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# YASS SOLAR FARM SCOPING REPORT

## YASS SOLAR FARM SCOPING REPORT

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## ACKNOWLEDGEMENT OF COUNTRY

Aboriginal people have had a long and continuous association with the region for thousands of years. We would like to acknowledge and pay respects to the Traditional Owners of the Country which is encompassed by the project, the Ngunnawal and Wiradjuri.

Canberra is Ngunnawal country. The Ngunnawal are the Indigenous people of this region and its first inhabitants. The neighbouring people are the Gundungurra to the north, the Ngarigo to the south, the Yuin on the coast, and the Wiradjuri inland. It is a harsh climate and difficult country for hunter-gatherer people. To live here required great knowledge of the environment, skilful custodianship of it and close cooperation (ACT Government, 2022).

### **Prepared by**

Ramboll Australia Pty Ltd

### **Applicant**

International Power (Australia) Pty Ltd

## EXECUTIVE SUMMARY

International Power (Australia) Pty Ltd (trading as ENGIE Australia and New Zealand (ENGIE)) is proposing to construct and operate the Yass Solar Farm project (the project), on Ngunnawal land in Yass, New South Wales. The proposed solar project would be located in the Yass Valley Council local government area, on the south-western outskirts of the township of Yass.

The project would include the construction, operation and decommissioning of an approximately 100 megawatt solar and battery storage (250 megawatt / 500 megawatt-hour) project. The project would supply electricity to the national electricity market via the existing transmission infrastructure within the local area.

The project is expected to require up to 150 full-time employees during peak construction and up to two full-time employees during operation and ongoing maintenance.

The operational lifespan of the project is indicatively 30 years, with potential for upgrades, including repowering in consultation with associated residences. At the end of its operational life, the project would be decommissioned and land that is impacted by the project would be appropriately rehabilitated in consultation with the affected landholders.

The objectives of the project are to:

- produce electricity from a clean and renewable source and assist in meeting energy demand and improving energy security for New South Wales
- support Australia's commitments to reduce greenhouse gases and contribute to New South Wales achieving net-zero emissions by 2050 as set out in the New South Wales Climate Change Policy Framework, and help deliver on commitments in the Federal Government's Renewable Energy Target Scheme
- develop an energy generation project which minimises impacts to the environment and local community to the extent possible
- develop a trusted relationship and provide for positive outcomes for the communities affected by the project
- create job opportunities and economic benefits for the region.

The Capital Investment Value of the project is valued at over \$30 million and the project is therefore considered State Significant Development under Part 4 of the *Environmental Planning and Assessment Act 1979* and the *State Environmental Planning Policy (Planning Systems 2021)*.

A referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water for potential impacts to Matters of National Environmental Significance under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* would be required for potential impacts to critically endangered ecological communities being Box Gum Woodland and Derived Native Grasslands. Should the project be determined to be a controlled action under Section 75 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, the project would require assessment and approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. It is anticipated that potential impacts to Matters of National Environmental Significance would be assessed in accordance with the NSW Assessment Bilateral Agreement, which allows the NSW Department of Planning and Environment to manage the assessment of the project on behalf of the Commonwealth, including the issuing of the assessment requirements for the environmental impact statement.



The scoping report has identified the key environmental matters identified that would be considered in the environmental impact statement. These include:

- biodiversity
- landscape character and visual
- Aboriginal heritage
- traffic and access
- hazards and risks
- noise and vibration
- social.

#### Biodiversity

As part of the scoping report, a preliminary desktop assessment and subsequent ecological surveys were conducted. The assessment identified that four Plant Community Types are potentially present within the study area. One Threatened Ecological Community was identified as occurring within the study area, while 20 threatened fauna species have been recorded within the project locality with the potential to occur within the project land.

A Biodiversity Development Assessment Report will be completed as part of the environmental impact statement. The assessment will include detailed ecological surveys, and detailed investigations for the Golden Sun Moth (*Synemon plana*) and Striped Legless Lizard (*Delma impar*).

#### Landscape character and visual

A preliminary landscape character and visual impact assessment was completed as part of the scoping report. Two associated receivers and 2,683 non-associated receivers were identified within four kilometres of the project, due to the proximity of the project to the township of Yass. The preliminary assessment assessed 62 non-associated dwelling receptors and 16 public viewpoints. The assessment identified 52 non-associated dwelling receptors and 13 public viewpoints which will be subject to detailed assessment at the EIS phase. A landscape and visual impact assessment and glint and glare assessment will be prepared in accordance with relevant guidelines as part of the environmental impact statement.

#### Aboriginal heritage

Preliminary investigations were undertaken as part of the scoping report to inform the potential for impacts on Aboriginal social or cultural values of the project land, or items of Aboriginal heritage significance. The investigations identified two historical Aboriginal places within Yass, and several locations within the Yass region, as culturally significant. Aboriginal archaeological and cultural heritage significance assessments have previously been undertaken which partially encompass the project land. These assessments indicate potential for further Aboriginal sites to be found within the development footprint. An Aboriginal Cultural Heritage Assessment Report will be prepared as part of the Environmental Impact Statement.

#### Traffic and access

A preliminary desktop traffic and access assessment was completed as part of the scoping report. Wee Jasper Road, Perry Street, Yass Valley Way and the Hume Highway were identified as key surrounding roads. A traffic and transport impact assessment, including a quantitative traffic and access assessment for construction, and a qualitative assessment for operation, decommissioning and cumulative impacts will be prepared as part of the environmental impact statement.

#### Hazards and risks

Preliminary investigations were conducted for battery storage, electromagnetic fields, bushfire risk, flooding and dangerous goods as part of the scoping report. The assessment identified the likely use of lithium-ion batteries, which are listed as Class 9 – Miscellaneous dangerous goods within the State Environment Planning Policy (Resilience and Hazards) 2021, within the Battery and Energy Storage Systems. The project land was also identified as category 3 bushfire prone land. A preliminary hazard assessment, electromagnetic field assessment, bushfire assessment, and flood model assessment will be included in the Environmental Impact Statement.

