - tributary



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Figure 1. Site location

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CRS: GDA 94 MGA 55

Page size: A4

Background map: Google Satellite [Feb 2022] - main map and inset map

Additional data: Main map - Vic HY_WATERCOURSE, Vic TR_ROAD, Vic TR_RAIL, Vic ElectricityTransmissionLines_v2, Vic PARKRES,

Inset map - ABS STE_2021_AUST_GDA2020



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1.3 Proposed development

1.3.1 Overview

The proposed Muskerry SPS is a utility scale solar energy development that would generate up to 250 MW (DC) of renewable electricity. Solar energy will be captured by thousands of solar photovoltaic modules, known more commonly as solar panels.

The project is a major infrastructure development that is expected to create up to 350 jobs during construction. Access to the project area will be via the Northern Highway and the Toolleen-Angle Road adjacent to the northern boundary of the northern portion of the project. In order to accommodate the construction related vehicles the intersection of the Northern Highway and the Toolleen-Angle Road will require the addition of a turning treatment as well as improvement of the Toolleen-Angle Road up to the site entrance (see Figure 1.2).

General information about the project is provided in Table 1.1 and the proposed project layout is shown in Figure 1.2.

The project site is comprised of two sections, the northern portion bounded to the north by Toolleen-Angle Road and west by Muskerry East School Road and the southern portion bounded to the south by Axedale-Toolleen Road and north by Craig Lane. Key visual elements of the project include:

- solar panels interconnected to form solar arrays
- inverters and integrated transformers combined in prefabricated enclosures (one inverter and transformer for each solar array)
- metal mounting structures

- above-ground (and underground) DC cabling
- central 33 kV switchboard (ring main unit)
- battery energy storage system (BESS) units comprising sealed lithium-ion batteries housed in enclosures that resemble shipping containers in dimensions and appearance and are up to 3 m in height
- a high voltage (HV) substation, fitted with lightning rods, to connect the SPS to the transmission network. There are currently two options for the substation location along the existing transmission line running northeast-southwest through the northern portion, option a in the west and option b to the east (see Figure 1.2).
- a prefabricated operations and maintenance (O&M) building.
- permanent staff and contractor car parking area
- permanent all-weather site access (south from Toolleen Angle Road) and an access road approximately 10 m wide connecting from the northern portion to the southern portion leading to the office and substation
- a permanent CFA access to the southern portion of the site (north from Axedale-Toolleen Road)
- internal vehicle access tracks (4 m wide) leading to solar arrays and power control units (PCUs)
- perimeter safety fencing and a fixed, closed-circuit television (CCTV) system
- temporary site compound, lay-down area/s, and equipment storage areas during construction.

The high voltage substation would be installed adjacent to an existing AusNet 220 kV transmission line that crosses the northern portion of the project site from east to west. The BESS units will either be distributed in groups throughout the site (decentralised) or consolidated in a single location next to the substation (centralised).

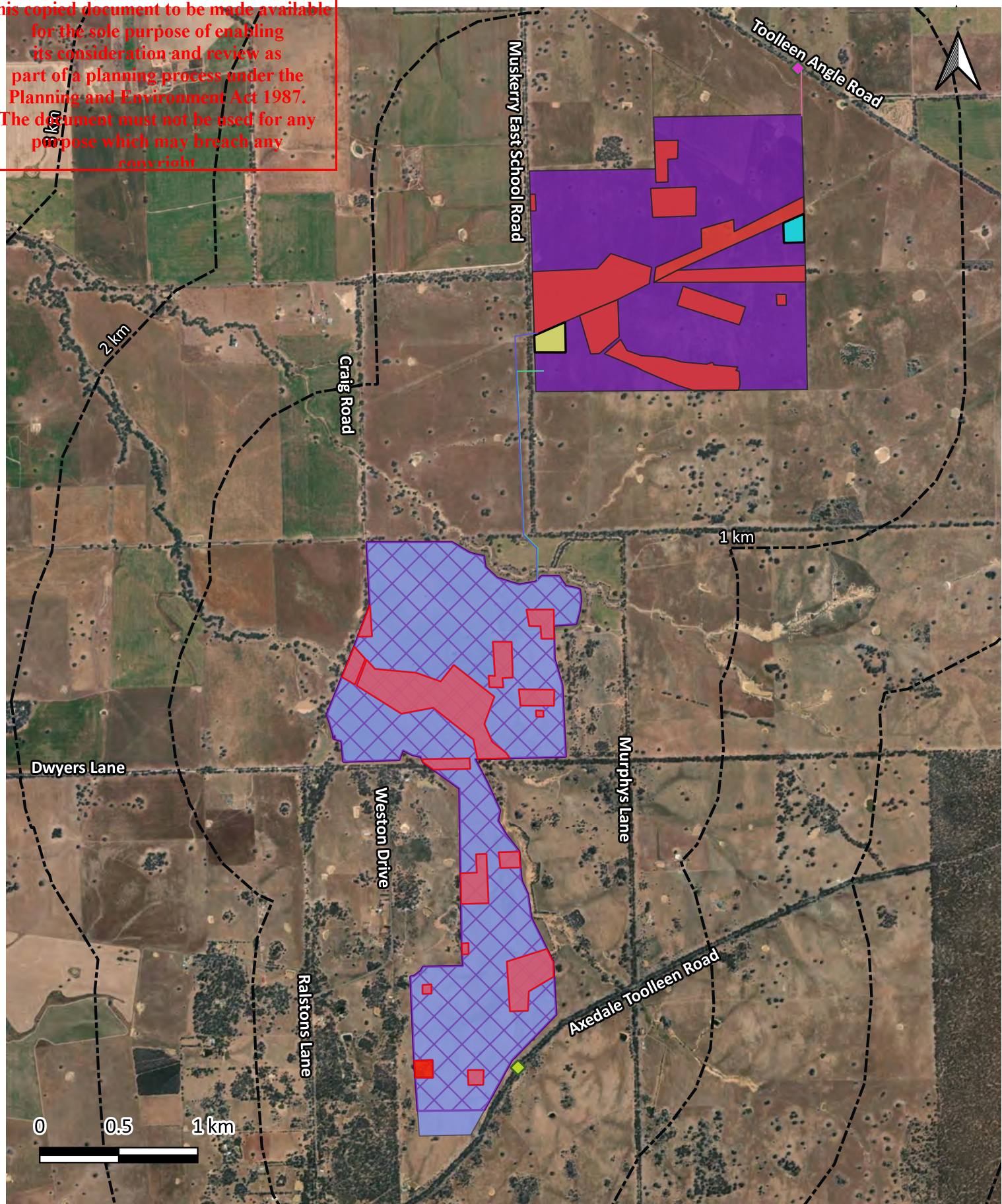
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Table 1-1 Project overview

Address	Muskerry East School Road, Muskerry, VIC 3557
Applicant	Edify Energy Pty Ltd, ABN 85 606 684 995 Level 1, 34-35 South Steyne, MANLY NSW 2095
Council	Greater Bendigo and Campaspe Planning Schemes
Titles	<p>Volume 10244 Folio 880 Lots 1,2 and 4 TP120975V Volume 04947 Folio 377 (Crown Allotment 5, Section D, Parish of Muskerry)</p> <p>Volume 09070 Folio 485 (being Lot 1 on LP113736) Volume 09070 Folio 486 (being Lot 2 on LP113736) Volume 05794 Folio 602 (being Lots 1 and 2 on TP677364) Crown Allotment 5, Section D, Parish of Muskerry</p> <p>Volume 11659 Folio 176 Crown Allotment 8, Section D, Parish of Muskerry</p> <p>Volume 11392 Folio 481 being comprised of Crown Allotments 12C and 12D, Section D, Parish of Muskerry (see TP887296M)</p> <p>Crown Allotments 1, 2, 4 and 5, Section 2, Parish of Weston (see TP887296M)</p> <p>Volume 03326 Folio 130 being Crown Allotment 5A, Section 2, Parish of Weston (see TP867302J)</p> <p>Volume 01966 Folio 061 being Crown Allotment 3, Section 2, Parish of Weston (see TP869754K)</p> <p>Volume 11392 Folio 479 contained in Lot 2 on Plan of Subdivision 704656W</p> <p>Easement: Lot 1 TP892631V Crown Allotment 7B, Section D, Parish of Muskerry</p>

Total indicative area	Site size: approximately 927 ha Development footprint: approximately 496 ha
Land use zoning	Farming Zone (FZ)
Land use	Sheep grazing and small areas cultivated for fodder cropping
Proposed capacity	250MWdc plus 200 MW / 800 MWh Battery Energy Storage System
Connection	To the AusNet Bendigo- Fosterville- Shepparton transmission line via a new T-connection into the existing line. A new step-down substation from 220kV to 33kV will also be required and is estimated to have a 150 x200 m footprint and may be located either on the O'Sullivan/ Griffin land or the Burke land, within the northern portion.

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- | | |
|---|---|
|  Northern portion of Muskerry SPS |  Substation Option b) |
|  Southern portion of Muskerry SPS |  Easement Option A |
|  Reduced Southern portion of Muskerry SPS |  Easement Option B |
|  Restricted Area |  Proposed Site Access |
|  Substation Option a) |  Emergency Site Access - CFA |
| |  Main site access |

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Figure 1.2 Site Layout

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Additional data sources: ESRI satellite

1.3.2 Solar arrays

The proposed solar arrays will be 70 to 90 m long and approximately 7 m apart. The height of the solar panels will vary across the day as they track the path of the sun; however, the maximum height will not exceed 4.2 m. The solar arrays will be positioned in a north-south alignment and tilt along a single axis in an east to west movement. Each solar panel will be fixed to a metal mounting structure, piled or screwed into the ground without the need for any concrete.

An example of solar panel arrays is shown in Figure 1.3 and a visual representation of the SPS components is shown in Figure 1.4.



Figure 1-3 An example of solar power station array blocks

1.3.3 Battery storage

Lithium-ion batteries will be installed in a secure, climate-controlled BESS unit with a rating of up to 200 MW/800 MWh. The BESS units shown in Figure 1.4 are an example of a centralised BESS

1.3.4 Power conversion units

Within each array block is a power conversion unit (PCU) (see Figure 1.3) which contains the central inverters, step-up transformers and switchgear which convert DC electricity collected from the panels into AC electricity for connection and distribution via the 220 kV AusNet Transmission Line.

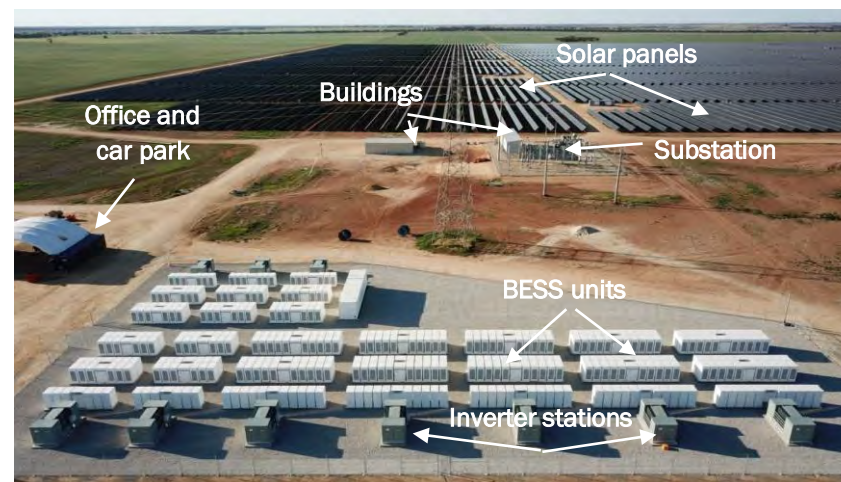


Figure 1-4 Visual representation of site components

1.3.5 Substation

The 220/33kV outdoor substation, with 275MVA transformer and associated infrastructure will be located alongside the existing 220 kV

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transmission line, either on the western (option a) or eastern boundary (option b) of the northern portion of the site (see Figure 1.2) and have a footprint within 1 hectare. The maximum height of the substation is not expected to exceed 10 m. The substation will be fitted with lightning towers to a height of approximately 12 m.

1.3.6 Site access and internal roads

The site entry point will be from the Toolleen-Angle Road to the northern portion of the site with access to the southern portion also via this entry point. To accommodate construction traffic a turning treatment will be added at the intersection of the Northern Highway and Toolleen-Angle Road. There will also be road improvements from the turn treatment along Toolleen-Angle Road to the site entrance.

The location of an easement between the two sites has also been outlined to follow one of two paths, Option A and Option B shown in Figure 1.2. Within the solar farm, internal roads of approximately 4 m wide will be established for accessing infrastructure throughout the development footprint, however the exact layout is yet to be determined. An additional emergency CFA access to the southern portion of the site will be provided via the Axedale-Toolleen Road (see Figure 1.2).

1.3.7 Operations and maintenance building

An operations and maintenance building will be constructed at the site. The dimensions of the building are expected to be approximately 10 m by 8 m and single storey, with a height of up to 5 m. The building is expected to be constructed using neutral Colourbond style materials. Additional buildings will be steel framed, Colorbond finish demountable buildings to accommodate:

- 33kV Switch gear
- control and protection equipment
- site office
- staff amenities
- warehouse

1.3.8 Parking

During operations, operational and maintenance staff vehicles will be accommodated on-site within a vehicle parking area located adjacent to the site office. During construction, vehicles will be parked either at designated laydown areas, storage locations, or where construction activities are occurring.

1.3.9 Site fencing/security

To ensure public safety, security fencing will surround the project site using a single high security fence. The height of the fence will be 2.3 m. In addition, to ensure public safety, the substation and the adjacent BESS (if centralised) would have its own security fence.

Site fencing would typically be constructed of cyclone fencing material and would feature CCTV security cameras mounted at regular intervals.

1.3.10 External lighting

Lighting requirements will be minimal. Lighting would be provided for security reasons and for staff and contractors using the site facilities. External lighting at the project would be restricted to the area where the maintenance shed, permanent site office and yard would be located. All external lighting around buildings would be faced downwards.

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1.3.11 Operation

During the operational phase of the project, approximately five to seven full-time equivalent personnel will be required to support the project's operation. The primary activities conducted on site will include day-to-day routine operations, maintenance of infrastructure, and general site maintenance and security. Operation of the solar farm will also likely be supported by local contractors for tasks such as repairs, minor works, weed/vegetation management, fencing and cleaning.

1.3.12 Planning context

The Minister for Planning is the responsible authority for new planning permit applications for all energy generation facilities that are 1 MW or greater, including renewable energy facilities such as the Muskerry SPS. Under the *Planning and Environment Act 1987*, DELWP assesses planning permit applications on behalf of the Minister.

Clause 53.13 of the Victorian Planning Provisions (VPPs) has the purpose of facilitating “*the establishment and expansion of renewable energy facilities, in appropriate locations, with minimal impact on the amenity of the area*”. Under clause 53.13-3, the responsible authority must consider, a number of factors including:

- the Municipal Planning Strategy and the Planning Policy Framework
- the effect of the proposal on the surrounding area in terms of noise, glint, light spill, vibration, smell and electromagnetic interference
- the impact of the proposal on significant views, including visual corridors and sightlines.

The development site is located within the Farming Zone of the Campaspe Shire Council and Bendigo Shire Council planning schemes. Under this zoning, a permit is required for a renewable energy facility

(other than wind energy facility) and must meet the requirements of Clause 53.13.

In preparing this report, consideration has been given to the consistency of the project with the State Planning Policy Framework. This includes VPP Clause 12 (12.05-2S) – Environmental and Landscape Values, together with the Campaspe Shire Council and Bendigo Shire Council planning schemes (both of which are relevant to the development site).

The planning objectives listed in Table 1-2 are relevant to the visual impacts, their assessment and subsequent landscaping of the project.

Table 1-2 Relevant planning objectives

Planning scheme (relevant section)	Objectives relevant to visual impact and landscaping
Victorian Planning Provisions Clause 12 (12.05-2S) – Environmental and Landscape Values	<p>To protect landscapes and significant open spaces that contribute to character, identity and sustainable environments.</p> <p>Strategies include the recognition of the natural landscape for its aesthetic value and as a fully function system and aim to ensure natural key features are protected and enhanced.</p>
Bendigo Planning Scheme and Campaspe Planning scheme (12.01-6S)	<p>To protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments.</p> <p>Strategies: Ensure significant landscape areas such as forests, the bays and coastlines are protected.</p> <ul style="list-style-type: none"> • Ensure development does not detract from the natural qualities of significant landscape areas. • Improve the landscape qualities, open space linkages and environmental performance in significant

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Planning scheme (relevant section)	Objectives relevant to visual impact and landscaping
	<p>landscapes and open spaces, including green wedges, conservation areas and non-urban areas.</p> <ul style="list-style-type: none"> • Recognise the natural landscape for its aesthetic value and as a fully functioning system. • Ensure important natural features are protected and enhanced.
Bendigo Planning Scheme and Campaspe Planning scheme (13.07-1S)	<p>To protect community amenity, human health and safety while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts.</p> <p>Strategies</p> <ul style="list-style-type: none"> • Ensure that use or development of land is compatible with adjoining and nearby land uses. • Avoid locating incompatible uses in areas that may be impacted by adverse off-site impacts from commercial, industrial and other uses. • Avoid or otherwise minimise adverse off-site impacts from commercial, industrial and other uses through land use separation, siting, building design and operational measures. • Protect existing commercial, industrial and other uses from encroachment by use or development that would compromise the ability of those uses to function safely and effectively.
Bendigo Planning Scheme and Campaspe Planning scheme (15.01- 6S)	<p>To ensure development respects valued areas of rural character.</p> <p>Strategies:</p>

Planning scheme (relevant section)	Objectives relevant to visual impact and landscaping
Landscape Character and objectives	<ul style="list-style-type: none"> • Ensure that the siting, scale and appearance of development protects and enhances rural character. Protect the visual amenity of valued rural landscapes and character areas along township approaches and sensitive tourist routes by ensuring new development is sympathetically located. • Site and design development to minimise visual impacts on surrounding natural scenery and landscape features including ridgelines, hill tops, waterways, lakes and wetlands.
Campaspe Planning scheme (19.01- 2S) Design for rural areas	<p>To promote the provision of renewable energy in a manner that ensures appropriate siting and design considerations are met.</p> <p>Relevant strategy:</p> <ul style="list-style-type: none"> • Consider the economic and environmental benefits to the broader community of renewable energy generation while also considering the need to minimise the effects of a proposal on the local community and environment.
Bendigo Planning Scheme (42.03)	<p>Protect the visual amenity of valued rural landscapes and character areas along township approaches and sensitive tourist routes by ensuring new development is sympathetically located.</p> <p>Site and design development to minimise visual impacts on surrounding natural scenery and landscape features including ridgelines, hill tops, waterways, lakes and wetlands.</p>

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Planning scheme (relevant section)	Objectives relevant to visual impact and landscaping
	The endorsed Landscaping Plan must be implemented to the satisfaction of the responsible authority.
	To minimise threats to the natural environment through the unnecessary removal of native vegetation.
	To protect remnant native vegetation and habitat, including understorey, and to facilitate natural revegetation.
	To promote the maintenance of ecological processes and genetic diversity.
	To encourage maintenance and development of linkages between existing areas of remnant vegetation.
	To recognise the catchment-wide land and water management benefits resulting from vegetation retention.
	To maintain and enhance Bendigo's scenic and recreational landscape assets

Planning scheme (relevant section)	Objectives relevant to visual impact and landscaping
Campaspe Planning Scheme (42.03)	To recognise the catchment-wide significance of the Campaspe River Valley and the need to restore its health.
	To promote the conservation and enhancement of the environmental values of the Campaspe River environs.
	To protect riparian, native vegetation by avoiding and minimising its removal and identifying appropriate offset actions.
	To acknowledge and enhance the natural landscape assets of the Campaspe River Valley
	To provide for the sensitive siting of new buildings and works.
	To limit the density of development.

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1.4 Activities and structures that may have a visual impact

Activities and structures associated with the phases of the proposed solar power station development have the potential to have a visual impact on sensitive receivers in the vicinity of the site. These are discussed below.

1.4.1 Construction

A number of activities that are likely to occur in the construction (or pre-construction) phase of the proposed development may be visible from areas surrounding the project site, including:

- ongoing detailed site assessment including technical investigations
- various minor civil works at the site access point
- construction facilities, including portable structures and laydown areas
- various construction and directional signage
- excavations and earthworks
- construction-related vehicles and equipment gaining access to site from Toolleen-Angle Road, approximately 40 vehicle movements during the morning and evening peak hours during construction period and up to 134 vehicles daily during peak construction
- addition of turning treatment at intersection of the Northern Highway and Toolleen-Angle Road
- improvement of the Toolleen-Angle Road to the access point to the northern portion of the project (see Figure 1.2)
- various construction activities such as erection of solar panels and associated electrical infrastructure works
- the use of lighting at night to assist with construction activities (for a small time window during winter from dusk to 6 pm) and/or site security.

The majority of pre-construction and construction activities would be unlikely to result in an unacceptable level of visual impact due to their duration and temporary nature.

1.4.2 Operation

As the number/frequency and type of activities undertaken during the operational phase of the project are minimal, the impacts will be associated less with site activities and more with the presence of structures on site, as follows:

- the presence and operation of the solar arrays and their daily tracking of the sun
- the presence of the BESS units and substation
- the presence of associated infrastructure such as inverter enclosures, gathering and transmission lines, and operations and maintenance building
- the presence of internal access roads
- the presence of fencing and minor site signage
- vehicles and equipment gaining access to site for operations and undertaking maintenance activities

As the operation phase of the proposed solar power station is expected to last for 30 years, visual impacts during operations need to be carefully assessed.

1.4.3 Decommissioning

At the end of the project's operational life, the project site will be decommissioned. During decommissioning, all above ground infrastructure (and below ground infrastructure to a depth of 1000 mm)

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will be removed. Key elements of project decommissioning with associated visual impacts are expected to include:

- disconnection of the BESS from the AusNet connection point at the substation
- disconnection and removal of the solar panels
- removal of all buildings and equipment, with materials recycled wherever possible
- removal of steel framework/supports and cabling for recycling
- removal of underground infrastructure
- removal of fencing (unless requested otherwise by the landholder or relevant authorities)
- site rehabilitation, remediation (if required), and return to pre-existing land use (unless otherwise agreed with the landholder or relevant authorities).
- As with construction the activities involved in the decommissioning of would be unlikely to result in an unacceptable level of visual impact due to their duration and temporary nature.

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2 METHODOLOGY

2.1 Guidelines

This landscape character and visual impact assessment is based on a combination of professional qualitative judgement and commonly accepted industry criteria and guidelines, as outlined below:

- Landscape Institute and Institute of Environmental Management & Assessment 'Guidelines for Landscape and Visual Impact Assessment (GLVIA 3)' (LIEMA 2013).
- Christine Tudor for Natural England 'An approach to landscape sensitivity assessment – to inform spatial planning and land management' (Natural England 2019). This document expands on the guidance given by GLVIA 3 for the assessment of landscape and visual susceptibility and value for specific development on specific parcels of land.
- Transport for NSW (TfNSW) *Guideline for landscape character and visual impact assessment* (TfNSW 2020a).
- TfNSW *Beyond the Pavement 2020: Urban design approach and procedures for road and maritime infrastructure planning, design and construction* (TfNSW 2020b).
- Department of Planning, Industry and Environment (DPIE) *Draft Large-Scale Solar Energy Guideline* (Appendix A) (DPIE 2021) (used to undertake preliminary visual assessment and determine sensitive receiver visual impact rating).
- Department of Environment, Land, Water and Planning (DELWP) *Victoria State Government Solar Energy Facilities Design and Development Guidelines VIC* (DELWP 2019)
- *Landscape Plan Guide for developments in Shire of Campaspe City of Greater Shepparton and Moira Shire Council* (Spiire 2020).