#### Noise and vibration

A preliminary desktop noise and vibration assessment was completed as part of the scoping report. The assessment identified the closest sensitive receivers to be approximately located 255 metres from the development footprint. A noise and vibration assessment will be completed for the project in accordance with relevant guidelines in the Environmental Impact Statement to assess the potential impacts associated with construction and operational noise and vibration.

#### Social

A preliminary Social Impact Assessment was completed to support the scoping report. The assessment identified the social locality, social baseline, vulnerabilities, and future populations and residential development expected to occur within the area. As part of the Environmental Impact Statement, a Social Impact Assessment will be undertaken in accordance with the *Social Impact Assessment Guideline for State Significant Projects* (Department of Planning, Industry and Environment, 2021b).

Other matters that will be considered in the Environmental Impact Statement include land, water, historic heritage, economic, air, and waste and resources. Cumulative impacts with other projects (both existing and proposed) would also be considered and assessed.

Ongoing refinement of the proposed layout and technology would continue throughout the Environmental Impact Statement process in response to engineering design refinements, landholder negotiations and outcomes of environmental and social assessments, to minimise potential impacts where possible.

ENGIE has commenced consultation and engagement with landowners, near neighbours and the wider community, government agencies, and other relevant stakeholders. Overall, there has been a mixed response from stakeholders and community members, and it is evident that there is a high level of awareness in the community about the pace of renewables development in the Yass Valley region. ENGIE would continue to engage with key stakeholders including the broader community throughout the project approvals phase and over the life of the project.



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## APPENDICES

### Appendix 1

Council Correspondence

### Appendix 2

Scoping Summary Table

### Appendix 3

Preliminary Biodiversity Assessment prepared by Cumberland Ecology

**Appendix 4**

Preliminary Landscape Character and Visual Assessment prepared by Moir

**Appendix 5**

Preliminary Social Impact Assessment prepared by AAP Consulting

**Appendix 6**

Historic Heritage Item List Yass Valley Council LEP



## GLOSSARY

Term	Definition
AC	Alternating current The type of current that reverses its direction many times a second at regular intervals
Array	A collection of connected solar panels that work together
Bioregion	Land areas characterised by broad, landscape-scale natural features and environmental processes
DC	Direct current An electric current that flows in one direction only
Development footprint	The maximum extent of ground disturbing work associated with construction and operation of the solar array element of the project as indicated in <b>Figure 1-2</b>
Inverter	Converts direct current to alternating current
Key Fish Habitat	Key Fish Habitat as identified under the <i>Fisheries Management Act 1994</i>
Photovoltaic	Materials contained within the solar panels that generate electric current when exposed to light
Photovoltaic module	Commonly known as a solar panel, which produces direct current electric energy from the sun light
Power conversion unit	The power conversion units comprise three main components, inverters, transformers and a ring main unit, and convert the direct current electricity generated by the photovoltaic modules into alternating current form and increase the voltage of the electricity
Project	The proposed Yass Solar Farm consisting of photovoltaic arrays, inverters, a substation, ancillary infrastructure and a battery energy storage system within the development footprint
Project land	The total land (subject to ownership and land agreements) available for development
Project substation	The location where the lower-voltage electricity from the solar farm is converted to higher-voltage electricity for distribution in the consumer energy network
Transgrid Substation	Transgrid Yass 330 kilovolt Substation

## ACRONYMS

Abbreviation	Definition
°C	Degrees Celsius
ABN	Australian Business Number
AC	Alternating Current
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEMO	Australian Energy Market Operator
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
BAM	Biodiversity Assessment Method
BCD	Biodiversity and Conservation Division of the Department of Planning and Environment
BDAR	Biodiversity Development Assessment Report
BESS	Battery and Energy Storage System
BOM	Bureau of Meteorology
BOS	Biodiversity Offset Scheme
CCTV	Closed Circuit Television
CEEC	critically endangered ecological community
Code of Practice	The Department of Environment, Climate Change and Water <i>Code of Practice for the Investigation of Aboriginal Objects in New South Wales</i>
CIA	Cumulative Impact Assessment
Crown Land Management Act	<i>Crown Land Management Act 2016</i>
DC	Direct Current
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DNG	Derived Native Grassland
DP	Deposited Plan
DPE	NSW Department of Planning and Environment
DPI	Department of Primary Industries
EIS	Environmental Impact Statement
EMF	Electromagnetic field
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>

Abbreviation	Definition
EPA	NSW Environment Protection Authority
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
FM Act	<i>Fisheries Management Act 1994</i>
GDE	Groundwater dependent ecosystems
ha	Hectare
Heritage Act	<i>Heritage Act 1977</i>
ICNG	<i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change, 2009)
IPP	Independent Power Producer
ISP	Integrated System Plan
Key Fish Habitat	Key Fish Habitat as identified under the <i>Fisheries Management Act 1994</i>
km	Kilometre
kV	Kilovolt
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
LGCs	Large-Scale Generation Certificates
LRET	Large-Scale Renewable Energy Target
m	Metre
MNES	Matters of National Environmental Significance
MW	Megawatt
Native Title Act	<i>Native Title Act 1993</i>
NEM	National Electricity Market
NES	New South Wales Electricity Strategy
NPI	<i>Noise Policy for Industry</i> (Environment Protection Authority, 2017)
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
PCU	Power Conversion Unit
PCT	Plant community type
PHA	preliminary hazard analysis

Abbreviation	Definition
Planning Systems SEPP	<i>State Environmental Planning Policy (Planning Systems 2021)</i>
PMST	Protected Matters Search Tool
POEO Act	<i>Protection of Environment Operations Act 1997</i>
RAPs	Registered Aboriginal Parties
Resilience and Hazards SEPP	<i>State Environmental Planning Policy (Resilience and Hazards) 2021</i>
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RFS	Rural Fire Service
RNP	Road Noise Policy (Department of Environment and Climate Change, 2011)
Scoping Report Guideline	<i>State Significant Development Guidelines – Preparing a Scoping Report (Appendix A)</i> (Department of Planning, Industry and Environment, 2021c)
SEARs	Secretary Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SHI	State Heritage Inventory
SSD	State Significant Development
TECs	Threatened Ecological Communities
Transport and Infrastructure SEPP	<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>
UNFCCC	United Nations Framework Convention on Climate Change
VRZ	Vegetated Riparian Zone
WM Act	<i>NSW Water Management Act 2000</i>
Yass Valley LEP	<i>Yass Valley Local Environmental Plan 2013</i>

# 1. INTRODUCTION

## 1.1 Background

International Power (Australia) Pty Ltd, trading as ENGIE Australia and New Zealand (ENGIE), is proposing to construct and operate the Yass Solar Farm (the project), on Ngunnawal land in Yass, New South Wales (NSW). The project would be located within the Yass Valley Council local government area (LGA) and be situated on the south-western outskirts of the township of Yass (refer to **Figure 1-1**).

The Capital Investment Value of the project is valued at over \$30 million and the project is considered State Significant Development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *State Environmental Planning Policy (Planning Systems 2021)* (Planning Systems SEPP).

A referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for potential impacts to Matters of National Environmental Significance (MNES) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), is likely to be required. Refer to **Section 8.3.1** for the findings of the preliminary biodiversity assessment undertaken for the project.

## 1.2 Introduction to the project

### 1.2.1 Project overview

The project would include the construction, operation and decommissioning of an approximately 100 megawatts solar farm, including up to 220,000 photovoltaic panels, a 250 megawatt / 500-megawatt hour battery energy storage system (BESS), and ancillary associated infrastructure. The project would supply electricity to the national electricity market (NEM) via the existing transmission infrastructure within the local area.

Key infrastructure for the project would include:

- up to approximately 220,000 single axis tracking photovoltaic modules (solar panels)
- electrical infrastructure including:
  - approximately 30 power conversion units (PCUs) which include inverters for converting direct current (DC) power to alternating current (AC)
  - onsite substation containing two main transformers and associated switchgear
  - overhead and underground electrical reticulation connecting the solar farm elements
  - onsite connection from the substation via a new 330 kilovolt underground/ overhead transmission line connecting into the Transgrid Substation
  - BESS with 250 megawatt / 500 megawatt-hour capacity
- other permanent onsite ancillary infrastructure including:
  - operational and maintenance facility
  - a temperature-controlled spare parts storage facility
  - SCADA facilities
  - a workshop and associated infrastructure
  - access roads, both to the project and internal access roads
  - carparking area
  - security fencing and landscaping
- temporary construction ancillary infrastructure including:
  - construction compounds
  - laydown areas
  - parking areas



- potential construction workforce accommodation.

A detailed project description is provided in **Section 4** and an indicative project layout is provided in **Figure 4-1**.

The project is expected to require up to 150 full-time equivalent employees during peak construction, and approximately two full-time equivalents would be required during operation and ongoing maintenance of the solar farm.

### 1.2.2 Site information

The project land is shown on **Figure 1-2**, and a summary of contextual information is provided in **Table 1-1**. The project land represents the total land subject to land agreements. Within the project land, a development footprint has been developed which represents the maximum extent of ground disturbing work associated with construction and operation of the project. This is shown on **Figure 4-1**.

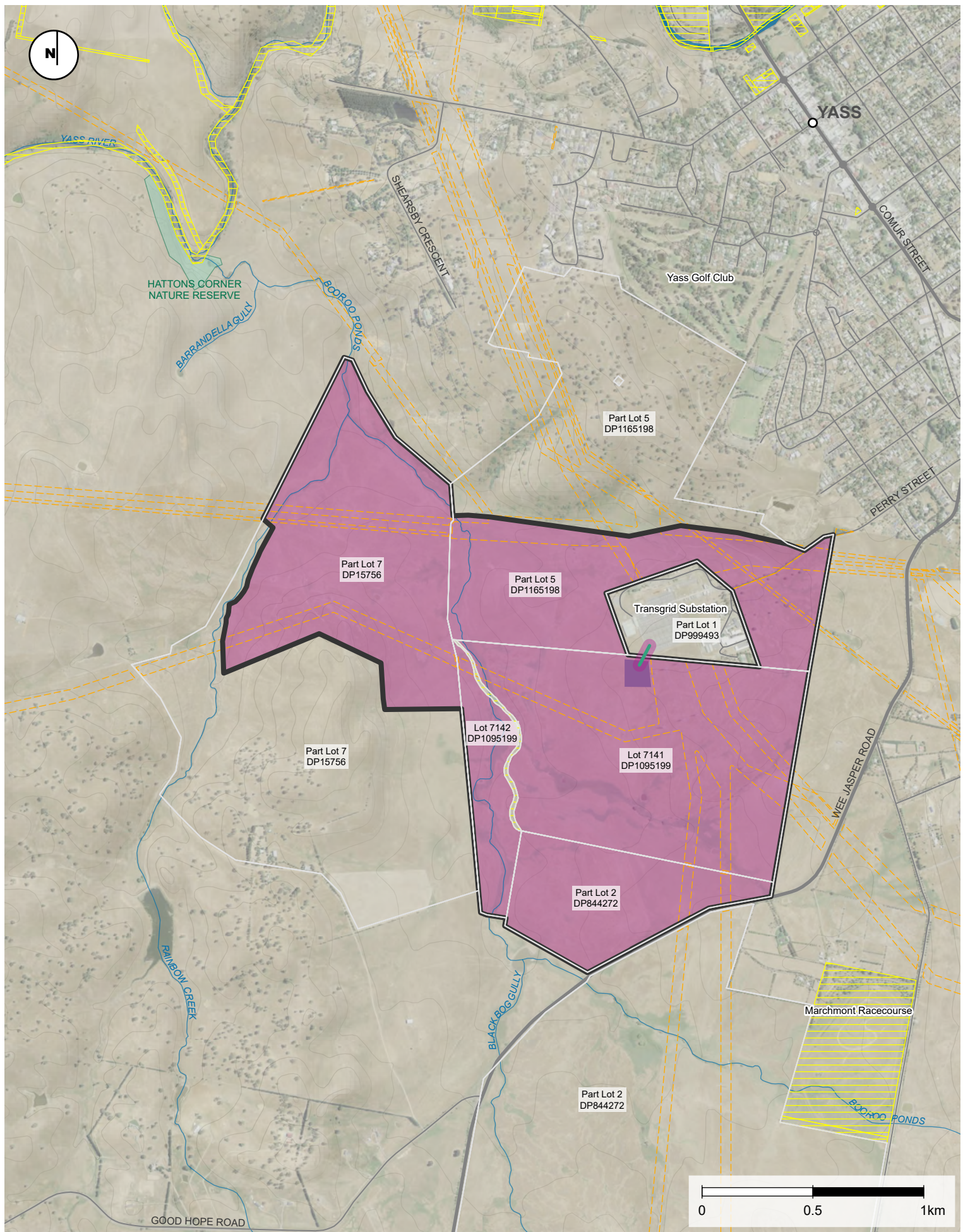
The proposed development footprint has been developed based on the suitability of the land for solar arrays and engineering constraints, access, potential environmental and social impacts and proximity to the Transgrid Substation. The EIS will further inform the suitability of the proposed development footprint.