The assessment was undertaken to:

- assess the existing landscape character within the vicinity of the proposed development footprint
- determine the extent and nature of the potential visual impact of the proposed solar arrays and associated buildings and site infrastructure on the surrounding areas
- identify the need for, and propose, any measures to mitigate and minimise any potential visual impacts.

The assessment involved the following general methodology:

- a desktop review of aerial photography to identify landscape character and potential visual receptors
- consultation of IBRA, soils and climate spatial data via <https://datashare.maps.vic.gov.au/>
- open-source elevation data and point clouds from Victorian government via ELVIS
- ground-truthing of desktop research by Accent representatives on 30th March to 1st April 2022, during which viewpoints were finalised and photographed to reflect key views of sensitive receivers of the project site
- brief discussions with the sensitive receivers in order to take the most representative photographs and record the specific sensitivities of receivers
- description and evaluation of the existing landscape character and visual environment based on ground truthing and desktop research
- assessment of potential visual impacts of project night lighting on surrounding residences, scenic/significant vistas, air traffic and road corridors

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- assessment of the degree of potential reflective visual nuisance (glare and glint) based on the proposed solar arrays, buildings and the existing environment
- preparation of photomontages from six key viewpoints
- visual impact assessment using grading matrices, taking into consideration the sensitivity of the landscape and receptors and magnitude of any likely site development impacts
- preparation of operational mitigation and management measures, including consideration of the necessity for site landscaping and visual screening
- consideration of the outcomes of previous community consultation undertaken during the PPA process.

2.2 Landscape character assessment criteria

The Landscape Character Assessment is the “*process of identifying and describing variation in the character of the landscape. It seeks to identify and explain the unique combination of elements and features (characteristics) that make landscapes distinctive. This process results in the production of a Landscape Character Assessment*” (LIIEMA, 2013).

As outlined in the LIIEMA (2013) it is important to assess landscape impact and visual impact separately although they are connected. The landscape baseline assessment outlined below also informs the visual assessment in Section 3. The effects of the development on the landscape should be assessed as effects on an environmental resource.

In assessing the landscape character effects of a development, the primary considerations are:

- landscape baseline made up of the pre-existing landscape elements and characteristics which describe the landscape character
- sensitivity of the landscape resource and its ability to absorb change

- scale or magnitude of the landscape effects resulting from the development.

Combining these elements enables the impact on the landscape character as a result of the development to be assessed.

2.2.1 Sensitivity of landscape resource

The sensitivity of the landscape resource as a receptor is assigned based on the baseline landscape character and the value attached to it. It also considers the susceptibility of the landscape character to disturbance or change due to development.

As defined in the guidance document *An approach to landscape sensitivity assessment – to inform spatial planning and land management* (Natural England 2019), landscape sensitivity refers to:

“Within the context of spatial planning and land management, landscape sensitivity is a term applied to landscape character and the associated visual resource, combining judgements of their susceptibility to the specific development type / development scenario or other change being considered together with the value(s) related to that landscape and visual resource. Landscape sensitivity may be regarded as a measure of the resilience, or robustness, of a landscape to withstand specified change arising from development types or land management practices, without undue negative effects on the landscape and visual baseline and their value.”

The criteria in Table 2.1 outlines categories of sensitivity adapted from LIIEMA guidelines (2013).

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Table 2-1 Rating criteria for Landscape Resource Sensitivity

Sensitivity rating	Landscape resource criteria
Very high	Nationally designated/valued/ protected landscape and landscape features; strong/distinctive landscape characteristics: absence of landscape detractors. Rare receptor in excellent condition. A landscape receptor extremely sensitive to disturbance or change in character due to the development proposals. No potential or very limited potential for substitution or replacement
High	Locally designated valued landscape and features: many distinctive landscape characteristics: very few landscape detractors. Uncommon receptor in good condition. A landscape receptor sensitive to disturbance or change in character due to the development proposals. Limited potential for substitution or replacement.
Medium	Undesignated landscape and features: some distinctive landscape characteristics: few landscape detractors. A relatively common receptor in fair condition. A landscape receptor with a moderate level of sensitivity to disturbance or change in character due to the development proposals. Some potential for substitution or replacement.
Low	Undesignated landscape and features: few distinctive landscape characteristics: presence of landscape detractors. A common receptor in poor condition. A landscape receptor with limited sensitivity to disturbance or change in character due to the development proposals. Clear potential for substitution or replacement. receptor with very limited sensitivity to

Sensitivity rating	Landscape resource criteria
	disturbance or change in character due to the development proposals. Good potential for substitution or replacement.
Very low	Undesignated landscape and features: absence of distinctive landscape characteristics: presence of many landscape detractors. A common receptor in very poor condition. A landscape receptor with very limited sensitivity to disturbance or change in character due to the development proposals. Good potential for substitution or replacement.

2.2.2 Scale or magnitude of landscape effects

In assessing the magnitude of landscape effects as the result of a development, the magnitude of change includes the scale of change, the geographic extent and duration and reversibility of change. Also referred to as landscape susceptibility, which can be defined as:

“Within the context of spatial planning and land management, landscape susceptibility is the degree to which a defined landscape and its associated visual qualities and attributes might respond to the specific development type / development scenario or other change without undue negative effects on landscape character and the visual resource” (Natural England 2019)

The criteria used to determine the magnitude of effects on the landscape as a receptor is outlined in Table 2.2 adapted from LIEMA (2013) guidelines.

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Table 2-2 Rating criteria for Landscape Resource Magnitude

Magnitude rating	Criteria
Very high	Total loss of or major alteration to key elements/features/characteristics of the baseline condition. Addition of elements which strongly conflict with the key characteristics of the existing landscape. Large scale effects influencing several landscape types or character areas
High	Notable loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements that are prominent and may conflict with the key characteristics of the of the existing landscape. Effects at the scale of the landscape type or character areas within which the proposal lies.
Medium	Partial loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements that may be evident but do not necessarily conflict with the key characteristics of the of the existing landscape. Effects within the immediate landscape setting of the site.
Low	Minor loss or alteration to one or more key elements/ features/ characteristics of the baseline condition. Addition of elements that may not be uncharacteristic within the existing landscape. Effects at the site level (within the development itself)
Very Low	Barely discernible loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements not uncharacteristic within the existing

Magnitude Criteria rating

landscape. Effects only experienced on parts of the site at a very localised level.

2.3 Visual impact assessment criteria

In assessing the visual effects of a development, the primary considerations are:

- the changes in the character of the available views as a result of the development
- the changes in the visual amenity of the visual receptors. (LIEMA 2013)

In assessing views some key considerations to help categorise impacts include:

- the extent of view that would be impacted by the development (horizontal magnitude)
- proportion of development or features that would be visible
- distance of viewpoint from development (i.e. whether the proximity or panoramic view might be greatest of concern)
- where the views are and the duration of impact or transient nature of impact (e.g. when viewed from a moving vehicle)
- sensitivity of visual receivers.

In order to categorise and rate these visual effects Accent has consulted the NSW *Draft Large-Scale Solar Energy Guideline* (DPIE 2021) which provides criteria for ranking visual sensitivity and visual magnitude that incorporate the key considerations outlined above. This recent NSW publication is informative for Victorian contexts, due to the contemporary nature of the guideline in comparison to local guidelines.

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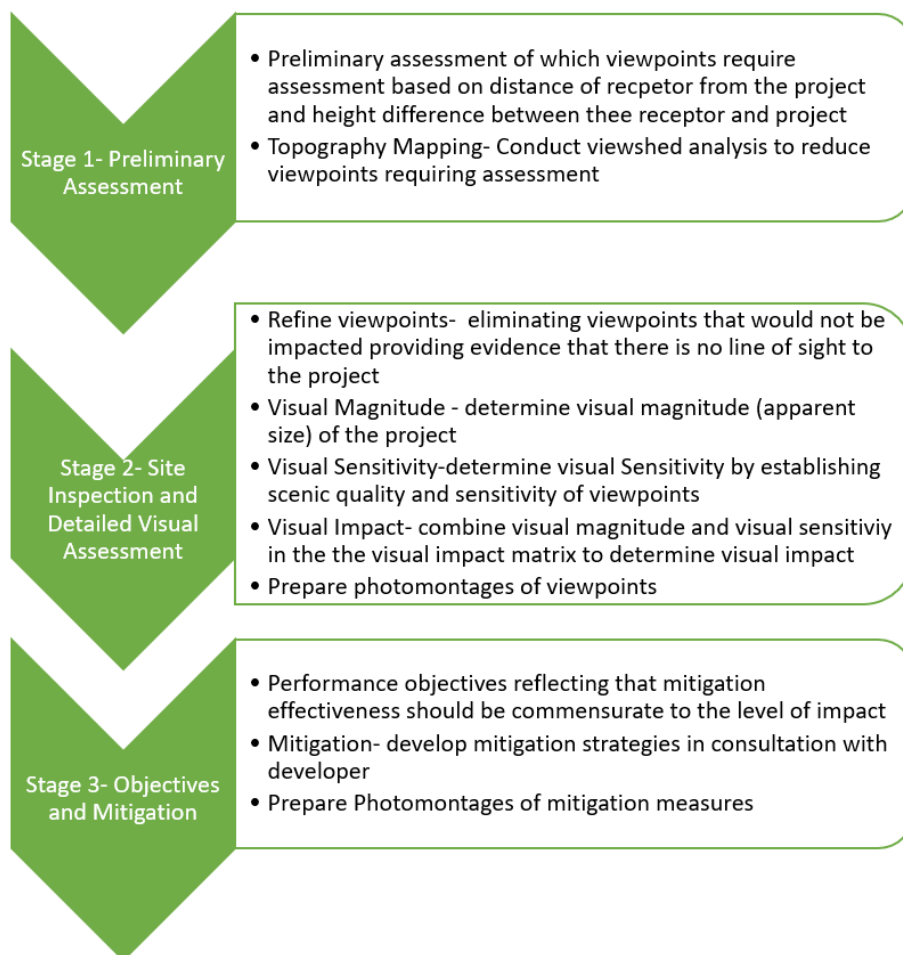


Figure 2-1 Flowchart for assessing visual impact of a proposal (DPIE 2021)

The overall methodology in assessing visual impact including receptor and viewpoint selection, impact assessment and mitigation development is outlined in Figure 2.1.

The visual impact of the project is determined using the flowchart in Figure 2.1 and risk matrices in Table 2.3-2.6.

The visual sensitivity and magnitude of each viewpoint (reflecting the views of the sensitive receivers) is combined to determine a visual impact rating using Table 2.3.

Table 2-3 Visual Impact Matrix (DPIE 2021)

	High Sensitivity	Moderate Sensitivity	Low Sensitivity	Very Low Sensitivity
High Visual Magnitude	High	High	Moderate	Low
Moderate Visual Magnitude	High	Moderate	Low	Very Low
Low Visual Magnitude	Moderate	Low	Very Low	Very Low
Very Low Visual Magnitude	Low	Very Low	Very Low	Very Low

Note, visual impacts are also subjective and stakeholder consultation is important in determining appropriate ratings and mitigation of visual impacts.

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2.3.1 Receivers

According to the Landscape Institute and Institute of Environmental Management and Assessment (LIEMA), visual receivers (or receptors) are individuals and/or defined groups of people who have the potential to be affected by a proposal. Furthermore, LIEMA (2013) states that:

“The zone of theoretical visibility identifies land that, theoretically, is visually connected with the proposal and this is refined by site survey to confirm the extent of visibility. But in parts of this area there will be relatively few people to experience the effects of the proposal on views. The baseline studies must therefore identify the people within the area who will be affected by the changes in views and visual amenity [these people are] usually referred to as “visual receptors”. They may include people living in the area, people who work there, people passing through road, rail or other forms of transport, people visiting promoted landscapes or attractions, and people engaged in recreation of different types.”

LIEMA also says that:

“The visual receptors most susceptible to change are generally likely to include:

- residents at home*
- people, whether residents or visitors, who are engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focused on the landscape and on particular views*
- visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience.*

- communities where views contribute to the landscape setting enjoyed by residents in the area*

Travellers on road, rail or other transport routes tend to fall into an intermediate category of moderate susceptibility to change. Where travel involves recognised scenic routes awareness of views is likely to be particularly high.”

When considering sensitivity, LIEMA comments, saying that:

“It is important to remember at the outset that visual receptors are all people. Each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, should be assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views.”

For the Muskerry Solar Power Station, visual receptors fall into two main categories:

- people living at residences near the project site (e.g. those listed in Table 4.1) and moving around their properties
- road users (generally local people, agricultural related traffic and freight) using main roads Toolleen-Angle Road and Axedale-Toolleen Road, and minor unmade roads; Muskerry East School Lane, Ralstons Lane, Weston Drive, Murphy's Lane, Dwyer Lane, Craig Road, Joyce Bridge Road (these minor road users are almost exclusively used to access properties)

2.3.2 Sensitivity

Visual sensitivity refers to the character of a setting, the quality of the view and how sensitive it is to the proposed change. Combined with magnitude, sensitivity provides a measure of impact. Visual sensitivity relates to the direction and the composition of the view. Views from

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habitable room windows, outdoor areas of the home yard residence are treated as sensitive receivers. Views from residual land beyond the home yard area (such as cropping/grazing land, recreational land etc.) are treated as less sensitive receivers. The greater the distance between the visual receiver and the proposal, the lesser the visual sensitivity of that visual receiver.

The definitions in Table 2.4 and 2.5 are adapted from Department of Planning, Industry and Environment (DPIE) *Draft Large-Scale Solar Energy Guideline* (Appendix A) (DPIE 2021). These definitions align with LIIEMA (2013) and *Environmental Impact Assessment Guidance Note – Guidelines for landscape character and visual impact assessment* (TfNSW 2020a) definitions with greater detail and particular reference to the subject- solar farms and the location- NSW Australia and so have been used for this assessment.

Table 2-4 Sensitivity definitions adapted from DPIE 2021

Viewer Sensitivity	Definition
High	<ul style="list-style-type: none"> residential areas and rural villages (land zoned R1, R2, R3, R4, R5 and RU5 in the standard LEP) recreation, cultural or scenic sites and viewpoints of national or state significance such as National Parks, National reserves and World Heritage areas any buildings, historic rural homesteads/ residences on the State or local Government Heritage List

Viewer Sensitivity	Definition
Moderate	<ul style="list-style-type: none"> rural dwelling tourist and visitor accommodation (definition in Standard Instrument Local Environment Plan) recreation, cultural or scenic sites and viewpoints of regional significance entry ways to a regional city identified in the infrastructure SEPP
Low	<ul style="list-style-type: none"> interstate and state passenger rail lines with daily daylight services State highways, freeways and classified main roads, classified tourist roads land management roads with occasional recreational traffic walking tracks of moderate local significance or infrequent recreational usage, or navigable waterways
Very Low	<ul style="list-style-type: none"> other low use and low concern viewpoints and travel routes

Table 2-5 Scenic quality class definitions adapted from DPIE 2021

Scenic Quality	Landforms	Vegetation	Waterbodies
High	<ul style="list-style-type: none"> Isolated peaks, steep rocky ridges, cones or escarpments with distinctive form and/or colour 	<ul style="list-style-type: none"> Strongly defined patterns with combinations of eucalypt forest, naturally appearing 	<ul style="list-style-type: none"> Visually prominent lakes, reservoirs, rivers,

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Scenic Quality	Landforms	Vegetation	Waterbodies
	contrast that become focal points <ul style="list-style-type: none"> • Larger areas of distinctive rock outcrops or boulders • Well defined, steep sided valley gorges 	openings, streamside vegetation and/or scattered exotics <ul style="list-style-type: none"> • Distinctive stands of vegetation that may create unusual forms, colours or textures in comparison to surrounding vegetation 	streams and swamps
Moderate	<ul style="list-style-type: none"> • Steep hilly and undulating ranges that are not visually dominant • Broad shallow valleys • Moderately deep gorges or moderately steep valley walls • Minor rock outcrops 	<ul style="list-style-type: none"> • Predominantly open forest or woodland combined with some natural openings in patterns that offer some visual relief • Vegetative stands that exhibit a range of size, form, colour, texture and spacing 	<ul style="list-style-type: none"> • Intermittent streams, lakes, swamps, rivers and reservoirs

Scenic Quality	Landforms	Vegetation	Waterbodies
Low	<ul style="list-style-type: none"> • Large expanses of flat or gently undulating terrain • Indistinct, dissected or unbroken landforms that provide little illusion of spatial definition or landmarks with which to orient 	<ul style="list-style-type: none"> • Extensively cleared and cropped areas with very limited variant in colour and texture 	<ul style="list-style-type: none"> • Natural waterbody absent

The higher the scenic quality of the landscape, the greater the significance of introducing a new development, and therefore the higher the sensitivity. A place with a more consistent character would also be more visually sensitive to new development than a place with less consistency.

The visual sensitivity is determined by considering both the viewer sensitivity (Table 2.4) and scenic quality class (Table 2.5). A visual sensitivity rating should be assigned to each viewpoint: High, Moderate Low or Very Low. Where the viewer sensitivity and scenic quality class make it difficult to determine a balanced rating a conservative approach should be used to assign a rating (DPIE 2021).

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2.3.3 Magnitude

The magnitude of a visual effect is the degree of change that the visual landscape undergoes as a result of the proposed development. It is the measurement of the overall scale, form and character of a development proposal when compared to the existing condition. Four categories are used in ranking the magnitude of a proposal (very low, low, moderate, high).

Magnitude takes into consideration the distance between the viewer and the proposal. Judging the magnitude of visual effects takes account of the:

- scale of the change within the view with respect to the addition (or loss) of elements in the view and change to its composition (including the proportion of the view that is taken up by the proposed development)
- degree of change and/or integration of any new features or changes in the landscape in terms of form, scale and mass, line height, colour and texture
- nature of the view of the proposed development and whether the views are permanent, full, partial or glimpses (LIIEMA 2013).

For our allocation of a rating for magnitude Accent considers the guidelines put forth by LIIEMA and the quantitative tools described in *NSW Draft guidelines* (DPIE 2021).

These guidelines consider the vertical and horizontal magnitude of the proposed project when assigning a magnitude rating. In assigning a magnitude rating the vertical magnitude is considered by determining the “vertical magnitude zone” between 1 and 5. These zones are demonstrated in Figure 2.2 ranging from Zone 1 representing the highest

vertical magnitude to Zone 5 the lowest. These zones are determined by the following steps:

- measure the distance between each viewpoint and the proposed project footprint (as calculated for use in the preassessment tool)
- determine the height difference between the PV array and each viewpoint. Unlike the preliminary tool this height difference is between the viewpoint and the project plus the difference between the highest visible point of the solar array and lowest visible point of the solar array. This height difference should consider existing natural mitigating factor such as topography and vegetation.
- plot each viewpoint on the Vertical Magnitude Tool (Figure 2.2) to determine the vertical magnitude zone.

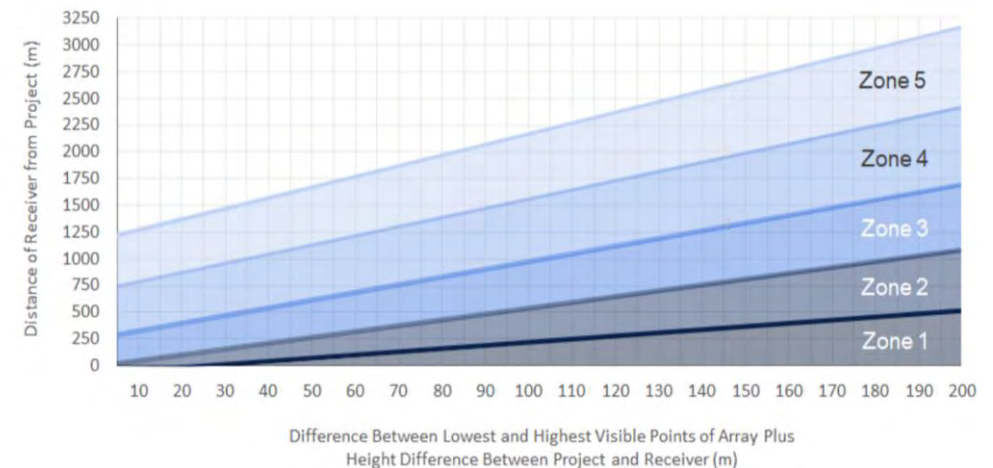


Figure 2-2 Vertical Magnitude Tool (DPIE 2021)

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The magnitude rating also considers the horizontal magnitude counting how many 30 degree segments the solar farm is visible within. The zone and horizontal magnitude are combined using Table 2.6 to determine a magnitude rating.

Table 2-6 Visual impact Magnitude definitions (DPIE 2021)

Visible Sectors	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
1	Moderate	Moderate	Low	Very Low	Very Low
2	High	Moderate	Moderate	Low	Very Low
3	High	Moderate	Moderate	Low	Very Low
4	High	High	Moderate	Moderate	Low
5	High	High	High	Moderate	Low
6	High	High	High	Moderate	Moderate

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3 LANDSCAPE CHARACTER ASSESSMENT

3.1 Purpose

This section outlines the existing local landscape character in order to gain a general understanding of the visual environment on which the influence of the Muskerry Solar Power Station Development will be assessed.

The Landscape Character Assessment is the 'process of identifying and describing variation in the character of the landscape. It seeks to identify and explain the unique combination of elements and features (characteristics) that make landscapes distinctive. This process results in the production of a Landscape Character Assessment' (LIIEMA, 2013)

As outlined in the LIIEMA (2013) it is important to assess landscape and visual impact separately although they are connected, the landscape baseline assessment outlined below also informs the visual assessment utilised in section 4. The effects on the landscape should be assessed as effects on an environmental resource.

3.2 Landscape baseline description

3.2.1 Landscape elements

TOPOGRAPHY

The proposed development footprint is gently undulating with topography providing some visual impact absorption. The northern portion ranges from approximately 190 m AHD in the west to 200 m AHD in the east and the southern portion of the footprint ranges from approximately 180 m AHD at the northern extent to 210 m AHD at the southern extent (see Figure 3.1). Surrounding the site there are various higher ridges and

peaks including those within the Heathcoate-Graytown National Park which includes high points with long range views such as Viewing Rock Lookout with an elevation of 331 m AHD however there is unlikely to be a clear view towards the development site, as between the lookout and the site there is also a ridge (approximately 13 km southeast of the development footprint) that extends for over 5 km and reaches elevations up to 425 m AHD.

WATERWAYS

Within the project lots there are multiple small waterways associated with Burke Creek and Back Creek and their tributaries. During the site visit in March/April 2022 the waterways encountered were dry (see Figure 3.1) The overall footprint lies within the Campaspe River catchment managed by the west Central Catchment Management Authority.

BUILT ELEMENTS

In addition to local power distribution lines to residences, the project site and broader area is also host to the overhead 66 kV transmission line into the Fosterville Terminal Station located approximately 8.6 km west of the development site. There is also a large Optus transmission mast close to the south of the southern portion of the development footprint.

Other built elements are small and infrequent within the landscape and are largely associated with the residential properties identified as receivers in the following section (see section 4.2.1). These elements include houses, garages, farming related sheds, grain silos and various other outbuildings and structures. There are also a large number of scrap vehicles adjacent to the western boundary of the southern portion of the development footprint.