**Table 1-1: Summary of site information**

Item	Details
Local government area	Yass Valley
Suburb	Yass
Address	Perry Street
Size of the project land	Approximately 340 hectares
Size of the development footprint	Approximately 186 hectares
Lot details	<p>Project land is located over six lot on plans:</p> <p>Lot 5 DP 1165198            Lot 1 DP 999493            Lot 7 DP 15756            Lot 7141 DP 1095199            Lot 7142 DP 1095199            Lot 1 DP 999493 (part)            Lot 2 DP 844272 (part)</p>







RAMBOLL AUSTRALIA - GIS MAP file : 318001526\_GIS\_P001\_ScopingReport | F018\_SiteDetails\_V11  
Aerial photography from NSW Government Spatial Services

#### KEY

- |  |  |  |  |   |
|--|--|--|--|---|
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #800080; border: 1px solid black;"></span> Project land | <span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border: 1px solid black;"></span> Transgrid connection - Indicative only | <span style="display: inline-block; width: 15px; height: 15px; background-color: #ffff00; border: 1px solid black;"></span> Crown land | <span style="display: inline-block; width: 15px; height: 15px; background-color: #add8e6; border: 1px solid black;"></span> Waterway | <span style="display: inline-block; width: 15px; height: 15px; background-color: #90ee90; border: 1px solid black;"></span> National Parks and Reserves |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #800080; border: 1px solid black;"></span> Substation   | <span style="display: inline-block; width: 15px; height: 15px; border: 1px dashed orange;"></span> Electricity transmission line easement                          | <span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black;"></span> Cadastre                              |  |   |

Figure 1-2 | Project land and intersecting cadastral lots

### 1.2.3 Project objectives

The objectives of the project are to:

- produce electricity from a clean and renewable source and assist in meeting energy demand and improving energy security for NSW
- support Australia's commitments to reduce greenhouse gases and contribute to NSW achieving net-zero emissions by 2050 as set out in the NSW Climate Change Policy Framework, and help deliver on commitments in the Federal Government's Renewable Energy Target (RET) Scheme
- develop an energy generation project which minimises impacts to the environment and local community where possible
- develop a trusted relationship and provide for positive outcomes for the communities affected by the project
- create job opportunities and economic benefits for the region.

### 1.2.4 Project background and history

In February 2020 Tetris Energy submitted a Scoping Report to the Department of Planning and Environment (DPE) for the original iteration of the Yass Solar Farm. The original development site was located on Lot 5 DP1165198, Lot 1 DP999493 and Lot 7 DP15756 with a development footprint of approximately 150 hectares. In March 2020 DPE issued the Planning Secretary's Environmental Assessment Requirements (SEARs) for the project.

ENGIE subsequently acquired the project and secured land options for three adjoining properties (Lot 7141 DP1095199, Lot 7142 DP1095199, and part of Lot 2 DP844272). These three properties (southeast of the original development site) have increased the project land to a total area of approximately 340 hectares.

The SEARs for the original iteration of the Yass Solar Farm were withdrawn in February 2023. This scoping report has been prepared to describe the revised project and detail the results of the early engagement and preliminary studies for the Yass Solar Farm project.

### 1.2.5 Related development

A solar monitoring station will be installed and located within Lot 7141 DP1095199 near the Yass substation.

## 1.3 Proponent

ENGIE is a global reference in low-carbon energy and services. With its 96,000 employees, its customers, partners and stakeholders, the Group is committed to accelerate the transition towards a carbon-neutral world, through reduced energy consumption and more environmentally friendly solutions. Inspired by its purpose ("raison d'être"), ENGIE reconcile economic performance with a positive impact on people and the planet, building on its key businesses (gas, renewable energy, services) to offer competitive solutions to its customers.

In Australia, the ENGIE ANZ joint venture with Mitsui & Co Ltd has 1,100MW of low-carbon generation capacity and more than 2,000MW of renewable energy and storage solutions under development. Our retail business, Simply Energy, has more than 730,000 gas and electricity customer accounts. ENGIE's trading arm, Global Energy Management & Sales (GEMS) provides long-energy supply agreements, energy trading, risk management and asset management services to business customers across the ENGIE ANZ portfolio. ENGIE's Hazelwood Rehabilitation Project is progressing the delivery of a safe, stable and sustainable site after the closure of the mine and power station in 2017. ENGIE has been operating in Australia since 1996. The ENGIE operations and projects within Australia are shown in **Figure 1-3**.



ENGIE is currently developing three large solar farms in Queensland and New South Wales and operates two wind farms in South Australia. The solar farms include Warhook in Queensland, Silverleaf and the proposed Yass Solar Farm in NSW. Collectively these solar farms would produce up to 460 megawatts of renewable energy. The wind farms in Willogoleche and Canunda are operational providing up to 165 megawatts of renewable energy.



**Figure 1-3: ENGIE projects in Australia**

ENGIE operates in 31 countries worldwide, and currently employ 360 people within Australia. ENGIE's mature Australian team of 360 development, asset management and community engagement professionals benefit from a vast network of expert support overseas.

Details of the proponent are provided in **Table 1-2**.



**Table 1-2: Details of the proponent**

Item	Details
Proponent name	International Power (Australia) Pty Ltd
Trading name	ENGIE ANZ
Australian Business Number (ABN)	59 092 560 793
Postal address	Level 23, 2 Southbank Boulevard, Southbank, Victoria 3006
Project contact	Lin Hwong
Contact details	+61 (0) 448 017 036

#### 1.4 Key impacts avoidance or minimisation strategies

The project would be designed to avoid or minimise impacts wherever practicable. The development footprint would be further refined based on key environmental and social assessments and outcomes of community consultation during the course of the EIS.

The location of the project adjacent to the Transgrid Substation and on land with a pre-existing distribution network provides opportunity for connection and electricity distribution while requiring minimal additional electrical grid connection infrastructure and therefore avoiding potential additional environmental impacts.

The development footprint avoids impacts to Crown land. Crown land will not be traversed or impacted by the Project.

Areas identified within the project land as having high biodiversity value have been avoided. Setbacks from the drainage lines of Booroo Ponds and Rainbow Creek have been maintained and the development footprint refined accordingly. Potential impacts to cultural heritage would be further investigated in collaboration with the registered Aboriginal parties.

The Yass Valley Settlement Strategy 2036 has been considered in the siting of the project and preliminary assessment is detailed in **Section 3.1**.

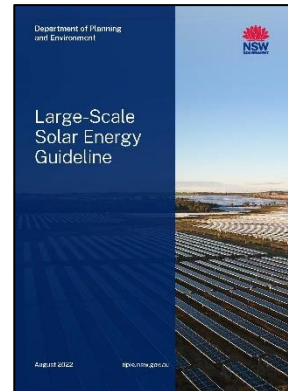
ENGIE would continue to refine the development footprint based on the outcomes of the detailed investigations to be undertaken during the EIS, including environmental, social and economic assessments. Impacts would be avoided wherever practicable. Where impacts are unavoidable, ENGIE would seek to minimise or mitigate the impact. The strategies to avoid, minimise or mitigate the impacts of the project would be detailed in the EIS.

### 1.5 Document purpose

This scoping report has been prepared to support a request for Secretary Environmental Assessment Requirements (SEARs) that would guide preparation of an EIS as part of a development application under Division 4.1 of Part 4 of the EP&A Act.

This report has been prepared in accordance with:

- *Large-Scale Solar Energy Guideline* (Department of Planning, Industry and Environment, 2022)
- *Large-Scale Solar Energy Guideline Technical Supplement - Landscape and Visual Impact Assessment* (Department of Planning and Environment, 2022b)
- *Preparing a Scoping Report Guidelines for State Significant Projects* (Department of Planning, Industry and Environment, 2021c)
- *Undertaking Engagement Guidelines for State Significant Projects* (Department of Planning, Industry and Environment, 2021d)
- *Social Impact Assessment Guideline for State Significant Projects* (Department of Planning, Industry and Environment, 2021b)
- *Cumulative Impact Assessment Guidelines for State Significant Project* (Department of Planning, Industry and Environment, 2021a).



## 2. SITE AND REGIONAL CONTEXT

### 2.1 Regional context

The regional context of the site is shown on **Figure 1-1**. The project is located within the Yass Valley LGA which has a population of approximately 17,281 and covers a total area of 3,995 square kilometres (Australian Bureau of Statistics, 2022d).

Major sources of employment within the region include agriculture, forestry, fishing and construction (Australian Bureau of Statistics, 2022d). The key land uses and economic activities within the region are centred around agriculture, with livestock and wool generating local employment and international exports (Yass Valley Council, n.d. b). Other land uses in the region include protected areas, national parks and nature reserves.

The Yass Valley region, once a former gold mining area, includes a number of historical sites such as the early settlement village of Bowning. Murrumbateman, once a former gold mining town, is now home to some 20 established boutique wineries.

The region is also known for its Aboriginal cultural heritage, with the traditional owners of the land being the Ngunnawal and Wiradjuri Tribes. Several locations within the Yass region are of cultural significance including North Yass, Edgerton, Hollywood, Bango Creek, Pudman Creek and Blakney Creek (Australian Institute of Aboriginal and Torres Strait Islander Studies, 2022). Two historical Aboriginal places are located within Yass being the Yass Aboriginal Cemetery and the Oakhill Aboriginal Reserve.

Nature reserves within the Yass Valley LGA include:

- Hattons Corner Nature Reserve (located 1.2 kilometres north west from the site)
- Mundoon Nature Reserve (located 11 kilometres east from the site)
- Bango Nature Reserve (located 12 kilometres north east from the site)
- Burrinjuck Nature Reserve (located 23 kilometres south west from the site)

Major highways in the region include the Barton Highway running north to south and the Hume Highway running east to west. Major railways in the region include the Main Southern line managed by Australian Rail Track Corporation (ARTC).