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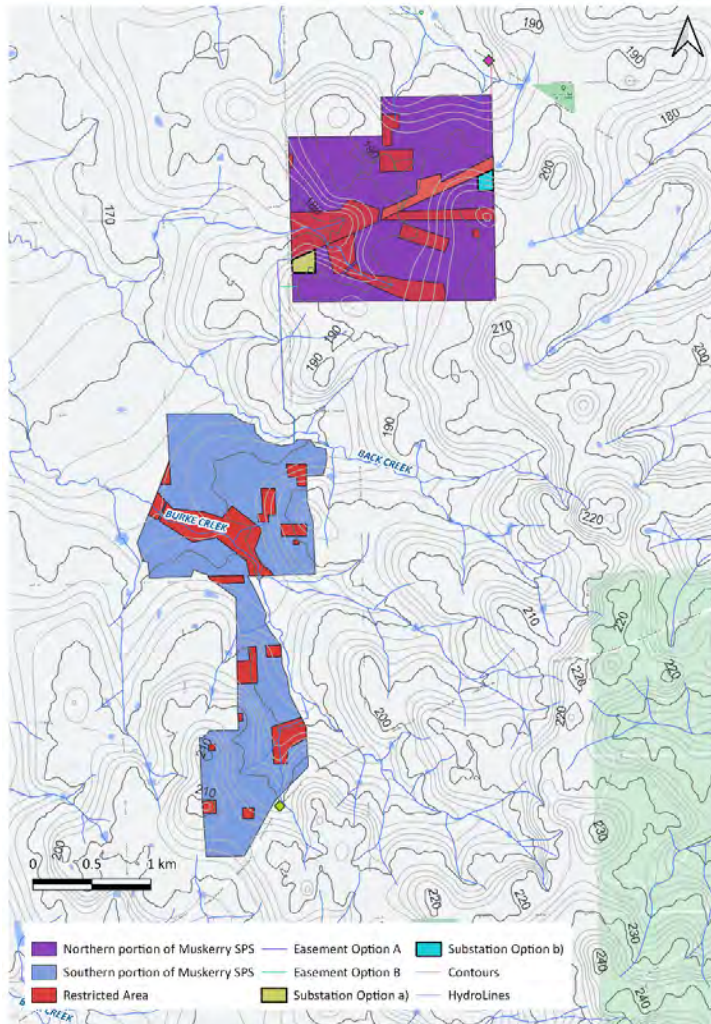


Figure 3-1 Contours and waterways within the immediate vicinity of Muskerry SPS development footprint.

Scattered throughout the landscape, there are both made and unmade rural roads, many of which are flanked by vegetation. These roads include Muskerry East School Road, Craigs Road, Ralstons Lane, Dwyer Lane, Murphy's Lane, Axedale-Toolleen Road and Toolleen-Angle Road.

VEGETATION

Across the immediate landscape there are intermittent clusters of mature vegetation largely eucalyptus stands and there are vegetation strips along many of the roads and property boundaries. The creeks and rivers also host riverine vegetation reserves.

There are more densely vegetated areas within the broader landscape including along Axedale-Toolleen Road approximately 2.3 km east of the southern portion of the development footprint, where the Crosbie Nature Reserve traverses both sides of the road (See Figure 1.1). Other protected areas include Mount Sugarloaf Nature Conservation Reserve, which is 9.5 km west of the development footprint and Heathcoate Graytown National Park, which is 13.5 km southeast.

Within both the northern and southern portions of the development footprint there are a small number of paddock trees that may be removed prior to the placement of solar arrays.

Ecological vegetation classes present onsite were identified in the ecological surveys undertaken by NGH (2021), these are summarised in Table 3.1.

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Table 3-1 Ecological vegetation classes present within the Muskerry SPS development footprint (NGH 2021).

EVC Number	EVC Name	Description
61	Box Ironbark Forest	20 metres with an open canopy of Eucalypts consisting of Grey Box (<i>Eucalyptus microcarpa</i>), Red Ironbark (<i>Eucalyptus tricarpa</i>), Red Box (<i>Eucalyptus polyanthemos</i>) and Yellow Gum (<i>Eucalyptus leucoxylon</i>)
68	Creek line Grassy Woodland	Creek line Grassy Woodland (EVC 68) reaches 15 metres in height with a Eucalypt canopy of River Red Gum (<i>Eucalyptus camaldulensis</i>) Grey Box, Yellow Gum and Yellow Box. There are scattered shrubs and revegetation throughout the creek lines and the ground storey is a mix of native and exotic grasses and herbs.
175_61	Grassy Woodland	Open eucalypt woodland where the upper canopy reaches 15 metres with a sparse cover of shrubs, grasses and herbs. In the Goldfields bioregion, this woodland occurs on sedimentary soils on lower slopes between the Plains Woodland and infertile woodlands of the sedimentary hills (DSE 2003).
803	Plains Woodland	dominated by Grey Box in the understorey with an absence of shrubs and exotic herbs and grasses
810	Floodway Pond Herbland	There is no Floodway Pond Herbland (EVC 810) for Goldfields Bioregion, but these small patches of vegetation and natural regeneration have occurred on the edge of the dams throughout the study area.

Due to the long history of grazing and cropping activities, native vegetation is largely absent from the project site. Remnant vegetation patches within the project site make up 139.45 hectares, of which the majority is to be retained with 21.51 hectares and 6 large trees to be removed (NGH 2021).

The wider landscape also consists largely of land historically cleared for agriculture, with vegetation (other than grassland) predominantly found on undulating hills, surrounding dwellings, and along road reserves, drainage lines and fence lines.

3.2.2 Landscape characteristics

The land within the vicinity of the solar farm is agricultural, typically cropping with some grazing. There are large open paddocks, some containing scattered shrubs and trees, bordered by fences and vegetation (grasses, shrubs and trees). To the south of the development footprint there are denser vegetation patches and conservation reserves and most houses to the south within 5 km of the development site have associated vegetation (see Photos 3.4 and 3.5).

The area is sparsely populated, with scattered homesteads accessed by surfaced roads and dirt tracks and minimal built elements obvious within the landscape aside from power lines and towers.

The wider region does have cultural elements associated with its historic nature. Other distinct elements include mining operations such as the Fosterville Gold Mine (9 km west of the development footprint) and the Hanson Axedale Quarry (approximately 5.5 km southwest of the development footprint).

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3.2.3 Dominant Landscape character

The site is located within the Goldfields Bioregion of central Victoria and is dominated by dissected uplands (predominantly a northerly aspect) of Lower Palaeozoic deposits. Metamorphic rocks have formed steeply sloped peaks and ridges. A variety of relatively poor soils are dominant with yellow, grey and brown texture contrast soils (Chromosols and Sodosols) and minor occurrences of friable earths (Dermosols and Ferrosols) (eSPADE 2021).

The climate is temperate with uncertain rainfall varying from 400 to 700 mm per annum, usually higher in winter. Maximum temperatures range from 12 to 32 degrees Celsius, daily minima range from 2 - 15 degrees. Box Ironbark Forest, Heathy Dry Forest and Grassy Dry Forest ecosystems dominate the lower slopes or poorer soils. The granitic and sedimentary (with Tertiary colluvial aprons) terrain is dominated by Grassy Woodlands much of which has been cleared. Occasional low-lying corridors of alluvial valleys between the uplands are dominated by Low Rises Grassy Woodland and Alluvial Terraces Herb-rich Woodland ecosystems (IBRA 2020).

A number of regionally important rivers transect the bioregion, mostly from south to north flowing into the Murray, and include the Wimmera, Avoca, Loddon, Campaspe and Goulburn Rivers.

Gently undulating rises on Ordovician sandstones and mudstones form a low north-south ridge, which extends north from Toolleen and is flanked by alluvium of the Forest Creek and Mount Pleasant Creek. The soils have

developed on the remnants of highly weathered materials. Red sodic duplex soils predominate, but they vary in the degree of bleaching of the A2 horizon and in a trend from neutral subsoils on the upper slopes to alkaline subsoils further down-slope. Cropping is the dominant land use, usually with a pasture and fallow period in the rotation. Eucalypts along narrow road reserves and isolated trees on farms indicate that *E. microcarpa* and *E. albens* were originally common throughout, joined by *E. leucoxylon* in drainage depressions. Although the slopes are gentle, the susceptibility of soils to sheet and gully erosion is promoted by factors such as sodic clay subsoils and compaction under cultivation. The sandy loam topsoils and dry climate also pose problems of wind erosion, and salting is common in depressions, enhanced by rising saline groundwaters and by saline run-off from the Knowsley land system to the south (Department of Conservation, Forests and Land, Victoria, Australia (1987)).

Photographs of the landscape surrounding the project site were taken by Accent Environmental during a site visit on 30th March to 1st April 2022. The selection of images provided in Photos 3.1 to 3.6 illustrates the scenery typical of the existing landscape and project site from road and paddock vantage points.

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Photo 3.1

Scattered vegetation along unmade roads surrounding the development footprint. This particular image is along Weston Drive



Photo 3.2

Agricultural open pastures, trees in the distance are roadside vegetation associated with Muskerry East School Road



Photo 3.3

Agricultural land along Dwyers Lane west of proposed development footprint



Photo 3.4

Crosbie Conservation Nature Reserve along Axedale Toolleen Road east of the development footprint



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Photo 3.5
Densely vegetated
residential area
along Ralstons
Lane



Photo 3.6
Typical agricultural
landscape east of
development
footprint along
Murphy's Lane



3.3 Sensitivity of landscape resource

The landscape which hosts the solar farm is an undesignated landscape with few distinctive landscape characteristics. Whilst there are few landscape detractors (mainly power lines and towers, which is consistent with the proposed solar infrastructure) the landscape has a moderate ability to absorb change. As such the landscape receptor has limited sensitivity to disturbance or change in character due to the development.

In line with the criteria set out in Table 2.1 the sensitivity of the landscape resource in the vicinity of the development has been determined as **Low**

3.4 Scale or Magnitude of landscape effects

The Muskerry SPS development does comprise an addition of elements (*“eye-catching features such as hills, valleys, woods, trees and hedges, ponds, buildings and road. They are generally quantifiable and can be easily described”* -LIEMA 2013) to the landscape that may be evident, however the additional built elements comprised of electrical infrastructure are not in conflict with the existing landscape and the effects are only recognisable within the immediate landscape of the development. No key elements, features or characteristics described in Sections 3.2.1-3.2.3 have been lost from the baseline although there may be perceived alterations to some of these aspects of the landscape.

In line with the criteria set out in Table 2.2 the Magnitude of the landscape effects due to the development has been determined as **Medium**.

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4 VISUAL IMPACT ASSESSMENT

4.1 Visual receivers and viewpoint selection

Visual receivers are individuals and/or defined groups of people who have the potential to be affected by a proposal. Whether they are sensitive depends on their susceptibility to change in views and visual amenity and also the value attached to particular views.

Table 4-1 Potential sensitive receivers and location in relation to project site

Receiver	Distance from site footprint	Direction	Northern or Southern portion of Muskerry SPS
R1	98m	West	Southern portion
R2	118 m	West	Southern portion
R3	134 m	Southwest	Southern portion
R4	208 m	East	Southern portion
R5	314 m	Southwest	Southern portion
R6	319 m	West	Southern portion
R7	346 m [550m ¹]	South southwest	Southern portion
R8	419 m	Northwest	Northern portion
R9	450 m	West	Southern portion
R10	500 m	West	Southern portion
R11	503 m	Southwest	Southern portion
R12	558 m	East	Southern portion

¹ See Section 5.2 for improvements to R7's visual amenity

Receiver	Distance from site footprint	Direction	Northern or Southern portion of Muskerry SPS
R13	561 m	West	Southern portion
R14	640 m	Southwest	Southern portion
R15	652 m	Southwest	Southern portion
R16	669 m	East	Southern portion
R17	692 m	North	Northern portion
R18	731 m	Southwest	Southern portion
R19	731 m	West	Northern portion
R20	760 m	West	Southern portion
R21	796 m	Southwest	Southern portion
R22	912 m	West	Southern portion
R23	930 m	West	Southern portion
R24	974 m	East	Southern portion
R25	985 m	Southwest	Southern portion
R26	1014 m	West	Southern portion
R27	1030 m	West	Southern portion
R28	1134 m	West	Southern portion
R29	1139 m	East	Southern portion
R30	1179 m	Southeast	Southern portion
R31	1221 m	West	Southern portion
R32	1243 m	West	Southern portion
R33	1285 m	West	Southern portion

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Receiver	Distance from site footprint	Direction	Northern or Southern portion of Muskerry SPS
R34	1292 m	West	Southern portion
R35	1298 m	Northwest	Northern portion
R36	1313 m	Southwest	Southern portion
R37	1327 m	West	Northern portion
R38	1414 m	East	Northern portion
R39	1422 m	West	Southern portion
R40	1465 m	Southwest	Southern portion
R41	1559 m	East	Southern portion
R42	1569 m	North	Northern portion
R43	1747 m	South	Southern portion
R44	1760 m	West	Northern portion
R45	1803 m	Southwest	Southern portion
R47	1947 m	West	Southern Portion

4.1.1 Preliminary visual assessment

Based on the method proposed for preliminary visual assessment set out in Appendix B of the *Draft Large-Scale Solar Energy Guideline* (DPIE 2021), the 98 non-associated residences located within 5 km of the project site were screened based on their distance from the site and elevation in respect of the site.

DPIE Preliminary assessment tool

The 98 non-associated residences (see Figure 4.1) were plotted on the DPIE Preliminary Assessment Tool, based on their distance from the

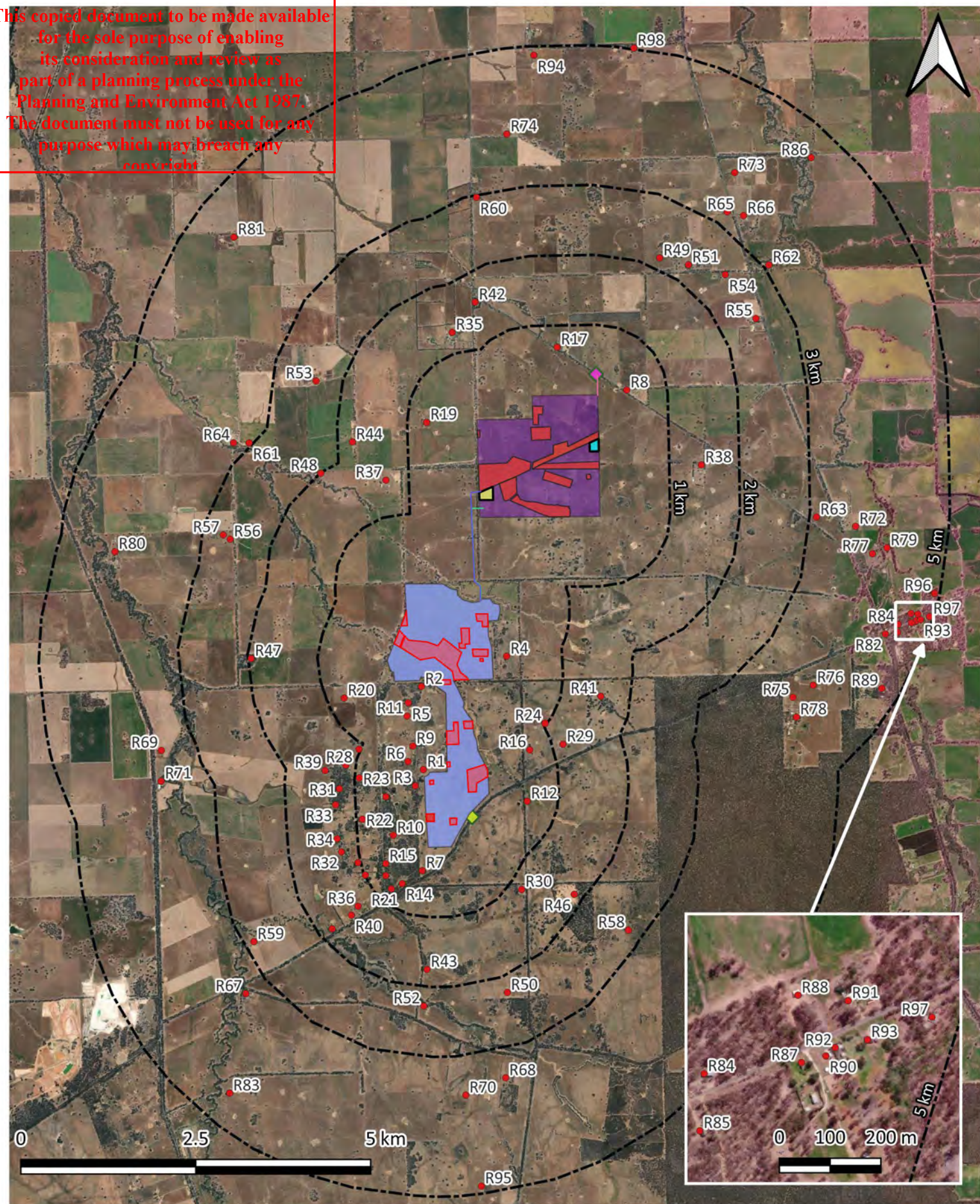
project site boundary and considerations of relative height, as shown in Figure 4.2. Calculations are shown in Attachment 1.

45 of the residences (R1-43, R45 and R47) plotted under the line and were therefore identified as visual receivers requiring detailed visual assessment.

The project site is visible from the nearest roads (Toolleen Angle Road and Axedale Toolleen Road and several smaller local roads). These roads are therefore also classified as visual receivers, requiring a detailed visual assessment. Roads in the vicinity of the project site are used for functional purposes (e.g. movement to a major highway, or access to farmland via local roads).

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- Possible residential receivers
- Substation Option a)
- Substation Option b)
- Easement Option A
- Easement Option B
- Proposed Site Access
- Northern portion of Muskerry SPS
- Southern portion of Muskerry SPS
- Restricted Area
- ◆ Emergency Site Access - CFA
- ◆ Main site access

AE1185 Muskerry SPS
Figure 4.1 Sensitive receivers

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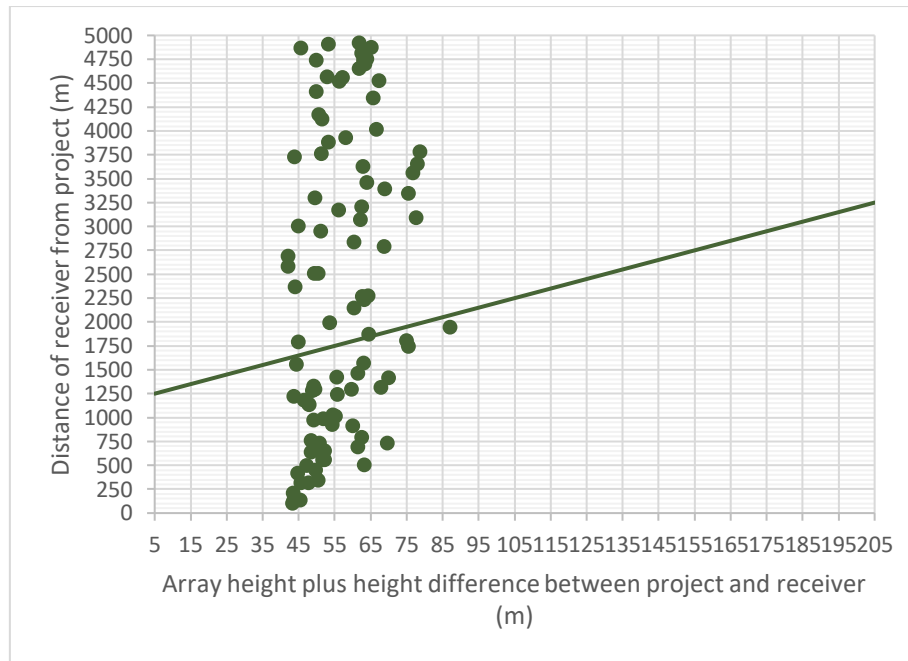


Figure 4-2 Potential receivers of Muskerry SPS plotted on the DPIE preliminary assessment tool.

Initial Viewshed analysis

A viewshed analysis provided a “Zone of theoretical Influence (ZTI)” for the northern and southern portions of the SPS these are demonstrated in Figures 4.3 and 4.4. The ZTI was calculated for a 5km radius of the site for a target height (representing the solar panel height) of 4.2 m to and observer height of 1.6 m using an open-source DEM. The viewshed analysis does not account for vegetation which will decrease the visibility within the highlighted zone. Whilst the development is potentially visible

within this ZTI the likelihood of being discernible as a solar farm or easily distinguished from the surrounding landscape is expected to diminish with distance.

The viewshed analysis and resulting ZTI informed our selection of receivers. In conjunction with the NSW DPIE Preliminary assessment tool the final receivers selected for detail assessment are listed in Tables 4.2 and 4.3.

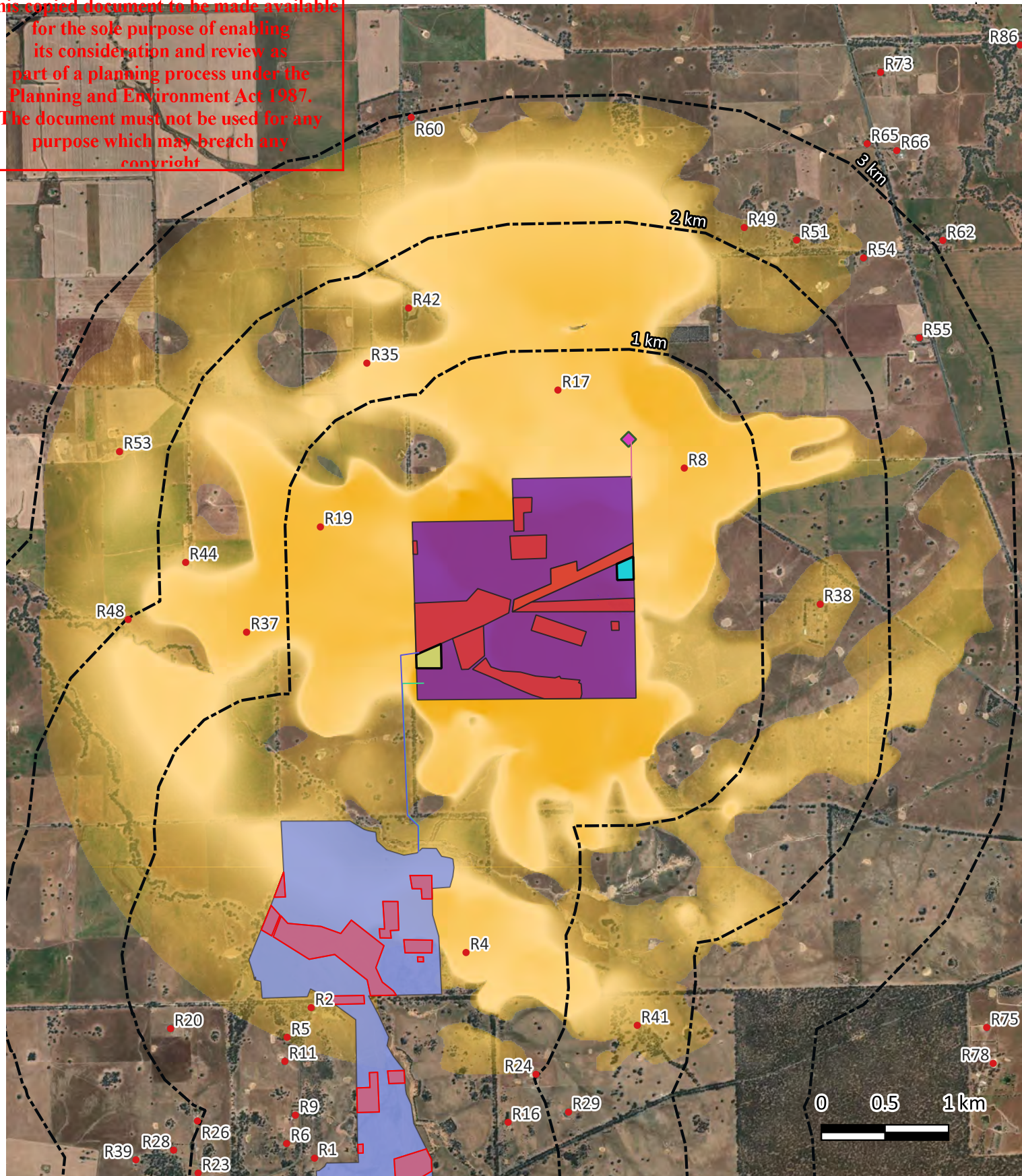
Key roads that are within the ZTI from which the project site was expected to be at least partially visible are the two nearest paved roads (see Figure 4.3 and Figure 4.4):

- Axedale-Toolleen Road adjacent to the southern boundary of the southern portion of the development footprint
- Toolleen-Angle Road adjacent to the lot boundary of the northern portion of the development footprint

These roads are therefore also classified as potential sensitive receivers, requiring a detailed visual assessment. These roads in the vicinity of the project site are used primarily by local traffic (e.g. local residents travelling to and from work, school, etc. and farm vehicles accessing farmland via local roads and transporting livestock and produce). Selected viewpoints have been chosen along these three roads to assess the visual impacts to local road users.

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- | | |
|---|-----------------------------|
| Viewshed of northern footprint from an observer height of 1.6 m to a target of 4 m (panel height) | Substation Option b) |
| Possible residential receivers | Easement Option A |
| Northern portion of Muskerry SPS | Easement Option B |
| Southern portion of Muskerry SPS | Proposed Site Access |
| Restricted Area | Emergency Site Access - CFA |
| Substation Option a) | Main site access |

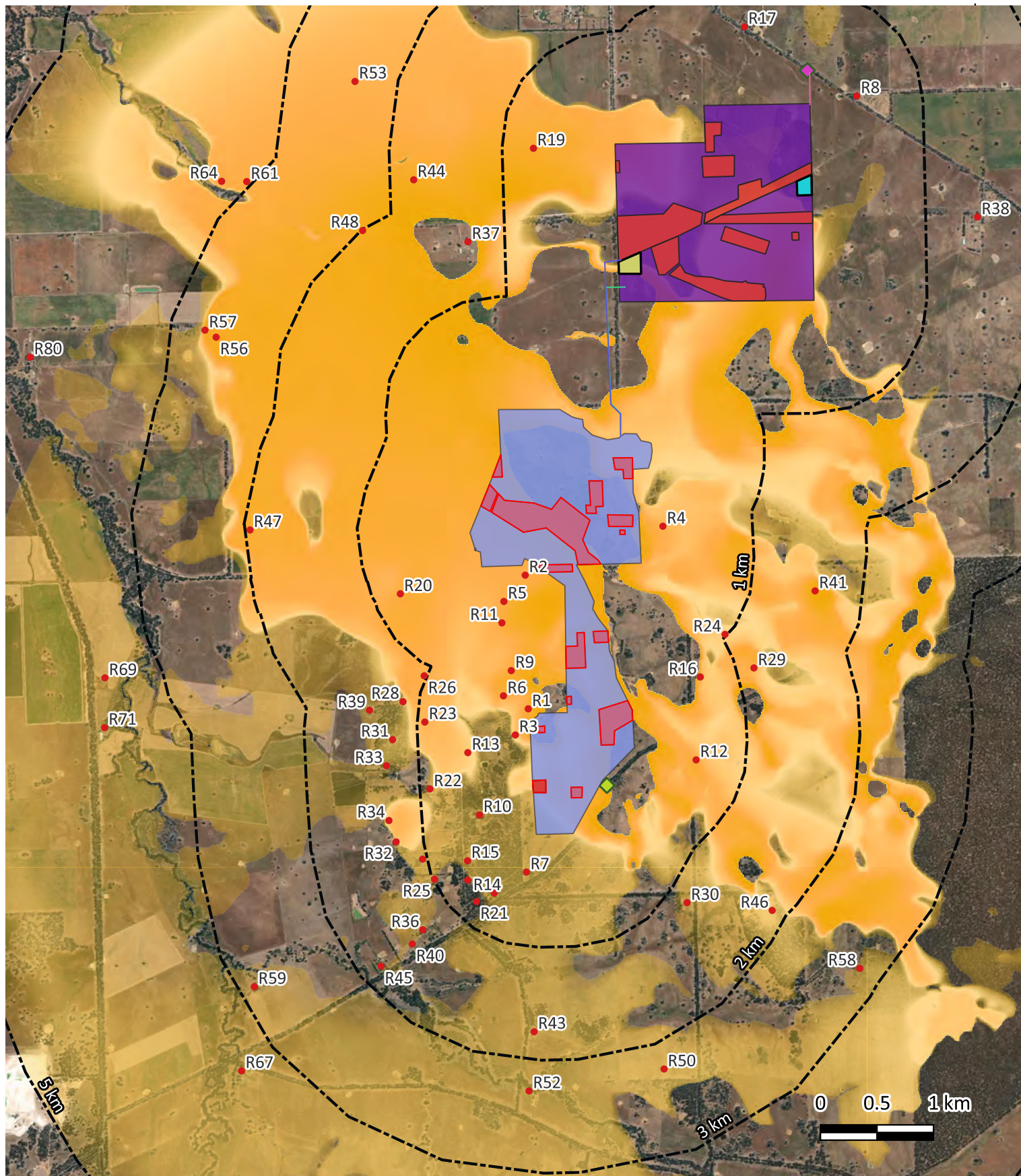


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Figure 4.3 Viewshed (Northern portion)

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Viewshed of southern footprint from an observer height of 1.6 m to a target of 4 m (panel height)

- Possible residential receivers
- Northern portion of Muskerry SPS
- Southern portion of Muskerry SPS
- Restricted Area
- Substation Option a)

Substation Option b)

Easement Option A

Easement Option B

Proposed Site Access

Emergency Site Access - CFA

Main site access

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Figure 4.4 Viewshed (Southern portion)

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4.1.2 Viewpoint selection

Viewpoints (VPs) are positions looking towards the proposal that consider views from receivers.

Accent has selected 6 viewpoints (VP1- VP6) for analysis and photomontage preparation as listed in Table 4.2 and shown in Figures 4.5 and 4.6.

Table 4-2 Selected viewpoints (VP1- VP6) for analysis and photomontage

Viewpoint	Description	Distance and direction from site footprint
VP1	The view from residence R1 east towards the southern portion of the proposed solar farm from the garden of the residence in line with the kitchen window	98m West of southern portion of proposed development footprint
VP2a	The view from residence R2 east towards the southern portion of the proposed solar farm from the garden of the residence	118 m West of southern portion of proposed development footprint
VP2b	The view from the driveway of R2 north looking towards the northern extent of the southern portion of the proposed solar farm	134 m Southwest of southern portion of proposed development footprint
VP3	The view from residence R7 northeast towards the southern extent of the southern portion of the proposed solar farm from	350 m south southwest of southern portion of proposed development footprint

Viewpoint	Description	Distance and direction from site footprint
	immediately outside the kitchen window	
VP4	The view from residence R8 southeast towards the northern portion of the proposed solar farm from the edge of the garden closest to the development (resident was not present)	372 m Northwest of northern portion of proposed development footprint
VP5	The view from residence R16 west towards the southern portion of the proposed solar farm from the garden immediately outside the entrance to the residence	660 m east of southern portion of proposed development footprint
VP6	The view from residence R19 east towards the northern portion of the proposed solar farm from the garden immediately outside the entrance to the residence	715 m West of northern portion of proposed development footprint

In addition to these viewpoints from which Accent has prepared photomontages we have also provided analysis for an additional 14 viewpoints (VP7- VP20), but photomontages were not produced as listed in Table 4.3 and shown in Figures 4.5 and 4.6. For the detailed analysis on viewpoint photography of these viewpoint see Appendix B.

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Table 4-3 Selected viewpoints (VP7-VP20) for analysis

Viewpoint	Description	Distance and direction from site footprint
VP7	The view from residence R38 west towards the northern portion of the proposed solar farm from the outside entertainment area of the residence	1444 m East of northern portion of proposed development footprint
VP8	The view from residence R6 southeast towards the southern portion of the proposed solar farm from the road in front of the residence	715 m West of northern portion of proposed development footprint
VP9	The view from residence R17 south towards the northern portion of the proposed solar farm from the garden immediately outside the entrance to the residence	690 m North of northern portion of proposed development footprint
VP10	The view from residence R9 southeast towards the southern portion of the proposed solar farm from the road in front of the residence	430 m Northwest of the southern portion of proposed development footprint
VP11	The view from residence R11 north towards the northern extent of the southern portion of the proposed solar farm from immediately outside the residence entrance	500 m south of the southern section's northern extent and also 570 m west of the southern portion
VP12	The view from residence R12 ENE towards the southern portion of the	520 m east of the southern portion of

Viewpoint	Description	Distance and direction from site footprint
	proposed solar farm from the road in front of the residence	proposed development footprint
VP13	The view from residence R13 east towards the southern portion of the proposed solar farm from Ralstons Lane in front of their driveway (residents were not present)	660 m west of the southern portion of proposed development footprint
VP14	The view from residence R20 northeast towards the southern portion of the proposed solar farm from immediately outside the main view from the residence	745 m southwest of the southern portion of the proposed development footprint
VP15	The view from residence R24 east towards the southern portion of the proposed solar farm from Murphy's Lane at end of driveway entrance (gate locked resident not contactable)	690 m west of the southern portion of the proposed development footprint
VP16	The view from residence R37 west towards the northern portion of the proposed solar farm from the garden in front of main windows	1320 m East of northern portion of proposed development footprint
VP17	The view from residence R44 west towards the northern portion of the proposed solar farm from the outside the garden in front of main windows	1740 m East of northern portion of proposed development footprint

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Viewpoint	Description	Distance and direction from site footprint
VP18	The view from Axedale-Toolleen Road (demonstrating the view of road users) northwest towards the southernmost extent of the development footprint.	70 m southeast of the southern portion of the proposed development footprint
VP19	The view from Toolleen-Angle Road (demonstrating the view of road users) south towards the northern portion of the development footprint	1580 m Northwest of the northern portion of proposed development footprint
VP20	The view from Ralstons Lane looking Northeast towards the southern portion of the proposed solar farm This view is to show the perspective of R15, R18 and R21 as well as other residences along Ralstons Lane further from the development footprint	750 m SSW of the southern portion of the proposed development footprint

A small number of residences were not represented by viewpoints as summarised below:

R3: Property could not be accessed during site visit, view from end of driveway would not have been representative, R1's view or VP1 is a better representation.

R4: no access, locked gate, not evident this is an occupied residence

R5: building owner by the Foolish Few Motorcycle Group. Could not be contacted, during site visit locals informed us that the building is only utilised occasionally largely during holidays

R10: could not be contacted, highly vegetated spot along Ralstons Lane

R14: new build no-one present during site visit heavily surrounded by vegetation

4.2 Viewpoint impact assessment

Whether visual receivers are also sensitive receivers depends on their susceptibility to change in views and visual amenity and the value attached to particular vista. Based on the LIEMA guidance, people living at residences are considered more susceptible to change than road users. The road users who use Toolleen-Angle Road which will be the entrance road access to the proposed site are also subject to the change in visual amenity resulting from the construction of the SF. In contrast, only a small number of operational staff are required post-construction, therefore the long term impact to road users is negligible.

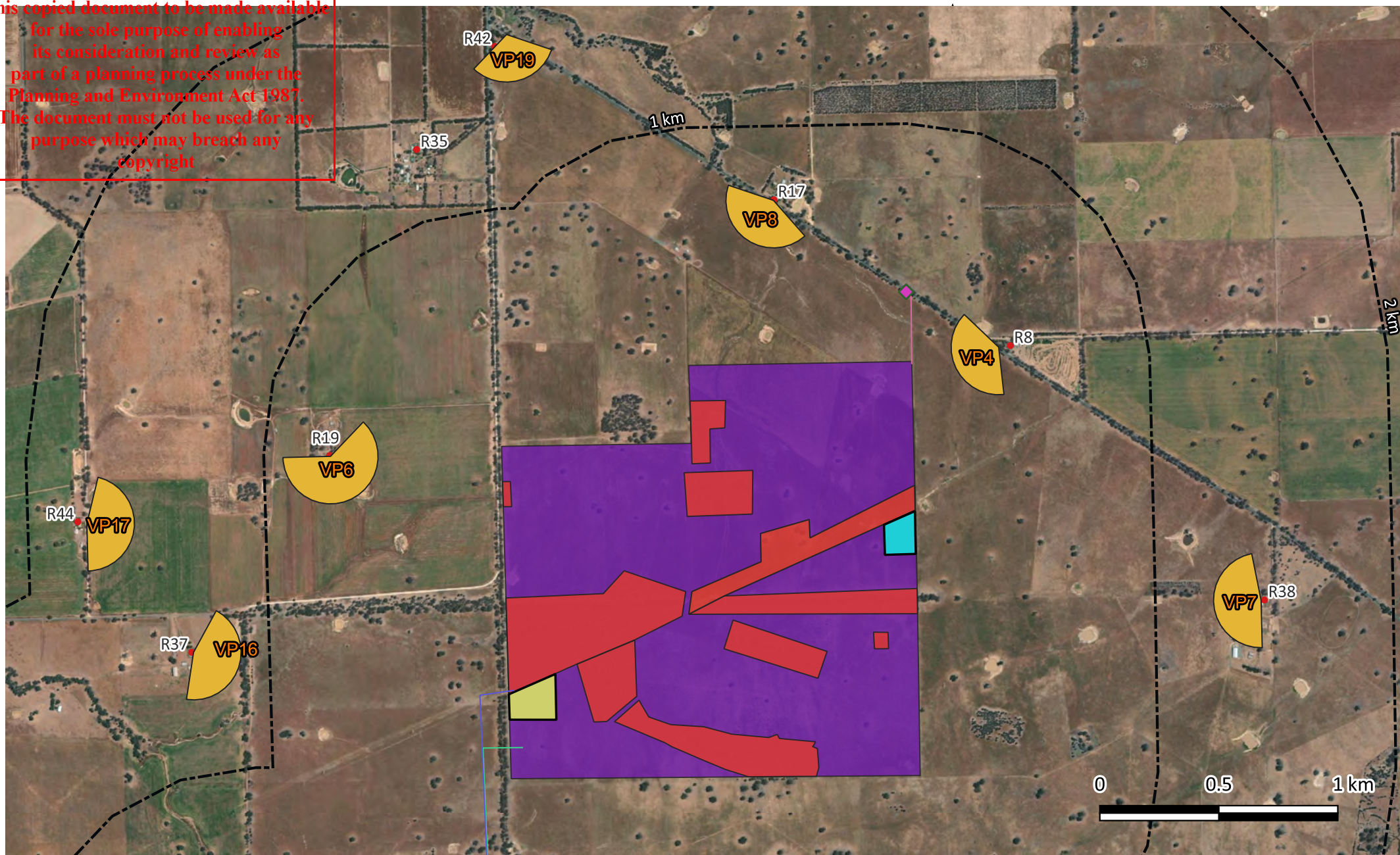
The potential for visual impacts at each of the viewpoints in Table 4.2 and Table 4.3 during operations is assessed below by considering the:

- nature of potential impacts
- scenic quality class of the viewpoint
- sensitivity of the receivers
- magnitude of the project impact as seen from each viewpoint
- the combination of the above elements to provide an impact rating (using the matrices in Tables 2.3-2.6)

Photomontages (4.2.1 to 4.2.7) have been prepared to simulate a field of view within which the solar farm is located and may or may not be visible.

The viewpoint locations are shown in Figure 4.5 (southern portion) and Figure 4.6 (northern portion)

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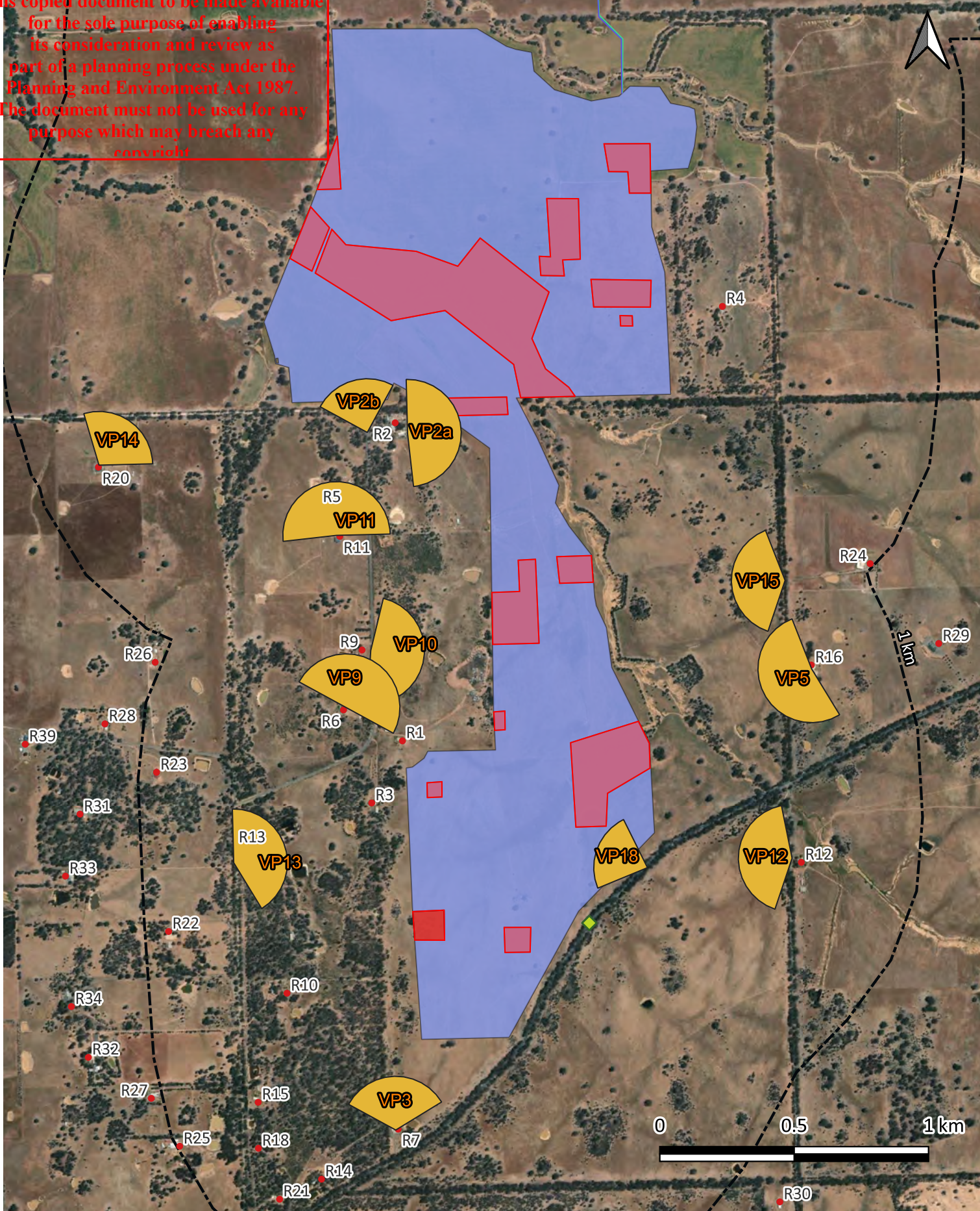


- | | | |
|---|--|--|
|  Viewpoint fields of view |  Restricted Area |  Easement Option B |
|  Possible residential receivers |  Substation Option a) |  Proposed Site Access |
|  Northern portion of Muskerry SPS |  Substation Option b) |  Main site access |
| |  Easement Option A | |

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Figure 4.5 Viewshed (Northern portion)
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| Viewpoint fields of view | Emergency Site Access - CFA |
| Possible residential receivers | Easement Option A |
| Southern portion of Muskerry SPS | Easement Option B |
| Restricted Area | |

AE1185 Muskerry SPS
Figure 4.4 Viewpoints (Southern portion)
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4.2.1 Viewpoint 1 (VP1)



Location:	Current view of towards Muskerry SPS (southern portion) site looking east from R1				
Co-ordinates	36.736609 S, 144.608721 E	Date:	30/03/2022	Time:	12.34 pm
Orientation	East Southeast	Altitude:	199 m	Distance to project:	98 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



Photomontage 4-1 Current view from VP1

Photomontage of VP1 with panels



Photomontage 4-2 Montage of view from VP1 with SPS infrastructure

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Visual Sensitivity Rating VP1

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP1

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30-degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 2 	<ul style="list-style-type: none"> 4 sectors 	<ul style="list-style-type: none"> Moderate/ High

VP1 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP1 the final impact rating is Moderate/ High. The currently leased residence's view towards the development footprint is largely unobscured.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Moderate/ High 	<ul style="list-style-type: none"> Moderate/ High

Edify should develop visual mitigation in consultation with the owner of R1.

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4.2.2 Viewpoint 2a (VP2a)



Location:	Current view of towards Muskerry SPS (southern portion) site looking east from R2's garden				
Co-ordinates	36.726258 S, 144.609150 E	Date:	30/03/2022	Time:	1:05 pm
Orientation	East	Altitude:	180 m	Distance to project:	135 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



Photomontage 4-3 Current view from VP2a

Photomontage of VP2a with panels



Photomontage 4-4 Montage of view from VP2a with SPS infrastructure

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Visual Sensitivity Rating VP2a

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP2a

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30-degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 2 	<ul style="list-style-type: none"> 3 or 4 sectors 	<ul style="list-style-type: none"> Moderate/ High

VP2a Visual Impact Rating


The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP1 the final impact rating is **Moderate/ High**.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Moderate/ High 	<ul style="list-style-type: none"> Moderate/ High

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4.2.3 Viewpoint 2b (VP2b) – (current view only no photomontage)

	Location:	Current view of towards Muskerry SPS (southern portion) site looking north from the end of the driveway of R2			
	Co-ordinates	36.726204 S, 144.607471 E	Date:	30/03/2022	Time: 1:20 pm
	Orientation	North	Altitude:	180 m	Distance to project: 120 m
	Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor: Lisa Singleton (Environmental Scientist MSc BSc)



Photomontage 4-5 Current view from VP2b

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Visual Sensitivity Rating VP2b

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Low (unmade road, however resident of R2 will be primary receiver) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Low

Magnitude Rating VP2b

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30-degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 2 	<ul style="list-style-type: none"> 2 sectors 	<ul style="list-style-type: none"> Moderate

VP2b Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP1 the final impact rating is Moderate.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Low

VP2b is not the view from the residence but the end of the driveway, which is considered worst-case. The viewpoint also represents the view from Weston Drive north towards Dwyers Lane and the northern part of the southern portion (see Figure 4.5), as road users the viewer sensitivity is low, and the visual sensitivity rating would also be low resulting in a Visual impact rating of Low. Mitigation of the visual impacts on this viewpoint should be considered.

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4.2.4 Viewpoint 3 (VP3)



Location: Current view of towards Muskerry SPS (southern portion) site looking northeast from R7					
Co-ordinates	36.749584 S, 144.607941 E	Date:	30/03/2022	Time:	11:53 am
Orientation	Northeast	Altitude:	193 m	Distance to project:	346 m [550m ²]
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



Photomontage 4-6 Current view from VP3

² See Section 5.2 for improvements to R7's visual amenity

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Photomontage of VP3 with panels



Photomontage 4-7 Montage of view from VP3 with SPS infrastructure

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Visual Sensitivity Rating VP3

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP3

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30-degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 3 	<ul style="list-style-type: none"> 2 sectors 	<ul style="list-style-type: none"> Moderate

VP3 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP3 the final impact rating is Moderate.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Moderate

Whilst this impact is only rated as moderate the resident highly values this view and also has a bench and seating looking towards this vista which will be equally impacted.