### 2.2 Local context

The project and surrounds are shown in **Figure 2-1**. The project is in the suburb of Yass which has a population of 5,837 (Australian Bureau of Statistics, 2022c). The Yass River flows through the town and is a tributary of the Murrumbidgee River. The Yass River and Murrumbidgee River converge approximately 15 kilometres south west of the project prior to discharging into the Burrinjuck Dam.

The project would be close to townships of Bowning (approximately 12 kilometres to the north west) and Murrumbateman (approximately 12 kilometres to the south east). Bowning is a historical village with a population of 619 (Australian Bureau of Statistics, 2022b). The township is located directly north of the Hume Highway between the connection of the Hume Highway with Lachlan Valley Way and Burley Griffin Way. Murrumbateman is a former gold mining town now home to boutique wineries. The township has a population of 3,219 (Australian Bureau of Statistics, 2022a) and is located on the Barton Highway.

Land immediately surrounding the project land is largely characterised by general and low density residential to the north east, rural and primary production lands to the south and west, and

special purpose zones such as infrastructure associated with the Transgrid Substation and transmission infrastructure.

**Figure 2-2** indicates the surrounding potential sensitive receivers to the project. Community consultation has been undertaken with key neighbouring landholders and the broader community. This is discussed further in **Section 6**.

The site is adjacent to Wee Jasper Road. The main local roads within the locality include Wee Jasper Road, Perry Street, Shearsby Crescent, Wades Road and Good Hope Road.

### 2.3 Site context

Details of the lots within the project land are provided in **Section 1.2.2** and a summary of the key site features is provided in **Section 2.4**. The project land covers an area of approximately 340 hectares comprised of five lots and two part lots as shown on **Figure 1-2**. Photos of the project land are also included (refer to **Photo 2-1** to **Photo 2-4**).

Properties that would be directly affected are privately owned by three landholders. ENGIE has entered into land agreements with associated property owners for the construction, operation and decommissioning of the project.

The project land is generally characterised as rural and is predominantly utilised for agricultural purposes, mostly sheep and cattle grazing.

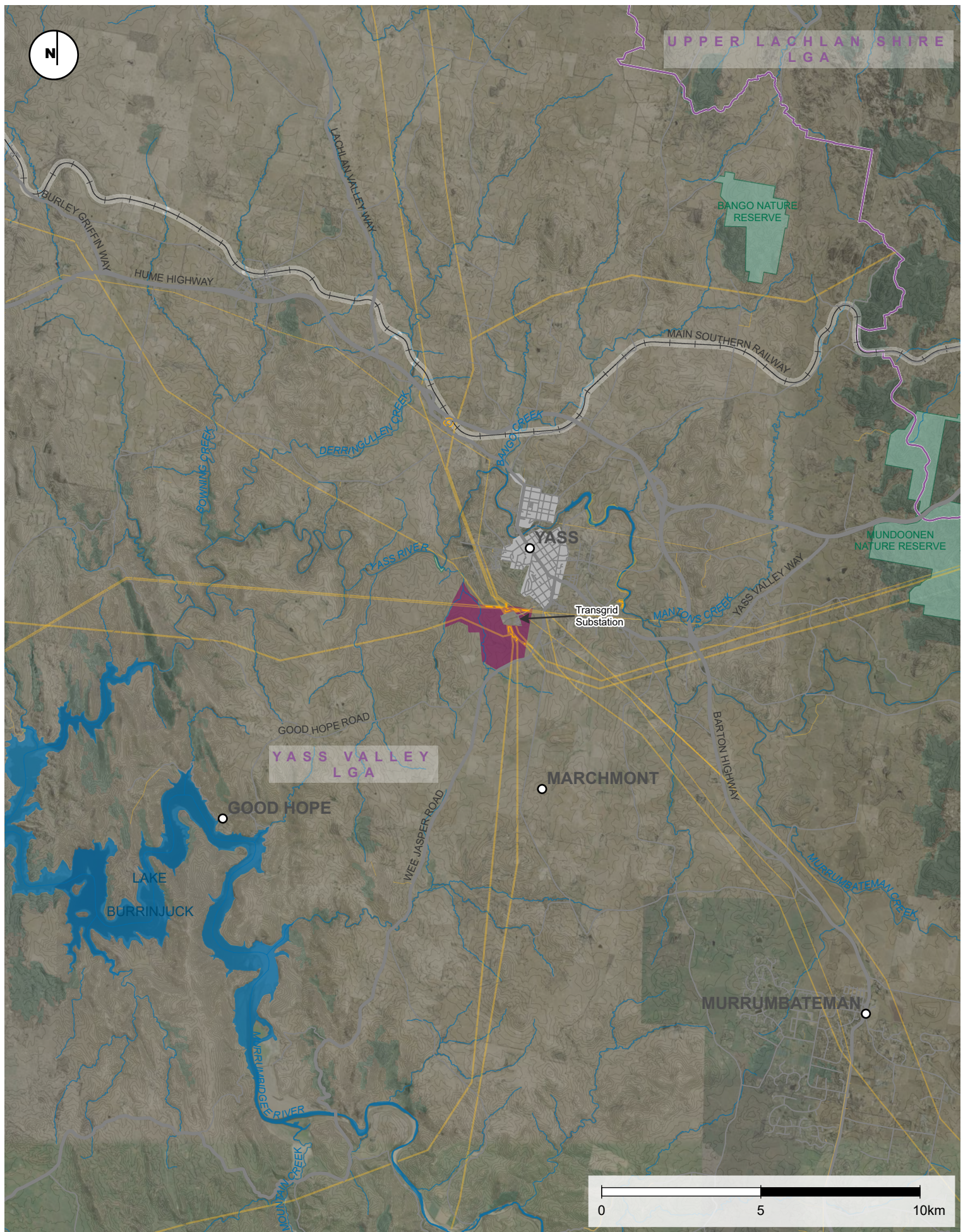
The elevation across the project land is generally between 460 metres and 530 metres Australian Height Datum (AHD).

The site would be accessed by via Perry Street with potential additional access point(s) to be determined during detailed design. The project is situated immediately adjacent to six 275 kilovolt transmission lines and seven 330 kilovolt transmission lines connected to the existing Transgrid Substation.

The project is in the Murrumbidgee and Lake George catchment. Watercourses within the Murrumbidgee and Lake George catchment which are located near the project include the Yass River and Booroo Ponds. The most substantial waterways within the project land include Booroo Ponds and anabranches and Rainbow Creek, refer to **Section 8.4.2**.

Areas of biodiversity value in the locality include biodiverse riparian land located within Booroo Ponds, which sits on the southern border of Lot 5 DP1165198, within Lot 7 DP15756, on the north western border of Lot 7141 DP1095199, and within Lot 7142 DP1095199 and throughout Lot 2 DP844272 (Department of Planning and Environment, n.d.). Further discussion on biodiversity within the project land is provided in **Section 8.3.1**.





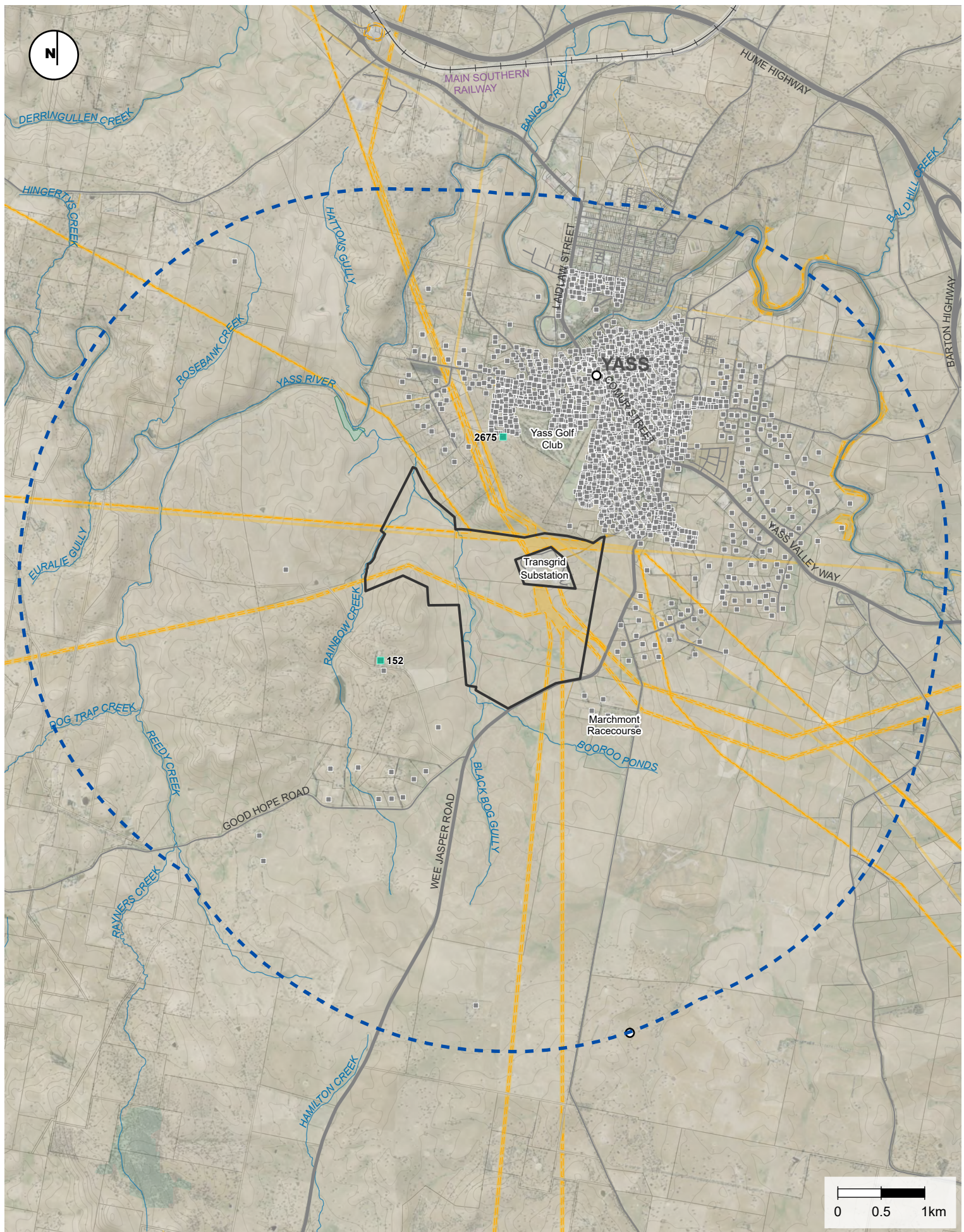
RAMBOLL AUSTRALIA - GIS MAP file : 318001526\_GIS\_P001\_ScopingReport\F002\_Locality\_V08  
Aerial photography from NSW Government Spatial Services

#### KEY

- |   |  |  |
|---|--|--|
| <span style="display: inline-block; width: 15px; height: 15px; background-color: purple; border: 1px solid black;"></span> Yass Solar Farm                        | <span style="display: inline-block; width: 15px; border-top: 1px solid black; border-bottom: 1px solid black;"></span> Railway | <span style="display: inline-block; width: 15px; height: 15px; background-color: lightgreen; border: 1px solid black;"></span> National Parks and Reserves |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; border: 1px solid black;"></span> Electricity transmission line easement | <span style="display: inline-block; width: 15px; border-bottom: 1px solid blue;"></span> Waterway                              |  |
|   | <span style="display: inline-block; width: 15px; border-bottom: 1px solid purple;"></span> LGA boundary                        |  |