During Accent's site visit and discussions with the resident of R7 pictures were also taken from an alternative viewpoint highly valued by the resident (see Photomontage 4.8). While the previous viewpoint is considered the primary viewing location the image below demonstrates a valued vista towards the southern extent of the SPS, the resident has designed the immediate area to highlight the view. As this viewing location is elevated slightly higher than the house the visual impact of solar panels would also be greater.

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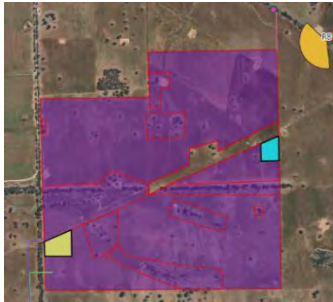
Photomontage 4-8 Additional view from R7's property towards the southern extent of the southern portion of the development footprint.

Based on the findings from Photomontage 4-9 and the moderate Visual Impact rating that has been determined for R7, Edify has sought to increase the setback distance between R7 and the project's infrastructure boundary by an additional 104m, with the intention to improve the visual impact experienced by R7. These improvements are explained further in Section 5.2.

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4.2.5 Viewpoint 4 (VP4)



Location:	Current view of towards Muskerry SPS (northern portion) site looking southwest from R8				
Co-ordinates	36.688452 S, 144.642103 E	Date:	30/03/2022	Time:	4:03 pm
Orientation	Southwest	Altitude:	182.8 m	Distance to project:	420 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



Photomontage 4-10 Current view from VP4

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Photomontage of VP4 with panels



Photomontage 4-11 Montage of view from VP4 with SPS infrastructure

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Visual Sensitivity Rating VP4

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP4

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30-degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 3 	<ul style="list-style-type: none"> 2 sectors 	<ul style="list-style-type: none"> Moderate

VP4 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP4 the final impact rating is Moderate.

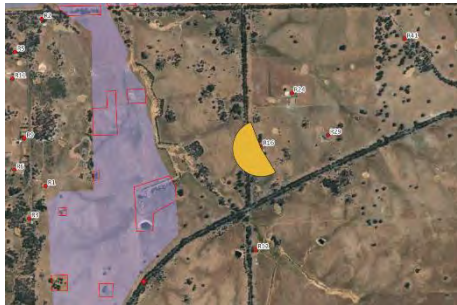
Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Moderate

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4.2.6 Viewpoint 5 (VP5)

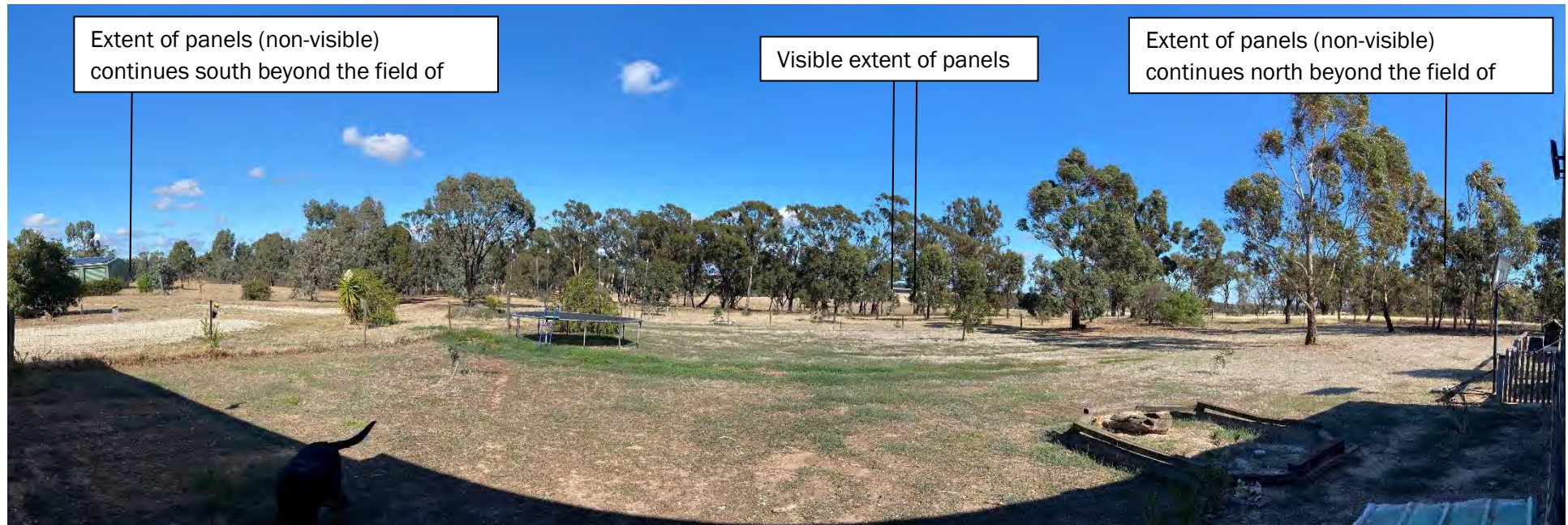


Location:	Current view of towards Muskerry SPS (southern portion) site looking west from R16				
Co-ordinates	36.734449 S, 144.625658 E	Date:	31/03/2022	Time:	11:05 am
Orientation	West	Altitude:	199 m	Distance to project:	670 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



Photomontage 4-12 Current view from VP5

Photomontage of VP5 with panels



Photomontage 4-13 Montage of view from VP5 with SPS infrastructure

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Visual Sensitivity Rating VP5

Viewer Sensitivity	Scenic Quality Class	VP1: Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP5

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30-degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 1 sector 	<ul style="list-style-type: none"> Very low

VP5 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver.

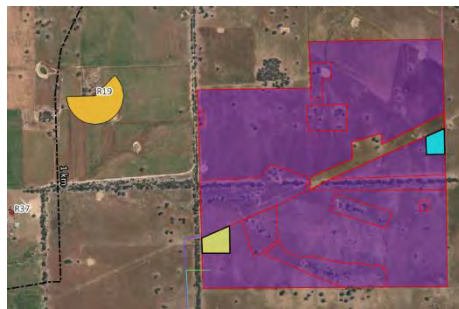
Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Very low 	<ul style="list-style-type: none"> Very low

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4.2.7 Viewpoint 6 (VP6)

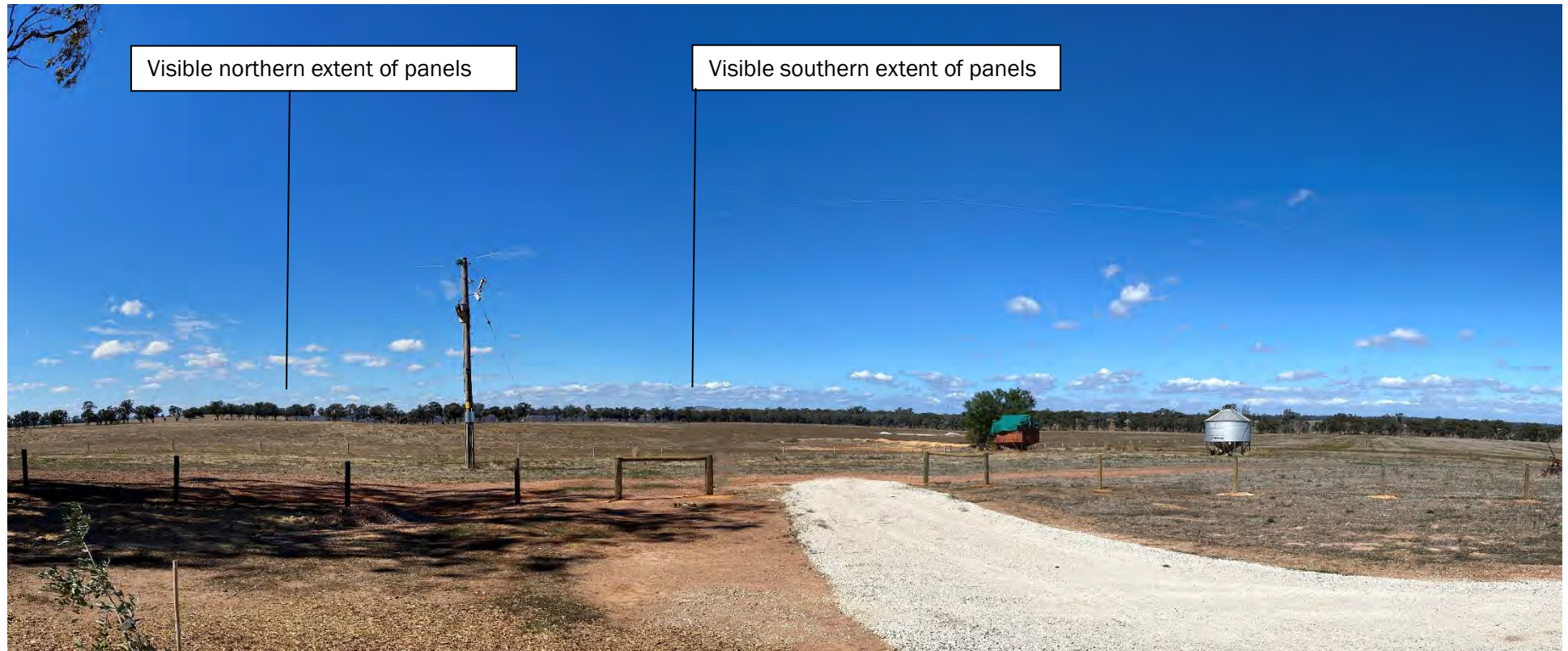


Location:	Current view of towards Muskerry SPS (northern portion) site looking east from R19				
Co-ordinates	36.691956 S, 144.607380 E	Date:	31/03/2022	Time:	1:06 pm
Orientation	Southeast	Altitude:	192 m	Distance to project:	731 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, scattered clouds	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



Photomontage 4-14 Current view from VP6

Photomontage of VP6 with panels



Photomontage 4-15 Montage of view from VP6 with SPS infrastructure

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Visual Sensitivity Rating VP6

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP6

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30-degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 2 sectors 	<ul style="list-style-type: none"> Low

VP6 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP6 the final impact rating is Low.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low

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4.3 Night lighting

During operation, lighting will be provided for security reasons and for staff and contractors utilising the site facilities. External lighting would be restricted to the area where the maintenance shed, permanent site office, and switch yard are located. All external lighting around buildings will be faced downwards and inwards to minimise impacts to neighbouring properties.

Construction activities at the site would occur from 7 am to 6 pm Monday to Friday and from 8 am to 1 pm on Saturdays (i.e., during daylight hours). However, if lighting is required during construction during winter months when lighting is necessary before 6 pm, it will be directed into the construction areas and positioned to minimise the potential increase in light pollution for adjacent receptors.

The likely visual impacts of project night lighting on surrounding residences, air traffic and road corridors in the public domain are summarised below.

4.3.1 Residences

A minor/negligible amount of light spill from the development may be visible from residences, between the winter construction period between approximately 5 pm and 6pm (particularly R1, R2, R3, R7 and R8). Given the relatively minor amount of construction and operational lighting required for the project and the proposed management measures outlined above, night lighting is unlikely to pose a significantly adverse impact to any residences.

4.3.2 Air traffic

The closest airport to the Solar Power Station site is Bendigo Airport 25 km west. There is also a recreation airpark, the Unusual Altitudes airpark, 18 km southwest of the site. An additional five registered aerodromes are located within 75 km of the site: Bridgewater Airport (60 km west), Kyneton Airport (57 km southwest), Shepparton Airport (73 km northeast), Mangalore Airport (54 km southeast) and Echuca Airport (62 km north).

Considering the nature and relatively minor amount of construction and operational lighting required for the project, and given the proposed management measures, it is unlikely that air traffic would be affected by night lighting at the site.

4.3.3 Road corridors

Light spill from the development is unlikely to impact surrounding roads users, including Toolleen Angle Road, Axedale Toolleen Road, Muskerry East School Road or other local roads, given the proposed light management measures and relatively minor amount of construction and operational lighting required for the project.

4.4 Glare and reflectivity

There are a number of factors which contribute to the occurrence of reflective visual nuisance, such as the frequency of the reflection, the type of reflection (specular versus diffuse), the quality of the panel's glass, localised environmental impacts and the location of visual receivers.

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This assessment considers the following two qualities to ascertain the proposal's degree of reflective nuisance:

- the quality of solar modules procured by the project
- the design and the mechanical behaviour of the solar panels
- the existing environment.

Glare-based visual nuisance associated with the proposal will be largely influenced by the quality of the solar modules, the location and also the position of the solar panels relative to sensitive visual receivers.

Solar panel design

The solar panels are designed to track the sun, east-west, along a single axis to maximise energy absorption. The solar panels would remain at a stationary and constant 52-degree angle from sunrise (first light), until approximately 9:00 am when the solar panels will begin to move and follow the path of the sun. Likewise, from approximately 4:30 pm until sunset (last light), the solar panels will remain at a constant -52-degree angle.

Considering that the solar panels will remain at a static 52-degree angle in the early hours of morning and late afternoon, the resulting specular glare is likely to have a negligible influence on sensitive receivers, and any glare would reflect away from ground-based receivers.

Photovoltaic solar panels are specifically designed to maximise the absorption of solar energy for the purpose of converting it to electricity. Good quality panels incorporate anti-reflective glass front surfaces to capture and retain as much as possible of the solar spectrum. Typical panels are designed to reflect only about 2% of incoming sunlight and the glass of a solar panel has less reflectivity than window glass (MDER et al 2015). Tier-1 modules proposed for Muskerry SPS aim reduce optical

losses in order to increase efficiency and the anti-reflective coating on the cover glass reduces normal incidence reflectance to less than 1% (Sarkin et al 2020).

The 2010 USA Federal Aviation Administration (FAA) document *Technical Guidance for Evaluating Selected Solar Technologies on Airports* includes a diagram which illustrates the relative reflectance of solar panels compared to other surfaces, as summarised in Table 4.4 (FAA 2010).

The potential for glare associated with non-concentrating photovoltaic systems which do not involve mirrors or lenses is therefore relatively limited. They generally do not create nuisance glare compared with other commonly existing surfaces such as roofs and are less reflective than other naturally occurring elements (see Table 4.4).

Within the pastoral, rural context of the project site, grazing landscapes, crops and water share a similar or higher reflective value than photovoltaic solar panels, therefore the proposal would not represent a significant departure from the existing visual environment in terms of glare.

Additional solar power station infrastructure that may potentially cause glare or reflections depending on the sun's angle, including the following (note that this infrastructure would be relatively widely dispersed and unlikely to present a glare or reflectivity hazard to motorists or aircraft):

- steel array mounting structures – array mounting would be steel or aluminium
- temporary site offices, sheds, containerised inverter stations
- high voltage substation
- BESS modules
- perimeter fencing

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- permanent staff amenities.

The topography of the site and local area is gently undulating and there are few nearby opportunities to view the site from a higher position, apart from the hilly terrain to the southeast. The nearest airfield is located in Bendigo 25 km west of the site. When viewed from above, from aircraft or tall buildings, photovoltaic solar panels appear dark grey and do not cause a glare or reflectivity hazard. It is therefore unlikely that air traffic would be affected by solar panel glare.

In summary, considering the relatively minimal glare reflecting off the photovoltaic solar panels, and their mechanical nature as they follow the sun, the level of visual nuisance or glare resulting from the development is expected to have a minimal impact on nearby visual receivers.

Table 4-4 Reflectivity of different materials

Material	Approximate percentage of light reflected*
Snow	80
White concrete	77
Bare aluminium	74
Vegetation	50
Bare soil	30
Wood shingle	17
Water	5
Solar panels	5
Black asphalt	2

* Sourced from FAA (2010)

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4.5 Visual impact assessment summary

In assessing the visual impacts of the proposed development, the following factors have been considered:

- the potential sensitive receivers in the vicinity of the site
- the type of sensitive receiver
- distance and elevation of sensitive receiver in relation to site
- visibility of site from sensitive receiver
- profile of proposed infrastructure
- the type of materials proposed to be used in construction
- the nature, location and frequency of project-related traffic accessing the site
- lighting required during construction and operation.

In summary, 17 residences (see Table 4.2) and three roads (Axdale Toolleen Road, Toolleen-Angle Road and Ralstons Lane) were identified as viewpoints requiring detailed assessment. VP20 also serves to demonstrate the views of residences along Ralstons Lane.

A summary of the pre-mitigation visual impact assessment for the twenty viewpoints is provided in Table 4.5.

Table 4-5 Viewpoint visual impact assessment summary

Viewpoint/ residence	Sensitivity	Magnitude	Impact rating (pre- mitigation)
VP1 / R1	Moderate	Moderate/ High	Moderate/ High
VP2a/ R2	Moderate	Moderate/ High	Moderate/ High
VP2b/ R2	Low	Moderate	Low

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Viewpoint/ residence	Sensitivity	Magnitude	Impact rating (pre-mitigation)	Viewpoint/ residence	Sensitivity	Magnitude	Impact rating (pre-mitigation)
VP3/ R7	Moderate	Moderate	Moderate	VP19/ Toolleen Angle Road	Low	Very low	Very Low
VP4/ R8	Moderate	Moderate	Moderate	VP20/ Ralstons Lane	Low	Very low	Very low
VP5/ R16	Moderate	Low	Low				
VP6/ R19	Moderate	Low	Low				
VP7/ R38	Moderate	Very low	Very low				
VP8/ R17	Moderate	Low	Low				
VP9/ R6	Moderate	Low	Low				
VP10/ R9	Moderate	Not visible	No Impact				
VP11/ R11	Moderate	Low	Low				
VP12/ R12	Moderate	Not visible	No Impact				
VP13/ R13	Moderate	Low	Low				
VP14/ R20	Moderate	Very low	Very low				
VP15/ R24	Moderate	Very low	Very low				
VP16/ R37	Moderate	Very low	Very low				
VP17/ R44	Low	Not visible	No impact				
VP18- Axedale Toolleen Road	Low	High	Low/ Moderate				

4.5.1 Requirements for impact mitigation

As the viewpoints were located on rural residential properties and local roads, the sensitivity of the impacts was identified as moderate (rural homesteads) or low (rural roads). The viewpoints with the highest pre-mitigation visual impact rating were VP1 and VP2a which had moderate/high visual impact ratings. These viewpoints corresponded to primary viewing locations from residences R1 and R2. For both of these locations mitigation measures should be developed in consultation with the relevant residents. As R1 is a rental property this is considered to be a slightly lower sensitivity however, in considering mitigation the owner of the property should be consulted. R3, whilst not accessible during the site visit, is expected to also have a moderate/ high visual impact due to its proximity to the development and lack of vegetation between the property and the footprint (according to satellite imagery). Mitigation measures should be developed to reduce this visual impact.

Viewpoints that were assessed as having moderate visual impact VP3 and VP4 corresponding to residences R7 and R8. For these residents there is also a need to develop mitigation measures in consultation with the residents.

For viewpoints with a low visual impact rating (VP2b corresponds to the residence R2's view when approaching along Weston Drive so this viewpoint also demonstrates the impact on rural road users, VP5, VP6, VP8, VP9, VP11, VP13 corresponding to R16, R19, R17, R11 and R13) mitigation should be considered, particularly where there are noted sensitivities.

For those viewpoints where visual impacts are rated very low or where no visibility is present, mitigation is not considered necessary.

Axedale-Toolleen Road running alongside the southern boundary of the southern portion of the development footprint represented by VP18 was also assessed as having a low/ Moderate visual impact. The view from this viewpoint is transient as road users are travelling up to 100 km/ h, and the traffic was largely heavy goods vehicles. Mitigation of impacts on road users could be considered.

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5 VISUAL IMPACT ASSESSMENT MANAGEMENT AND MITIGATION MEASURES

As outlined in Section 4.5.1, specific mitigation measures to reduce the visual impacts are necessary for various portions of the Muskerry SPS. The priorities are to mitigate impacts on R1, R2, R7 and R8 (R3 is also expected to have a moderate/high visual impact rating based on satellite imagery although no access and therefore no photography was possible from this residence).

The second priority is to consider mitigation options for R11, R13, R16, R17 and R19 and Axedale-Toolleen Road.

There are also general recommendations for minimising and managing visual impacts and maintaining the landscape character which are discussed in section 5.1 below.

5.1 General visual impact mitigation and management measures

The following general project objectives aim to maintain the existing landscape character where possible, via strategic and practical measures:

- Adopt integrated rural infrastructure/landscape design that permits the landscape to take precedence over the built form.
- Strengthen the vegetated character of the proposal area and express the rural and bushland nature of landscaping.
- Any urban design features should reflect and be sympathetic (complementary) to the existing historic, cultural and natural character of the area.
- Design lighting so as not to negatively impact on adjacent land uses (e.g. no light spill into adjacent rural properties affecting residences).

The following landscape design principles would be applied to the proposal:

- Maximise the retention of existing visual screening opportunities.
- Revegetate areas disturbed by construction work, where possible.
- When revegetating, consider the potential to reflect similar vegetation types found in the area.
- Use materials and colours that reflect the existing urban design character and palette.

Although the visual impacts of the proposed project have been assessed as low, management measures have been proposed in the following sections to ensure that such impacts are minimised during both construction and operation.

5.1.1 Design phase measures

In addition to targeted mitigation efforts which are outlined in section 5.2, the following detailed design measures should be adopted to reduce the visual impact of the project:

- Apply urban design principles and objectives during detailed design phase.
- Investigate colour combinations for infrastructure items to aid visual obscurity.
- Ancillary structures: minimise reflective surfaces with a preferred use of muted colours.

5.1.2 Construction phase measures

The following measures will be implemented to minimise visual impacts during construction:

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- Demarcation and exclusion fencing will be installed around trees and vegetation to be retained.
- Limiting disturbance and rehabilitating disturbed areas.
- Minimising light spill from the development into adjacent visually sensitive properties by directing construction lighting into the construction areas and ensuring the site is not over-lit. This includes the sensitive placement and specification of lighting to minimise any potential increase in light pollution.
- Temporary hoardings, barriers, traffic management and signage should be removed when no longer required.
- The site to be kept tidy and well maintained, including removal of all rubbish at regular intervals. There should be no storage of materials beyond the construction boundaries

5.1.3 Operation phase measures

The following measures will be taken to minimise visual impacts during the operation phase of the project:

- Restrict external lighting to the area where the maintenance shed, permanent site office, and switch yard are located.
- All external lighting around buildings to be faced downwards and inwards to minimise impacts to neighbouring properties.

5.1.4 Decommissioning phase measures

The following measures will be taken to minimise visual impacts during the decommissioning phase of the project:

- A rehabilitation and decommissioning strategy will be implemented to return the site to its pre-existing condition.

5.2 Targeted mitigation recommendations

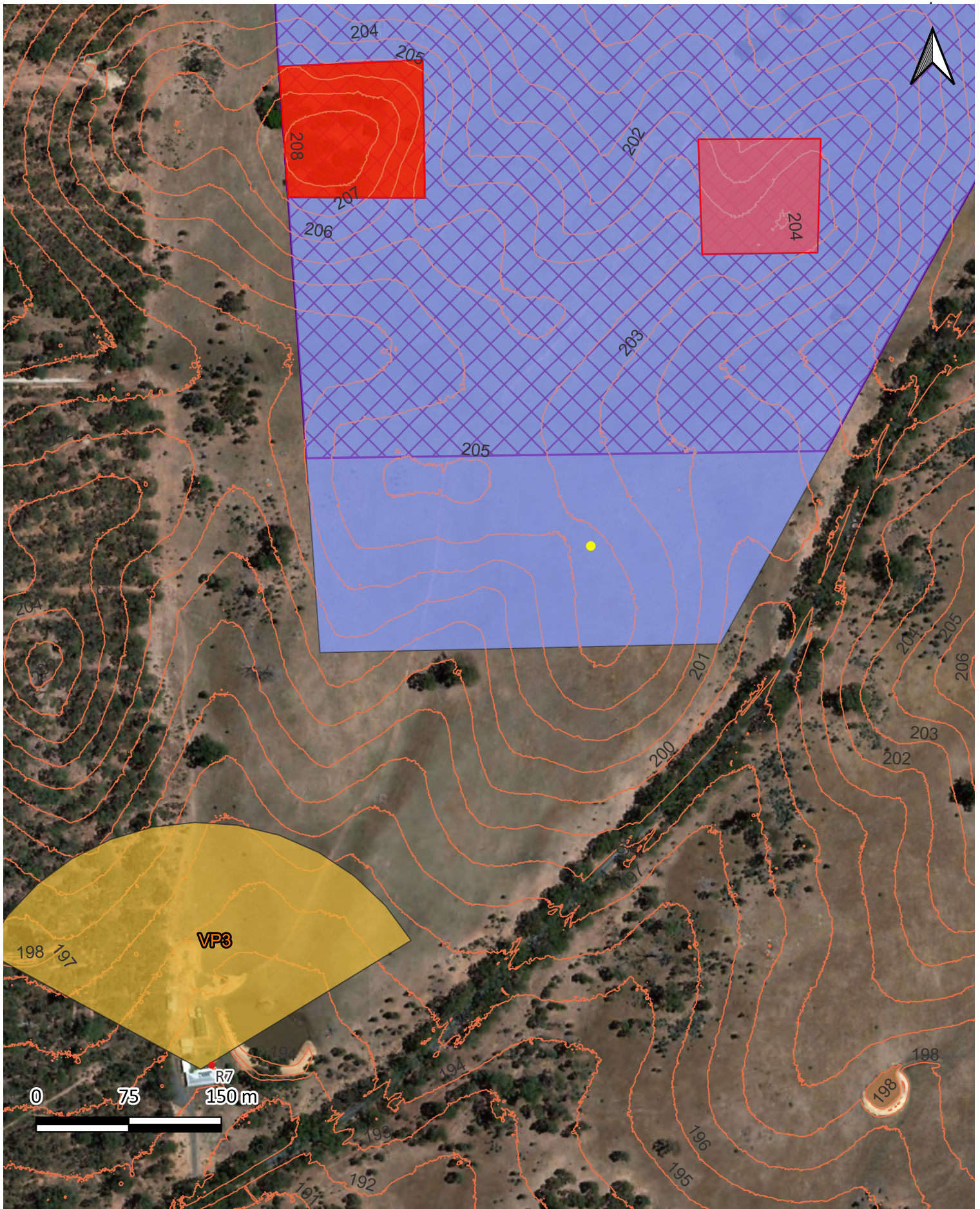
5.2.1 Panel and infrastructure placement

One of the most effective mitigation options for R7 shown in VP3 and Photo 4.1 would be to amend the southernmost extent of Muskerry South's footprint. Due to the topography of the immediate vicinity of R7 and the southern extent changing the footprint would dramatically reduce on the receiver. The view towards the proposed SPS has been identified as a valued vista of the resident who has landscaping features and seating placed specifically to enjoy the view.

During Accent's site visit, photos from the proposed footprint were also taken back towards the property (see Photo 5.1). By moving the southernmost boundary to the north, the topography could be used to help shield the solar panels from view and reduce the impact on the vista (see Figure 5.1). If the boundary was moved, there would be no need for vegetation screening along the southern most boundary of the project to mitigate visual impacts on R7.

In addition to the solar panels other infrastructure has the potential to have visual impacts, the location of the substation will determine which receivers are impacted. If Option a (see Figure 1.2), which is in the southwest of the northern portion of the SPS along the existing transmission line, is selected there is a small probability of visibility above the treeline of taller elements of the substation from R19 and R37. If Option b, which is in the east of the northern portion of the SPS along the existing transmission line is selected, the project will be visible to R8, R17 and potentially R38. For visual impact minimisation Option a would be the preferable location; however, the adoption of Option b would only result in a visual impact with a minor magnitude rating.

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- Contours (1m)
- Southern portion of Muskerry SPS
- Viewpoint fields of view
- Restricted Area
- Reduced Southern portion of Muskerry SPS
- Photo 5.1 location
- Sensitive receiver

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Figure 5.1 Reduced development footprint for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987.

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Additional data sources:

ESRI satellite

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*Photo 5.1 Looking back toward R7 from within proposed SPS footprint
(location shown on Figure 5.1)*

Following the site visit Edify amended the southern extent of the southern footprint to reduce the visual impact. The reduced impact is demonstrated in Photomontages 5.1 and 5.2 (the previous impact is demonstrated in the visual impact assessment of VP3 (R7) section 4.2.4 photomontages 4.6 And 4.7). The distance from the receiver to the panels has increased from 350 m to 503 m at the closest point. The closest visible section of panels will now be 533 m from the receiver (R7). The majority of the infrastructure is obscured by topography see Figure 5.1.

The alteration to the footprint leads to the following alteration to the visual impact assessment for VP3 (R7).

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Visual Sensitivity Rating VP3 (following change to Southern extent of Muskerry SPS development footprint)

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP3 (following change to Southern extent of Muskerry SPS development footprint)

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30-degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 1 sector 	<ul style="list-style-type: none"> Very Low

VP3 Visual Impact Rating (following change to Southern extent of Muskerry SPS development footprint)

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP3 the final impact rating is Moderate.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Very Low 	<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Very Low

By adopting this new development footprint the resultant **Very Low** visual impact rating would negate the need to mitigate the visual impacts on R7.

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Photomontage 5-1 Current view from VP3 (R7)

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Photomontage 5-2 View with panels following alterations to the southern extent of the Muskerry SPS footprint from VP3 (R7) see Figure 5.1

5.2.2 Onsite

The onsite vegetation treatments recommended by Accent are based on elevation data, site visit, site photography and discussions with sensitive receivers and are shown in Figure 5.2 and Figure 5.3.

The primary impacts to mitigate are those experienced by R1, R2, R3 and R8.

Table 5-1 Onsite Screening vegetation options

Screening Vegetation option	Mitigating impacts on	Location	Length
1	R1	Along the closest boundary of Muskerry South to R1 running east west	425 m
2a	R2	Along the closest boundary of Muskerry South to R2 running northwest southeast	460 m
2b*	R2 (will also mitigate for R5 (partially) and R11)	Along Dwyers Lane north of R2 running east west	355 m
3	R3 (will also mitigate for R13)	Along the western boundary of Muskerry south adjacent to R3	260 m
4	R8	Along the eastern boundary of Muskerry North extending	850 m

Screening Vegetation option	Mitigating impacts on	Location	Length
		from the entrance to the substation option b)	
5*	R16	Along a portion of the eastern boundary of Muskerry South running north south	165 m
6*	R17	Along the northern boundary of Muskerry North	900 m
7*	R19	Along the westernmost boundary of Muskerry North	550 m
8	Axedale Toolleen Road users	Along the portion of Muskerry South adjacent to Axedale Toolleen Road	765 m

*Mitigation considerations for low visual impact viewpoints

An option for the onsite screening vegetation (SV option 8) (See Table 5.1 and Figure 5.3) would not be a constant screen but strategic planting along the portion of the site adjacent to Axedale Toolleen Road. This planting would help to mitigate the visual impacts on road users. Axedale Toolleen Road is well vegetated along its verges with mature vegetation. Planting the entirety of the site adjacent to Axedale Toolleen Road is considered overly laborious for multiple reasons:

- existing vegetation is an effective visual screen for the majority of Axedale Toolleen Road's extent

- the receiver's sensitivity is low due to the high-speed limit (100 km/hr) of the road
- the receiver sensitivity of the road users is also low due to the local, rural nature of the road

The recommendation for strategic planting to obscure the views of the solar farm through gaps in vegetation would enable a reduced output for initial planting and potentially enable more efficient and effective management of the screening vegetation once planted.

For further details on the specifics of vegetation screening refer to the section 6 Landscape Plan

5.2.3 At receiver

An alternative to onsite planting of vegetation screening to mitigate visual impacts is to plant vegetation screening closer to the impacted receiver/s. This can be more effective in locations where the distance between the receiver and visible portion of the SPS is greater and the topography leads to limitations in the effectiveness of onsite vegetation screening.

At receiver planting requires close consultation with residents but can be preferable to both parties. For Muskerry SPS at receiver planting could be particularly effective for R16 and R19.

At R16 the topography rises up away from the receiver meaning onsite vegetation screening would not be very effective. By planting a small

number of shrubs or bushes strategically the small extent of visible panels from the receiver could be screened (SV option 10 or 11 (see Figure 5.3)).

At R19 the resident may favour at receiver vegetation screening as during brief discussions during the site visit such vegetation could also act as a wind break which the resident may be open to, a suggested location for this option (SV option 9) is shown in Figure 5.2.

5.2.1 Other options

Another effective midway location for vegetation screening is shown in Figure 5.3 as option 12. The purpose of this screening would be to further reduce visibility of the SPS from R17 more effectively than onsite screening without altering the receiver's garden.

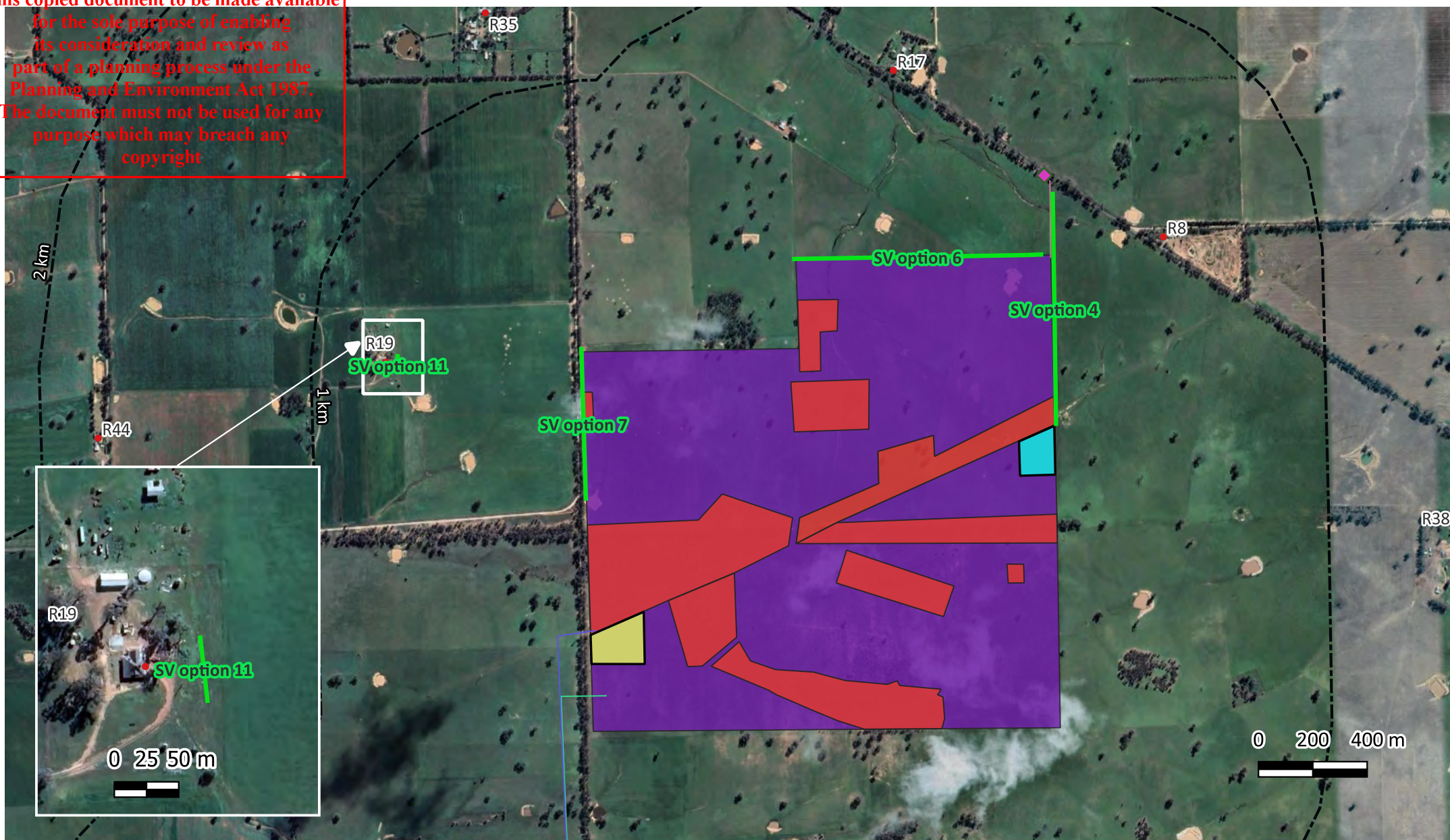
5.3 Further considerations

5.3.1 Consultation

In consideration of the various screening options consultation with the visually impacted residents (R1, R2, R3, R7, R8, R16, R17, R19) is important. This consultation will be vital if at receiver planting is to be considered (particularly with relation R17 and R19). If a midway vegetation screening option is to be considered for R17 then the relevant authority (the planting would be alone the road) would also need consultation.

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- Possible residential receivers
- Restricted Area
- ◆ Main site access
- Screening vegetation options
- Easement Option A
- Substation Option a)
- Substation Option b)
- Ammended southern Muskerry SPS boundary
- Easement Option B
- Proposed Site Access



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**Figure 5.2 Screening vegetation options
(Northern portion)**

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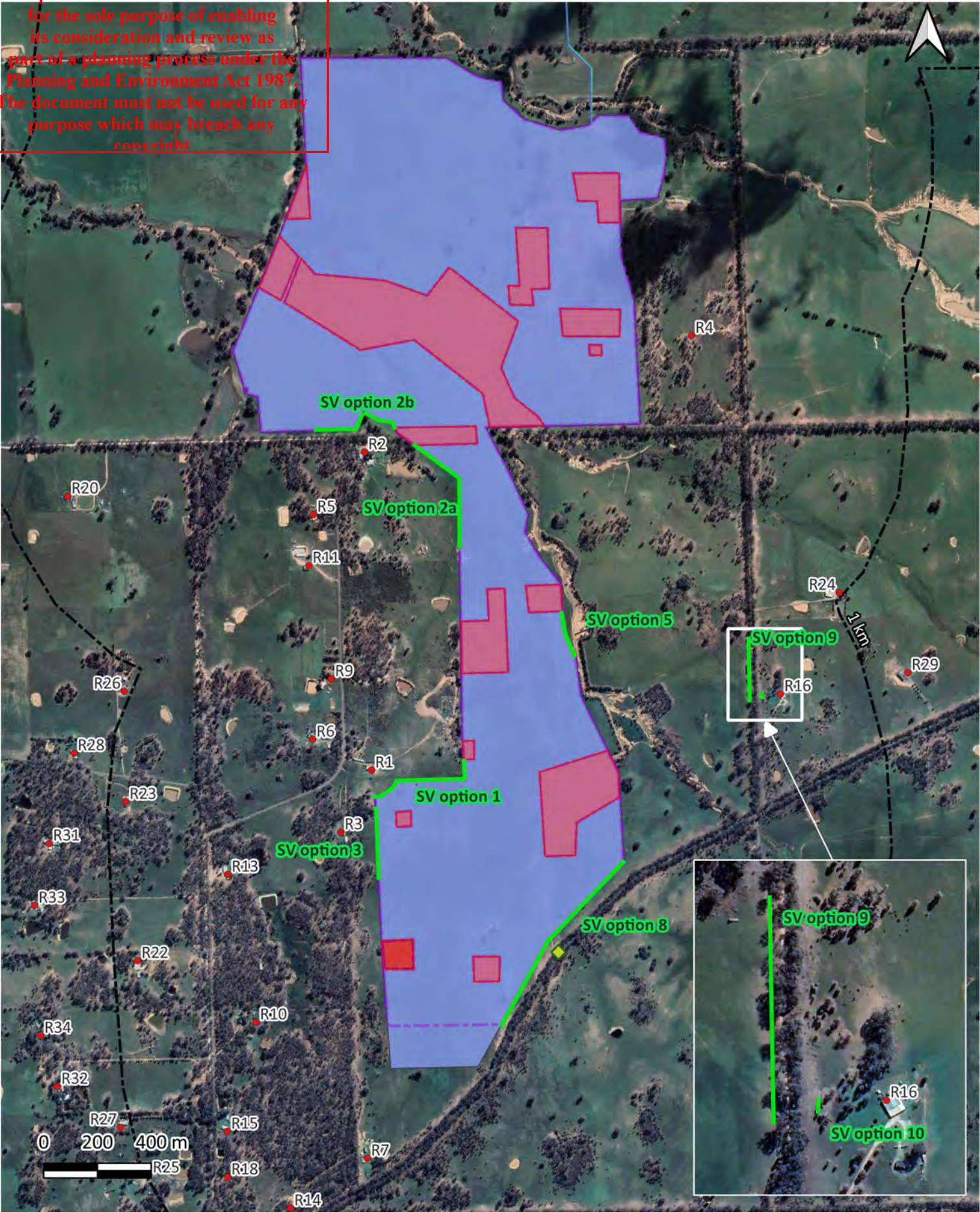
CRS: GDA 94 MGA zone 55

Additional data sources:

Google satellite



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- Possible residential receivers
- Screening vegetation options
- ◆ Emergency Site Access - CFA
- - - Amended southern Muskerry SPS boundary
- Southern portion of Muskerry SPS
- Restricted Area

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AE1185 Muskerry SPS
Figure 5.3 Screening vegetation options (Southern portion)

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6 LANDSCAPE PLAN

This Landscape plan relates to the vegetation screening mitigation discussed in section 5.4. In developing a landscape plan the following relevant documents were consulted:

- *Landscape Plan Guide for developments in Shire of Campaspe City of Greater Shepparton and Moira Shire Council* (Spiire 2020).
- Greater Bendigo Planning Scheme
- Campaspe Planning Scheme
- Department of Environment, Land, Water and Planning (DELWP) *Victoria State Government Solar Energy Facilities Design and Development Guidelines VIC* (DELWP 2019)

6.1 Clearing, species selection and planting locations

6.1.1 Clearing and retention of existing vegetation

Edify has identified key vegetation to retain on both the northern and southern portions of the development footprint based on ecological studies undertaken by NGH (2021).

6.1.2 Species Selection and vegetation screening composition

A list of suggested planting species is attached in Appendix C the list is comprised of key species native to the Goldfields Bioregion including species recommended with the Shire of Campaspe Landscape Plan Guide (Spiire 2020). For vegetation buffers the document also suggests:

- a minimum of two rows of planting
- tree spacing 12 m apart or 20% of site area depending on species characteristics

- shrub spacing 2-3 m spacing or 80% of the site area depending on species characteristics
- Use a variety of species including trees, shrubs, tufting plants and ground cover.
- Use planting layouts where the variety of species may be repeated along the length of the subject site, for example repeating a 10m x 20m layout of planting area
- Plant Understorey species in groups five to seven plants of same species.
- Use of ground covers and mulch to retain water and minimise erosion.
- Maintenance especially watering, weed control, replacement of losses.

To conform with the relevant guidelines and provide adequate visual buffering Accent suggests a buffer width of 10 m comprised of overstorey trees selected from the suggested species list (Appendix C) spaced approximately 12 m apart with a second row of shrubs or midstorey trees planted 2-3 m apart. A cross section is provided in Figure 6.1 and a transect demonstrating the plant type composition for a standard 25 m section of a vegetation screen is shown in Figure 6.2. This transect can be repeated for the length of the buffer alternating species of each plant type (overstorey/ midstorey/ understorey) as required. Where planting is close to specific residents, consultations can include species preferences of the relevant sensitive receivers.

6.1.3 Vegetation screening zone locations

The location of multiple vegetation screening options is outlined in the preceding section 5.2 Mitigation Recommendations and the discussed

options are shown in Figures 5.2 and 5.3. These options are detailed below.

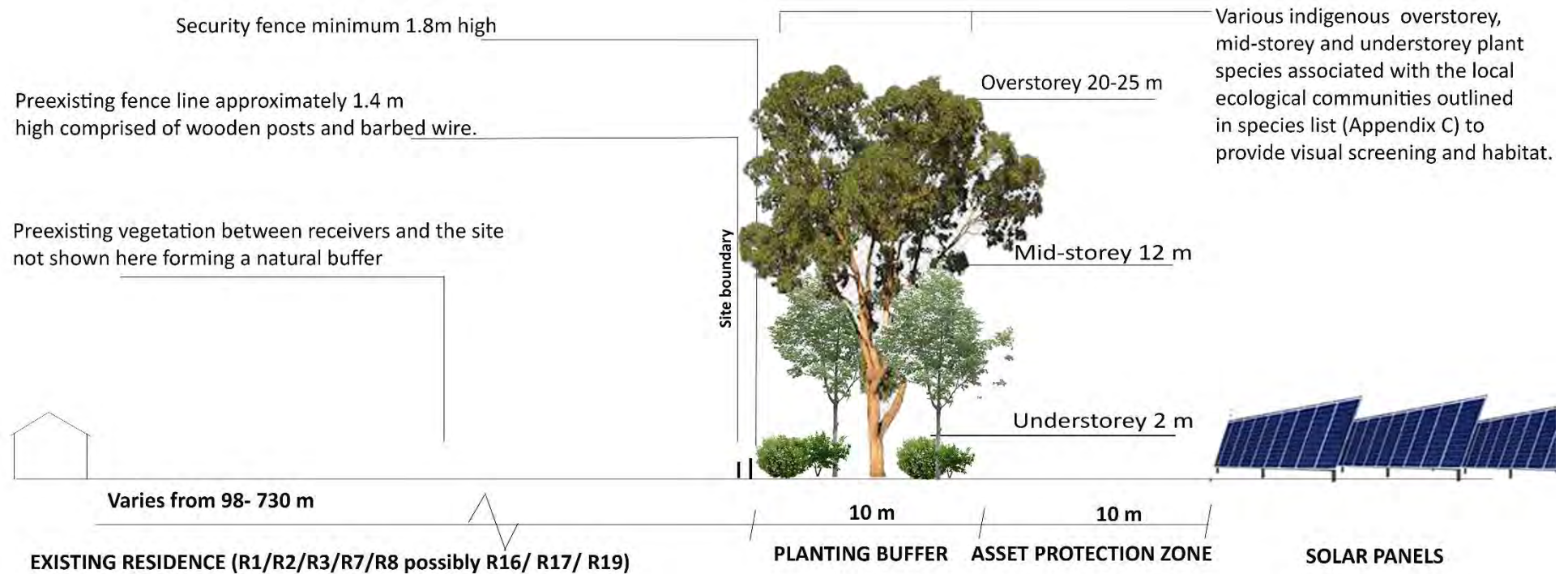
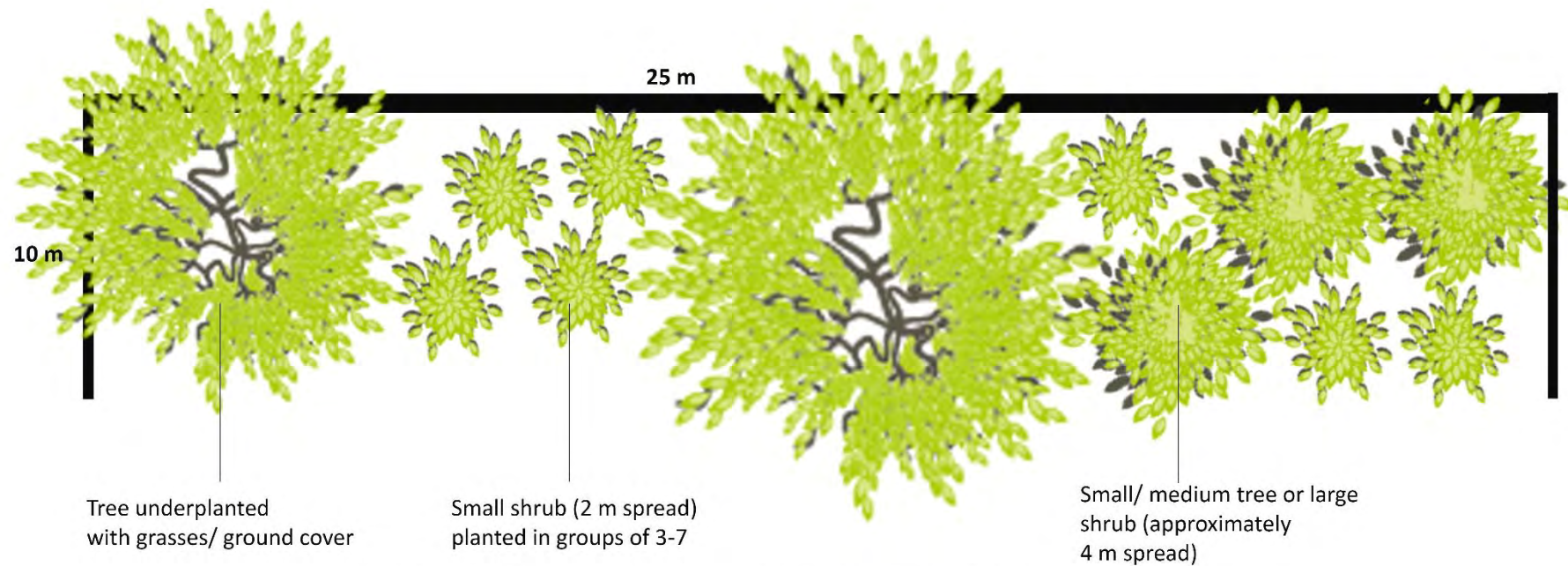


Figure 6-1 Cross section of vegetation screening for visual impacts on identified residents

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Example of vegetation screening strip 25 m long that could be repeated with various native species nominated from the selected species list (Appendix C). Large tree spacing approximately 12 m, understorey plant 2- 3m spacing in groupings of 5- 7 of the same species to promote success. Minimum of 1 tree per 10 m sq or 10-15 linear ms

Figure 6-2 Vegetation screening composition strip to be repeated along length of buffers

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R1 visual impact mitigation options

- onsite vegetation screening along the closest boundary of Muskerry South to R1 running east west for approximately 425 m (SV option 1 see Figure 5.3).

R2 visual impact mitigation options

- onsite vegetation screening along the closest boundary of Muskerry South to R2 running northwest southeast then north-south for 460 m (SV option 2a see Figure 5.3)
- second onsite vegetation screening location to the north of the residence running east- west along Dwyers Lane (SV option 2b for extent see Figure 5.3) for approximately 355 m.

R3 visual impact mitigation options

- onsite vegetation screening along the western boundary of Muskerry south adjacent to R3 (SV option 3 see Figure 5.3) for approximately 260 m.

R7 visual impact mitigation options

- reduction of development footprint extent (see Figure 5.1).

R8 visual impact mitigation options

- onsite vegetation screening along the eastern boundary of Muskerry North extending from the entrance to the substation option b) (SV option 4 see Figure 5.2) for approximately 850 m.

R16 visual impact mitigation options

R16 had an assessed visual impact rating of low so the following are considerations for mitigation options:

- onsite vegetation screening along a portion of the eastern boundary of Muskerry South running north south (SV option 5 see Figure 5.3) for approximately 165 m.

- at receiver vegetation screening options (SV options 10 and 11 both options shown in Fig 5.2 inset):

R17 visual impact mitigation options

R17 had an assessed visual impact rating of low so the following are considerations for mitigation options:

- onsite vegetation screening along the northern boundary of Muskerry North (SV option 6 see Figure 5.2) for approximately 900 m

R19 visual impact mitigation options

R19 had an assessed visual impact rating of low so the following are considerations for mitigation options:

- onsite vegetation screening along the westernmost boundary of Muskerry North (SV option 7 see Figure 5.2) for approximately 550 m
- at receiver (SV option 9 see inset of Figure 5.2) approximately 55 m

Axedale-Toolleen Road visual impact mitigation options:

An option for the onsite screening vegetation (SV option 8) (See Table 5.1 and Figure 5.3) would not be a constant screen but strategic planting along the portion of the site adjacent to Axedale Toolleen Road for approximately 765 m.

6.2 Planting preparation and plant establishment

6.2.1 Planting preparation

Initial weed spray

Weeds are to be controlled by spraying with an herbicide 1.5-2 m wide along each row. This will be completed as early as possible so moisture can start accumulating. All herbicides will be applied strictly in

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accordance with the directions on the label and the applicable safety data sheet.

The rows may need to be sprayed several times depending on weed growth.

Pre-watering

If sufficient rain has not fallen prior to the desired planting dates, the areas should be pre-watered prior to planting.

Bed preparation

Planting beds should be prepared by ripping the soil to a minimum depth of 0.5 m. This will allow for greater moisture and root penetration and a reduction in the energy output required for root growth. This will increase the seedling growth rate and will enable greater access to water and nutrients.

The deep ripping of the soil should be followed up with topsoil mounding to ensure thicknesses of topsoil are maximised. This will increase the capacity of the topsoil to retain water and nutrients. At the time of ripping, soil testing at representative locations will be carried out. The soil testing results will be used to inform fertiliser selection.

Weed and pest management

Pests and weeds can be brought to site as a result of landscaping activities associated with personnel and/or vehicle movement and materials used for landscaping purposes, including topsoil, mulch, seedlings, seeds and equipment.

Edify will consider implementing a Weed and Pest Management Plan to manage pest and weed impacts during construction and operations

phases. This plan would include additional information on the use of herbicides.

6.2.2 Planting

When planting, the following will be undertaken:

- as soon as seasonal conditions are conducive and pre-watering has been undertaken (if required), tube stock will be planted out
- native formulated slow-release fertiliser will be applied to each plant at the time of planting. This should provide nutrients for an average of nine months
- all plants will be watered in at the time of planting with at least 2 litres of water per plant
- all plants will be protected with UV-stabilised tree guards to create a microclimate around the immature plant, increasing the growth rate. Protection during their first two seasons of growth will be critical to their long-term success rate. Guards will also help protect from climatic extremes, wind, wildlife, pests and potential spray-drift from follow-up weed control measures.

6.2.3 Initial Maintenance

The first few months after planting are crucial in establishing the planting screens. In those initial months, the following should be considered:

- to properly establish, plants need sufficient and regular watering. Therefore, rainfall should be carefully monitored – see below.
- where less than 50 mm of rain has fallen in that month, manual watering will be required until plants are established.

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- daily rainfall totals should be monitored during the first 12 months of planting to ensure sufficient water can be given to the plants to maximise their chances of survival – see the information below on the Knowsley weather station.
- regular plant nourishment and weeding may also be required. Spraying and/or mulching will be used to control weeds and competition during establishment.
- regular monitoring should be undertaken to assist with plant establishment. This monitoring will be weekly for the first two months or until plants appear to be taking hold. The monitoring frequency can then be reduced to monthly. After it is clear that plants have established, the monitoring can be reduced further to 3-monthly.

Rainfall totals are available for the Knowsley weather station (BoM 081118), located 9 km to the southwest, and can serve as an approximation for the rainfall at the site. This rainfall data can be accessed from the BoM website.

6.2.4 Medium and long-term maintenance

After plants have established, the first three years of growth are important and monitoring over this period should take place to ensure long-term plant survival. This monitoring program, outlined below, should take place quarterly and will include:

- recording of planting survival rates and replacement plantings, if necessary
- plant health, appearance and growth rates
- weed and pest infestation inspections and, if necessary, control spraying

- measuring soil fertility and soil moisture levels and increasing plant nourishment and watering rates, if necessary
- inspection of tree guard integrity and replacement, if necessary.

The landscaping is to be maintained in a tidy manner by the developer (e.g., watering, fertilising, mulching, weeding) at all times to the satisfaction of the Assessment Manager.

6.2.5 Plant survival rates, appearance and growth rates

If plant survival rates are less than 90% or gaps of greater than 5 m are noted, dead plants will be replaced.

Plant health will be checked for stress indicators (disease and pest problems) and appearance by an appropriately qualified person. If plants are:

- diseased, or pests are noted, measures should be undertaken to address the conditions
- not appearing to be ‘bushy’ enough to act as screens, judicious pruning should be undertaken to improve screening properties.

6.2.6 Soil properties

Soil properties can change over time and reduce the soil’s fertility. Therefore, soil will be tested at the time of planting, with testing repeated at 12 months and 24 months at the same locations. This will ensure that if any changes occur to soil makeup over the time, that fertiliser, micro-nutrient and soil moisture levels (if required) can be adjusted accordingly. The soil testing will include:

- soil fertility (nitrogen, phosphorus, potassium and pH)
- soil moisture.

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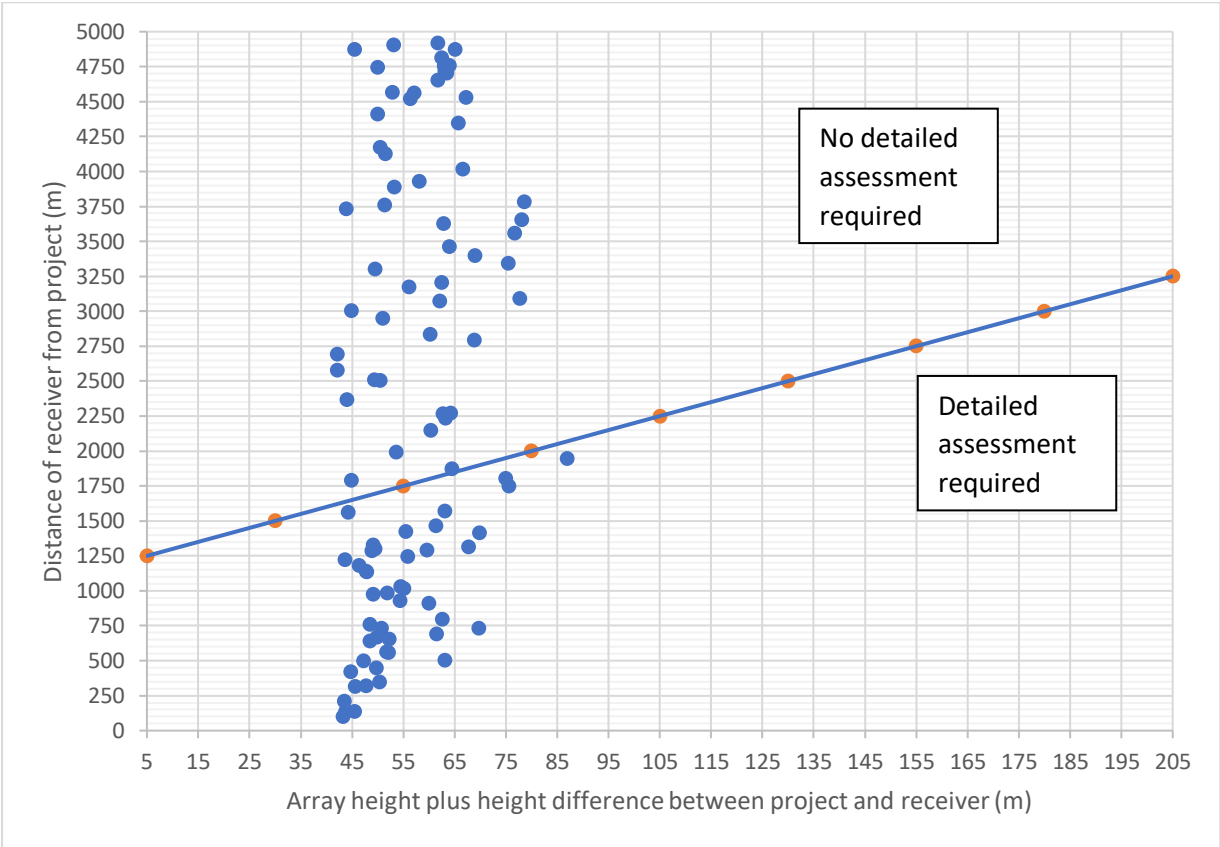
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Appendix A – Preliminary visual assessment calculations

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PRELIMINARY ASSESSMENT CALCULATIONS:



Height of solar panels (m):	4
Highest point of project (m):	209
Lowest point of project (m):	171
Project height difference (m):	38

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Receptor/receiver (within 3.25 km)	Height of receptor (m)	Distance to project (m)	Height of project at closest boundary (m AHD)	Height difference between receiver and array (m AHD)	Detailed assessment required?
R1	199.28	100.67	200.52	43.24	1
R2	180.69	134.00	179.00	43.69	1
R3	201.95	134.55	205.41	45.46	1
R4	191.50	208.37	190.05	43.46	1
R5	182.54	314.28	178.95	45.59	1
R6	197.46	318.95	203.14	47.68	1
R7	193.04	345.85	201.36	50.32	1
R8	182.89	419.91	180.18	44.71	1

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Receptor/receiver (within 3.25 km)	Height of receptor (m)	Distance to project (m)	Height of project at closest boundary (m AHD)	Height difference between receiver and array (m AHD)	Detailed assessment required?
R9	191.00	449.86	198.75	49.76	1
R10	196.98	500.23	202.17	47.19	1
R11	199.84	503.14	178.69	63.15	1
R12	184.46	558.05	194.62	52.16	1
R13	191.82	561.25	201.53	51.70	1
R14	194.90	640.40	201.37	48.48	1
R15	191.16	652.59	201.37	52.21	1
R16	193.17	669.23	185.36	49.81	1
R17	199.15	691.85	179.75	61.40	1
R18	173.71	730.56	201.37	69.66	1
R19	192.33	731.35	183.58	50.75	1
R20	183.01	760.15	176.55	48.46	1
R21	180.81	796.23	201.37	62.56	1
R22	188.38	912.00	206.31	59.93	1
R23	190.81	929.99	203.14	54.34	1
R24	190.19	974.49	183.05	49.14	1
R25	191.51	984.90	201.37	51.87	1
R26	190.02	1014.48	203.14	55.12	1
R27	188.92	1030.37	201.37	54.45	1
R28	197.26	1134.16	203.14	47.88	1
R29	191.07	1139.22	185.36	47.70	1
R30	196.51	1179.36	200.90	46.40	1
R31	206.89	1221.09	205.29	43.60	1
R32	187.79	1242.69	201.58	55.79	1
R33	192.26	1284.98	199.08	48.82	1
R34	184.75	1292.45	202.36	59.61	1
R35	191.09	1298.22	183.59	49.50	1
R36	175.64	1312.64	201.37	67.74	1
R37	182.73	1326.70	175.61	49.11	1
R38	172.21	1413.80	200.10	69.89	1
R39	189.68	1421.54	203.14	55.46	1
R40	181.99	1465.96	201.37	61.39	1
R41	180.80	1558.74	183.05	44.25	1
R42	203.49	1569.16	182.40	63.10	1
R43	167.81	1747.06	201.36	75.55	1
R44	184.13	1789.41	181.23	44.90	0
R45	168.38	1803.22	201.37	75.00	1
R46	176.56	1870.99	199.03	64.48	0
R47	218.63	1946.72	173.67	86.96	1
R48	182.34	1989.29	170.71	53.64	0
R49	161.85	2148.05	180.18	60.33	0
R50	179.75	2234.28	200.92	63.17	0

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Receptor/receiver (within 3.25 km)	Height of receptor (m)	Distance to project (m)	Height of project at closest boundary (m AHD)	Height difference between receiver and array (m AHD)	Detailed assessment required?
R51	200.89	2266.06	180.18	62.71	0
R52	179.11	2271.46	201.36	64.25	0
R53	181.63	2366.11	183.59	43.96	0
R54	171.72	2505.41	180.18	50.46	0
R55	172.86	2510.62	180.18	49.31	0
R56	170.77	2579.09	170.71	42.07	0
R57	170.77	2690.35	170.71	42.07	0
R58	168.35	2792.67	195.13	68.78	0
R59	219.64	2836.00	201.37	60.27	0
R60	173.39	2947.95	182.40	51.01	0
R61	173.60	3005.39	170.71	44.90	0
R62	160.05	3071.00	180.18	62.12	0
R63	167.96	3092.12	203.59	77.63	0
R64	184.76	3174.82	170.71	56.06	0
R65	159.74	3204.45	180.18	62.44	0
R66	172.72	3302.17	180.18	49.46	0
R67	167.90	3344.63	201.37	75.47	0
R68	174.02	3395.27	200.92	68.90	0
R69	196.14	3461.71	174.20	63.95	0
R70	166.26	3558.20	200.92	76.66	0
R71	197.36	3628.31	176.55	62.81	0
R72	167.56	3653.95	203.59	78.04	0
R73	181.99	3731.40	180.18	43.81	0
R74	173.07	3760.99	182.40	51.33	0
R75	167.04	3780.47	203.66	78.62	0
R76	192.37	3885.20	203.66	53.29	0
R77	187.56	3929.09	203.66	58.10	0
R78	179.12	4014.16	203.66	66.55	0
R79	194.07	4124.21	203.59	51.53	0
R80	179.23	4169.62	170.71	50.53	0
R81	159.87	4345.42	183.59	65.72	0
R82	195.73	4410.00	203.66	49.93	0
R83	187.04	4520.13	201.37	56.33	0
R84	178.39	4528.84	203.66	67.27	0
R85	188.56	4560.45	203.66	57.10	0
R86	191.03	4563.61	180.18	52.86	0
R87	183.93	4654.53	203.66	61.73	0
R88	182.22	4702.62	203.66	63.44	0
R89	182.60	4717.77	203.66	63.06	0
R90	195.73	4743.78	203.66	49.93	0
R91	182.66	4752.37	203.66	63.00	0
R92	181.74	4756.21	203.66	63.92	0

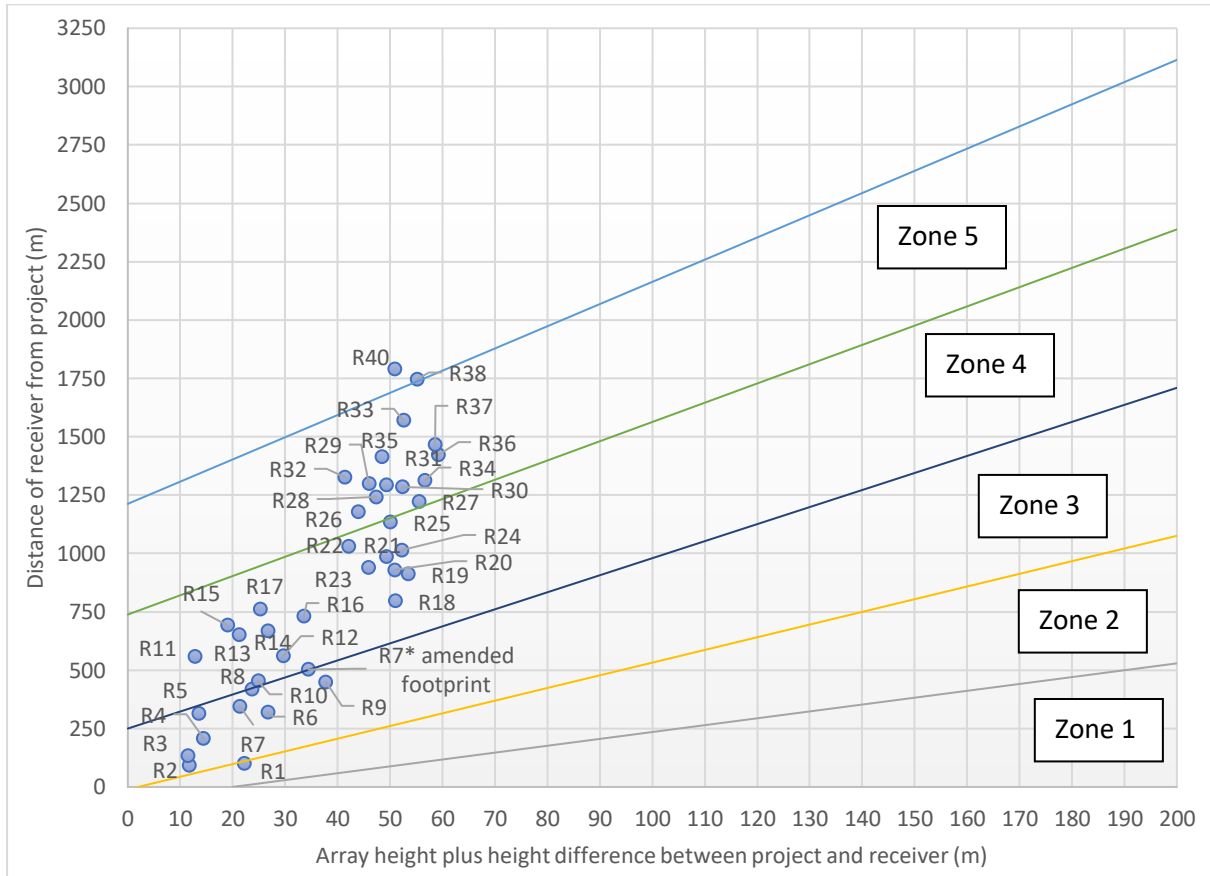
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Receptor/receiver (within 3.25 km)	Height of receptor (m)	Distance to project (m)	Height of project at closest boundary (m AHD)	Height difference between receiver and array (m AHD)	Detailed assessment required?
R93	183.15	4812.04	203.66	62.52	0
R94	181.74	4870.41	178.23	45.51	0
R95	177.85	4873.42	200.92	65.07	0
R96	214.82	4905.52	203.66	53.16	0
R97	183.93	4919.83	203.66	61.73	0
R98	181.45	4984.53	180.18	43.28	0
					45

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VISUAL MAGNITUDE ZONE CALCULATIONS:



Height of solar panels (m):	4
Highest point of project (m):	209
Lowest point of project (m):	171
Project height difference (m):	38

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Receptor/ receiver (within 3.25 km)	Height of receptor (m)	Distance to project (m)	Height of project at closest boundary (m AHD)	Highest visible point of the array (m AHD)	Lowest visible point of the array (m AHD)	Height difference between receiver and array (m)	Magnitude Zone
R1	199.28	100.67	200.52	209.00	188.00	22.24	2
R2	180.69	91.86	179.00	189.00	179.00	11.69	3
R3	201.95	134.55	205.41	208.00	200.00	11.46	3
R4	191.50	208.37	190.05	201.00	188.00	14.46	3
R5	182.54	314.28	178.95	188.00	178.00	13.59	3
R6	197.46	318.95	203.14	209.00	188.00	26.68	3
R7	193.04	345.85	201.36	213.00	200.00	21.32	3
R8	182.89	419.91	180.18	201.00	180.00	23.71	3

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R9	191.00	449.86	198.75	208.00	178.00	37.76	3
R10	196.98	453.58	207.86	213.00	199.00	24.87	4
R11	191.82	558.05	194.62	188.00	178.00	12.80	4
R12	194.90	561.25	201.53	210.00	187.00	29.63	4
R13	193.17	652.59	201.37	213.00	200.00	21.20	4
R14	199.15	669.23	185.36	213.00	200.00	26.79	4
R15	173.71	691.85	179.75	213.00	200.00	19.03	4
R16	183.01	731.35	183.58	213.00	180.00	33.58	4
R17	180.81	760.15	176.55	201.00	180.00	25.26	4
R18	188.38	796.23	201.37	213.00	175.00	51.00	4
R19	190.81	912.00	206.31	213.00	175.00	53.50	4
R20	190.19	929.99	203.14	213.00	175.00	50.95	4
R21	190.02	984.90	201.37	213.00	175.00	49.35	4
R22	197.26	1030.37	201.37	213.00	175.00	42.11	4
R23	190.92	939.13	183.05	213.00	175.00	45.87	4
R24	188.92	1014.48	203.14	213.00	175.00	52.22	4
R25	191.07	1134.16	203.14	213.00	175.00	50.08	4
R26	206.89	1179.36	200.90	213.00	175.00	43.99	5
R27	187.79	1221.09	205.29	213.00	175.00	55.50	5
R28	192.26	1242.69	201.58	213.00	175.00	47.32	5
R29	175.64	1298.22	183.59	213.00	175.00	45.95	5
R30	184.75	1284.98	199.08	213.00	175.00	52.33	5
R31	191.09	1292.45	202.36	213.00	175.00	49.27	5
R32	172.21	1326.70	175.61	213.00	175.00	41.41	5
R33	167.81	1569.16	182.40	213.00	175.00	52.58	5
R34	182.73	1312.64	201.37	213.00	175.00	56.65	5
R35	189.68	1413.80	200.10	213.00	175.00	48.42	5
R36	181.99	1421.54	203.14	213.00	175.00	59.16	5
R37	180.80	1465.96	201.37	213.00	175.00	58.58	5
R38	184.13	1747.06	201.36	213.00	175.00	55.23	5
R40	168.38	1789.41	181.23	213.00	175.00	50.86	5
R7* amended footprint	176.56	503.00	206.00	209.00	204.00	34.44	4

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Appendix B – Visual impact assessment of viewpoints VP7-VP20

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1 VIEWPOINT 7 (VP7) –



Location: Current view of towards Muskerry SPS (northern portion) site looking west from R38					
Co-ordinates	36.698239 S, 144.654115 E	Date:	31/03/2022	Time:	5:25 pm
Orientation	East	Altitude:	172 m	Distance to project:	1414 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP7

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP7

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 5 	<ul style="list-style-type: none"> 2 sectors 	<ul style="list-style-type: none"> Very low

VP7 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP7 the final impact rating is Very Low.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Very low 	<ul style="list-style-type: none"> Very low

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2 VIEWPOINT 8 (VP8) –



Location: Current view of towards Muskerry SPS (southern portion) site looking Northeast from R6					
Co-ordinates	36.735396 S, 144.606297 E	Date:	31/03/2022	Time:	3:41 pm
Orientation	Northeast	Altitude:	197 m	Distance to project:	319 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather :	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP8

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP8

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 3 	<ul style="list-style-type: none"> 1 sector 	<ul style="list-style-type: none"> Low

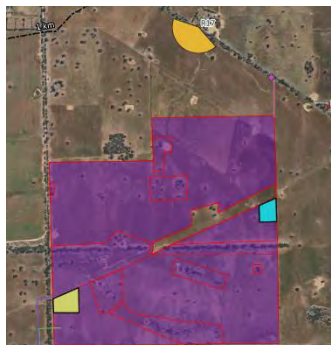
VP8 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low

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3 VIEWPOINT 9 (VP9) –



Location: Current view of towards Muskerry SPS (northern portion) site looking south from R17					
Co-ordinates	36.682679 S, 144.631687 E	Date:	31/03/2022	Time:	4:47 pm
Orientation	Southwest	Altitude:	173 m	Distance to project:	690 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather :	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP9

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP9

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 2 or 3 sectors 	<ul style="list-style-type: none"> Low

VP9 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP9 the final impact rating is Low.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low

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4 VIEWPOINT 10 (VP10) –



Location: Current view of towards Muskerry SPS (southern portion) site looking East from R9					
Co-ordinates	36.733512 S, 144.607380 E	Date:	31/03/2022	Time:	3:23 pm
Orientation	East	Altitude:	190 m	Distance to project:	450 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP10

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP10

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 3 	<ul style="list-style-type: none"> 0 	<ul style="list-style-type: none"> Not visible

VP10 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Not visible 	<ul style="list-style-type: none"> No Impact

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5 VIEWPOINT 11 (VP11) –



Location: Current view of towards Muskerry SPS (southern portion) site looking north from R11					
Co-ordinates	36.729623 S, 144.60607 E	Date:	30/03/2022	Time:	3:53 pm
Orientation	North	Altitude:	199.8 m	Distance to project:	503 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather :	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP11

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP11

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 2 sectors 	<ul style="list-style-type: none"> Low

VP11 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. The final visual impact for VP11 and therefore R11 is Low. During the site visit the residents of R11 also voice little concern regarding the impact of the project as the slight views of the project were mostly obscured by sheds and structures inbetween the residence and the development footprint. The resident is also related to (the son of) the resident of R2 but maintains low concerns.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low

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6 VIEWPOINT 12 (VP12) –



Location:	Current view of towards Muskerry SPS (southern portion) site looking East northeast from R12				
Co-ordinates	36.740822 S, 144.624720 E	Date:	31/03/2022	Time:	10:30 am
Orientation	East Northeast	Altitude:	184.4 m	Distance to project:	530 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP12

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP12

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 3 	<ul style="list-style-type: none"> 0 	<ul style="list-style-type: none"> Not visible

VP12 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver.

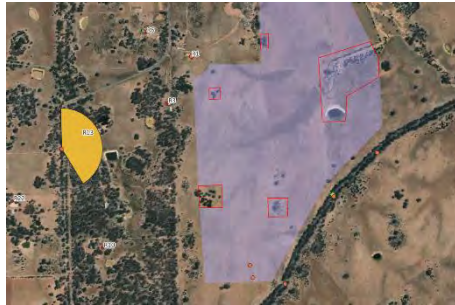
Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Not Visible 	<ul style="list-style-type: none"> No Impact

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7 VIEWPOINT 13 (VP13) –



Location: Current view of towards Muskerry SPS (southern portion) site looking east from R13					
Co-ordinates	36.740505 S, 144.601446 E	Date:	1/04/2022	Time:	3:03 pm
Orientation	East	Altitude:	191.8 m	Distance to project:	561 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP13

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP13

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 2 sectors 	<ul style="list-style-type: none"> Low

VP13 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. During Accent's site visit the residents of R13 did not wish for Accent to take pictures from the property so the pictures for this viewpoint were taken from Ralston's Lane at the entrance to the property. From this viewpoint one possibly two horizontal 30 degree sectors contained visibility of the solar farm. The impact from the residence itself is expected to be greater. As the impact is low it is recommended that mitigation measures be considered, in doing so Edify should consult with the residents of R13.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Low

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8 VIEWPOINT 14 (VP14) –



Location: Current view of towards Muskerry SPS (southern portion) site looking northeast from R20					
Co-ordinates	36.727065 S, 144.596250 E	Date:	31/03/2022	Time:	12:31 pm
Orientation	Northeast	Altitude:	183 m	Distance to project:	760 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather :	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP14

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP14

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 1 sector 	<ul style="list-style-type: none"> Very low

VP14 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. The potential for any visibility is low however if there is very slight visibility it would only occur within a single sector from this viewpoint. For VP14 (R20) the final impact rating is Very low. However, it should be noted that the resident of R20 voiced concerns on the visual impact of the farm, possible Glare and the nuisance of night security lighting. He was also concerned about impacts on future building plans on his property closer to the development.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Very low 	<ul style="list-style-type: none"> Very low

The chosen VP was taken from the most prominent and regular view of the resident. At the resident's request Accent also took representative photographs from multiple locations on the property corresponding to the driveway and the possible location of future dwelling these have been provided to Edify but were considered beyond the scope of this report.

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9 VIEWPOINT 15 (VP15) –



Location:	Current view of towards Muskerri SPS (southern portion) site looking east from end of driveway of R24				
Co-ordinates	36.731416 S, 144.624765 E	Date:	31/03/2022	Time:	11:08 pm
Orientation	East	Altitude:	192 m	Distance to project:	685 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP15

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP15

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 1 sectors 	<ul style="list-style-type: none"> Very Low

VP15 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. The photographs taken for this viewpoint to represent the impacts on R24 were taken from the entrance to the property along Murphy Lane and are likely to demonstrate greater impacts than those from the residence which is over 300 m further from the development footprint. For VP15 the final impact rating is Very low.

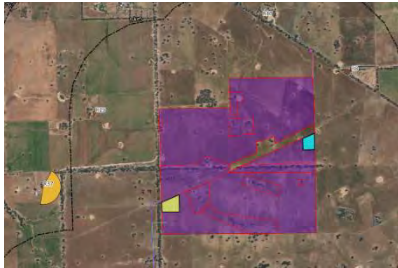
Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Very Low 	<ul style="list-style-type: none"> Very Low

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10 VIEWPOINT 16 (VP16) –



Location: Current view of towards Muskerry SPS (northern portion) site looking east from R37					
Co-ordinates	36.699218 S, 144.603868 E	Date:	30/03/2022	Time:	3:09 pm
Orientation	West	Altitude:	180 m	Distance to project:	1340 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP16

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Moderate

Magnitude Rating VP16

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 5 	<ul style="list-style-type: none"> 1 sector 	<ul style="list-style-type: none"> Very Low

VP16 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP16 the final impact rating is Very low.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Very Low 	<ul style="list-style-type: none"> Very Low

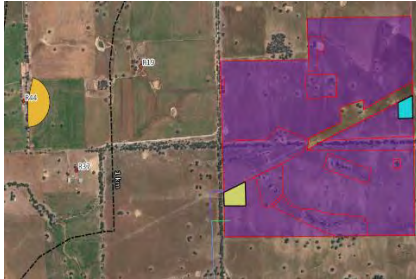
The development is not likely to be visible from this residence (R37) unless the substation option a) is selected in which case the taller elements of the substation may be visible over the top of the existing vegetation, the impact will remain very low. This receiver is also a significant distance from the development footprint which will reduce the visual impact.

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11 VIEWPOINT 17 (VP17) –



Location: Current view of towards Muskerry SPS (northern portion) site looking west from R44					
Co-ordinates	36.676089 S, 144.619339 E	Date:	30/03/2022	Time:	4:25 pm
Orientation	West	Altitude:	203.5 m	Distance to project:	1740 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather :	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP17

Viewer Sensitivity	Scenic Quality Class	VP1: Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Moderate (rural dwelling) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Low

After brief discussion with the resident at R44 there is a low sensitivity to the development.

Magnitude Rating VP17

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 5 	<ul style="list-style-type: none"> Not visible 	<ul style="list-style-type: none"> Not visible

VP17 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver.

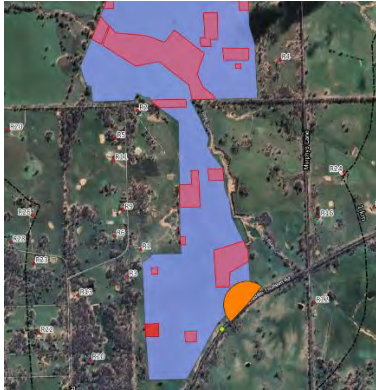
Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Not visible 	<ul style="list-style-type: none"> No Impact

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12 VIEWPOINT 18 (VP18) –



Location:	Current view of towards Muskerry SPS (southern portion) site looking Northwest from Axedale-Toolleen Road				
Co-ordinates	36.741023 S, 144.618691 E	Date:	30/03/2022	Time:	11:20 am
Orientation	Northwest	Altitude:	210 m	Distance to project:	70 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather :	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP18

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Low (rural road) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Low

Magnitude Rating VP18

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 1 	<ul style="list-style-type: none"> 5 sectors 	<ul style="list-style-type: none"> High

VP18 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver.

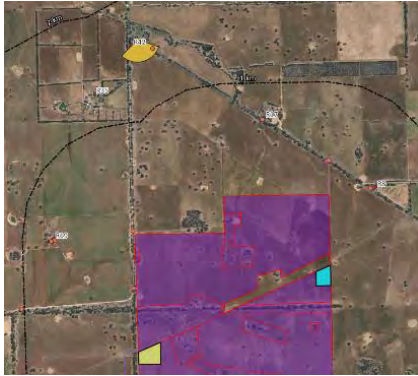
Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> High 	<ul style="list-style-type: none"> Low/ Moderate

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13 VIEWPOINT 19 (VP19) –



Location: Current view of towards Muskerry SPS (northern portion) site looking south from Toolleen-Angle Road					
Co-ordinates	36.676843 S, 144.620814 E	Date:	30/03/2022	Time:	3:51 pm
Orientation	South	Altitude:	203.5 m	Distance to project:	1540 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Clear skies	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP19

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Low (rural road) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Low

After brief discussion with the resident at R42 there is a low sensitivity to the development.

Magnitude Rating VP19

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 5 	<ul style="list-style-type: none"> 1 	<ul style="list-style-type: none"> Very low

VP19 Visual Impact Rating

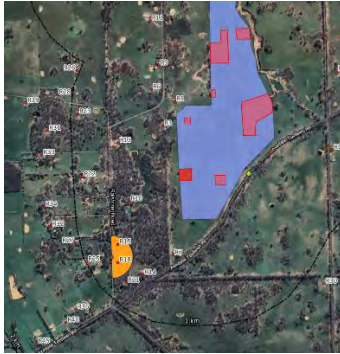
The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Low 	<ul style="list-style-type: none"> Very low 	<ul style="list-style-type: none"> Very low

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14 VIEWPOINT 20 (VP20) –



Location:	Current view of towards Muskerry SPS (southern portion) site looking northeast from Ralstons Lane				
Co-ordinates	36.749614 S, 144.601542 E	Date:	1/04/2022	Time:	2:55 pm
Orientation	East	Altitude:	190 m	Distance to project:	750 m
Camera	iPhone 11 (dual 12 megapixel) Height: 1500 mm	Weather:	Sunny, Scattered clouds	Surveyor:	Lisa Singleton (Environmental Scientist MSc BSc)



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Visual Sensitivity Rating VP20

Viewer Sensitivity	Scenic Quality Class	Visual Sensitivity rating (pre-mitigation)
<ul style="list-style-type: none"> Very low (rural unmade road) 	<ul style="list-style-type: none"> Low (Large expanses of flat or gently undulating terrain) 	<ul style="list-style-type: none"> Very low

Magnitude Rating VP20

Distance and height difference between receiver and SF	Horizontal Magnitude (number of 30 degree horizontal sectors of the field of view the project is visible within)	Magnitude rating
<ul style="list-style-type: none"> Zone 4 	<ul style="list-style-type: none"> 1 	<ul style="list-style-type: none"> Very low

VP20 Visual Impact Rating

The impact rating is determined using the matrix in Table 2.3 to consider the combination of the Sensitivity rating of the receiver and the Magnitude rating of the development from the receiver. For VP20 the final impact rating is Low.

Sensitivity Rating	Magnitude Rating	Visual Impact rating
<ul style="list-style-type: none"> Very low 	<ul style="list-style-type: none"> Very low 	<ul style="list-style-type: none"> Very low

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Appendix C – Suggested planting list

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Table 1. Species planting list for Plant Community Types (PCTs) present onsite (Muskerry) from PCT factsheets (DSE 2007)

PCT	Height	Species	Common name
61 - Box Ironbark Forest	Upperstorey >10 m	<i>Eucalyptus microcarpa</i>	Grey Box
		<i>Eucalyptus leucoxyton</i>	Yellow Gum
		<i>Eucalyptus tricarpa</i>	Red Ironbark
		<i>Eucalyptus polyanthemus</i>	Red Box
	Midstorey Shrubs (1-2m)	<i>Acacia genistifolia</i>	Spreading Wattle
	Midstorey Shrubs <10m	<i>Acacia pycnantha</i>	Golden Wattle
	Midstorey Shrubs (1-3m)	<i>Cassinia arcuata</i>	Drooping Cassinia
		<i>Acacia acinacea s.l</i>	Gold-dust Wattle
	Small Shrub	<i>Hibbertia exutiacies</i>	Spiky Guinea-flower
		<i>Pultenaea largiflorens</i>	Twiggy Bush-pea
68- Creekline Grassy Woodland	Medium Herbs	<i>Senecio tenuiflorus</i>	Slender Fireweed
		<i>Xerochrysum viscosum</i>	Shiny Everlasting
		<i>Gonocarpus tetragynus</i>	Common Raspwort
		<i>Veronica plebeia</i>	Trailing Speedwell
	Medium to Small Tufted Graminiod	<i>Joycea pallida</i>	Silvertop Wallaby-grass.
		<i>Dianella revoluta s.l.</i>	Black-anther Flax-lily
		<i>Lomandra filiformis</i>	Wattle Mat-rush
		<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
		<i>Poa sieberiana</i>	Grey Tussock-grass
	Upperstorey >10 m	<i>Eucalyptus camaldulensis</i>	River Red-gum
		<i>Eucalyptus microcarpa</i>	Grey Box
		<i>Eucalyptus melliodora</i>	Yellow Box
	Midstorey Shrubs (1-3m)	<i>Acacia pycnantha</i>	Golden Wattle
		<i>Daviesia ulicifolia</i>	Gorse Bitter-pea
		<i>Cassinia arcuata</i>	Drooping Cassinia
	Large Herbs	<i>Senecio tenuiflorus</i>	Slender Fireweed
	Medium herbs	<i>Xerochrysum viscosum</i>	Shiny Everlasting
		<i>Gonocarpus tetragynus</i>	Common Raspwort
		<i>Hypericum gramineum</i>	Small St John's Wort
	Large Tufted Graminiod	<i>Austrostipa rudis</i>	Veined Spear-grass
		<i>Carex tereticaulis</i>	Rush Sedge

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175_61 Low Rises Grassy Woodland	Upperstorey >10 m	<i>Eucalyptus microcarpa</i> <i>Eucalyptus leucoxyton</i>	Grey Box Yellow Gum
	Midstorey Shrubs (1-3m)	<i>Cassinia arcuata</i> <i>Acacia pycnantha</i> <i>Acacia acinacea</i> s.l. <i>Dodonaea viscosa</i> ssp. <i>cuneata</i>	Drooping Cassinia Golden Wattle Gold-dust Wattle Wedge-leaf Hop-bush
	Small shrubs	<i>Astroloma humifusum</i> <i>Pultenaea largiflorens</i> <i>Pimelea humilis</i> <i>Eutaxia microphylla</i> var. <i>microphylla</i>	Cranberry Heath Twiggy Bush-pea Common Rice-flower Common Eutaxia
	Lagre Herbs	<i>Xerochrysum viscosum</i> <i>Chrysocephalum semipapposum</i> <i>Wahlenbergia luteola</i> <i>Senecio tenuiflorus</i>	Shiny Everlasting Clustered Everlasting Bronze Bluebell Slender Fireweed
	Medium herbs	<i>Veronica plebeia</i> <i>Daucus glochidiatus</i> <i>Einadia nutans</i> ssp. <i>nutans</i> <i>Vittadinia cuneata</i>	Trailing Speedwell Australian Carrot Nodding Saltbush Fuzzy New Holland Daisy
	Large Tufted Graminiod	<i>Austrostipa mollis</i>	Supple Spear-grass
	Medium to Small Tufted Graminiod	<i>Elymus scaber</i> var. <i>scaber</i> <i>Austrostipa scabra</i> ssp. <i>Falcata</i> <i>Poa sieberiana</i> <i>Austrodanthonia setacea</i>	Common Wheat-grass Rough Spear-grass Grey Tussock-grass Bristly Wallaby-grass
803- Plains Woodland (syn. Riverina Plains Grassy Woodland)	Upperstorey >10 m	<i>Eucalyptus microcarpa</i> <i>Eucalyptus melliodora</i> <i>Eucalyptus camaldulensis</i> <i>Allocasuarina luehmannii</i>	Grey Box Yellow Box River Red Gum Buloke
	Midstorey Shrubs (1-3m)	<i>Acacia pycnantha</i> <i>Acacia acinacea</i> s.l.	Golden Wattle Gold-dust Wattle
	Small shrub	<i>Lissanthe strigosa</i> ssp. <i>subulata</i>	Peach Heath
	Large Herb	<i>Wahlenbergia luteola</i> <i>Wahlenbergia communis</i> s.l.	Bronze Bluebell Tufted Bluebell

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	Medium Herb	<i>Brachyscome lineariloba</i>	Hard-head Daisy
	Medium to Small Tufted Graminoid	<i>Austrostipa scabra</i> ssp. <i>Falcata</i> <i>Elymus scaber</i> var. <i>scaber</i> <i>Lomandra filiformis</i> <i>Austrodanthonia setacea</i>	Rough Spear-grass Common Wheat-grass Wattle Mat-rush Bristly Wallaby-grass

Table.1 Planting Species recommended for the Goldfields bioregion (from the “Landscape Plan Guide for developments in Shire of Campaspe City of Greater Shepparton and Moira Shire Council” (SPIRE 2020))

List of approved planting species	Species/Common name	Size h x w
Small to medium trees (<10M)	<i>Acacia dealbata</i> - Silver Wattle	5-10 x 3-5m
	<i>Acacia implexa</i> - Lightwood	5-10 x 3-5m
	<i>Acacia melanoxylon</i> - Blackwood	10m x 5m
	<i>Acacia pycnantha</i> - Golden Wattle	3 - 5 m
	<i>Allocasuarina luehmannii</i> - Buloke	5-15 x 3-8m
	<i>Brachychiton populneus</i> - Kurrajong	6-15 x 4-8m
	<i>Callitris rhomboidea</i> - Port Jackson Pine	6 x 3m
	<i>Callistemon sieberi</i> - River Bottlebrush	3 x 2m
	<i>Leptospermum obovatum</i> - River Tea Tree	
Medium to large trees (>10M)	<i>Acacia salicina</i> - Weeping Acacia, Native Willow	10-15 x 5-7m
	<i>Allocasuarina luehmannii</i> - Buloke	5-15 x 3-8m
	<i>Callitris glaucophylla</i> - Murray Pine	3-15 x 2-7m
	<i>Eucalyptus albens</i> - White Box	10-15 x 8-10m
	<i>Eucalyptus camaldulensis</i> - River Red Gum (*waterways/ wetlands only)	30 x 15m
	<i>Eucalyptus largiflorens</i> - Black Box, River Box	20 x 10m
	<i>Eucalyptus leucoxydon</i> subsp <i>pruinosa</i> - Yellow Gum, White Ironbark	20-25 x 10-12m
	<i>Eucalyptus melliodora</i> - Yellow Box	20-30 x 10-15m
	<i>Eucalyptus microcarpa</i> - Grey Box	20-25 x 10-12m
	<i>Eucalyptus polyanthemos</i> subsp <i>vestita</i> - Red Box	20-40 x 10-15m
	<i>Eucalyptus tricarpa</i> - Red Ironbark	25-35 x 10-15m

DSE (2007) Ecological Vegetation Class bioregion benchmark for Vegetation Quality assessment. Goldfields Bioregion. Victorian Government Department of Sustainability and Environment November 2007
Spiire (2020) Landscape Plan Guide for developments in Shire of Campaspe City of Greater Shepparton and Moira Shire Council. Spiire Australia. 2020.

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