Figure 2-1 | Locality Plan





RAMBOLL AUSTRALIA - GIS MAP file : 318001526\_GIS\_P001\_ScopingReport | F003\_SensitiveRecept\_V10  
Aerial photography from NSW Government Spatial Services

- KEY**
- |  |   |   |  |
|--|---|---|--|
| <span style="border: 2px solid black; display: inline-block; width: 20px; height: 10px;"></span> Project land                      | <span style="background-color: #008000; width: 10px; height: 10px; display: inline-block;"></span> Dwelling status                      | <span style="border-bottom: 2px solid blue; width: 20px; display: inline-block;"></span> Waterway | <span style="background-color: #90EE90; width: 20px; height: 10px; display: inline-block;"></span> National Parks and Reserves |
| <span style="border-bottom: 2px dashed yellow; width: 20px; display: inline-block;"></span> Electricity transmission line easement | <span style="background-color: #008000; width: 10px; height: 10px; display: inline-block;"></span> Associated                           | <span style="border-bottom: 2px dashed grey; width: 20px; display: inline-block;"></span> Railway |  |
|  | <span style="background-color: #cccccc; width: 10px; height: 10px; display: inline-block;"></span> Non-associated                       |   |  |
|  | <span style="border: 2px dashed blue; width: 20px; height: 10px; display: inline-block;"></span> 4km from the nearest solar array panel |   |  |

Figure 2-2 | Potential sensitive receptors





**Photo 2-1: Site context - 1**



**Photo 2-2: Site context - 2**










**Photo 2-3: Site context - 3**










**Photo 2-4: Site context - 4**






## 2.4 Summary of key site features



The key property, community, built and natural features of the project land and broader locality are provided below.

Property	
 Land zoning	Under the <i>Yass Valley Council Local Environmental Plan (2013)</i> land within the project land is zoned as C4 Environmental Living and SP2 Infrastructure.
 Land ownership	Properties within the project land are privately owned by three landholders.
 Crown Land	One Crown land parcel lies within the project land which separates Lot 7141 DP 1095199 and Lot 7142 DP 1095199.
 Native title	No Native Title claims are registered within the Yass Valley Council LGA.
 Mining and exploration licences	No mining and exploration licences occur within the project land.

The community	
 Population centres	The project is located within the Yass Valley within the suburb of Yass which has a population of 5,837 (Australian Bureau of Statistics, 2022c).
 Sensitive receivers	Potential sensitive receivers within a four kilometres radius of the development footprint are shown in <b>Figure 2-2</b> .
 Land use character and identity	Land immediately surrounding the project land is largely characterised by primary production, large lot and general residential and special purpose zones such as infrastructure.
 Aboriginal heritage	<p>The Traditional Owners of the project land are the Ngunnawal. The land is managed by the Onerwal Local Aboriginal Land Council (LALC). Two historical Aboriginal places are located within Yass:</p> <ul style="list-style-type: none"> <li>• Yass Aboriginal Cemetery (located two kilometres north from the project)</li> <li>• Oakhill Aboriginal Reserve (located four kilometres northeast from the project).</li> </ul> <p>Eight registered Aboriginal sites are recorded on the AHIMS database as being located within the project land.</p>

Built features	
 Roads	Major highways in the region include the Barton Highway running north to south and the Hume Highway running east to west. The project land is adjacent to Wee Jasper Road. The main local roads within the locality include Wee Jasper Road, Perry Street, Shearsby Crescent, Wades Road and Good Hope Road. The project would be accessed via Perry Street.
 Transmission lines	The project is situated immediately adjacent to six 275 kilovolt transmission lines and seven 330 kilovolt transmission lines connected to the Transgrid Substation.
 Historic heritage	There are no historic heritage items listed within the project land or immediately adjacent.

Natural features	
 Area of biodiversity value	No areas of Outstanding Biodiversity Value are located within the project land. Biodiverse riparian land is associated with Boroo Ponds and Rainbow Creek within the south and west of the project land (refer to <b>Section 8.3.1</b> ) (Department of Planning and Environment, n.d.).
 National parks, nature reserves, state conservation areas and forests	Nature reserves within the Yass Valley Council LGA include: <ul style="list-style-type: none"> <li>• Hattons Corner Nature Reserve (located 1.2 kilometres north west from the site)</li> <li>• Mundoon Nature Reserve (located 11 kilometres east from the project)</li> <li>• Bango Nature Reserve (located 12 kilometres north east from the site)</li> <li>• Burrunjuck Nature Reserve (located 23 kilometres southwest from the project)</li> <li>• Wee Jasper Nature Reserve (located 60 kilometres southwest from the project)</li> <li>• Brindabella National Park (located 74 kilometres south from the project).</li> </ul>
 Rivers and waterways	The project is in the Murrumbidgee and Lake George catchment. The Yass River runs north of the project land which originates from the Murrumbidgee River. The Booroo Ponds and Rainbow Creek branch from Yass River, intersecting the project land in a south east and south west direction respectively.
 Topography	The elevation across the project land is between 460 metres and 530 metres.
 Vegetation	Historically the project land would have been covered by forest or woodland. However, the land has historically been cleared and is currently largely characterised by grassland areas with scattered occurrences of woodland/forest and scattered trees.

Natural features	
 Habitat	<p>Due to the prevalence of grasslands, fauna habitats are limited. The existing watercourses largely lack riparian vegetation with grasslands extending up to the banks of the watercourses. Habitats within the grassland areas are largely limited to scattered occurrences of surface rock which provide some habitat for ground-dwelling reptiles (Cumberland Ecology, 2023).</p>
 Groundwater dependent ecosystems	<p>As per the Groundwater Dependent Ecosystems Atlas (Bureau of Meterology, 2023b), there is high and moderate potential for aquatic groundwater dependent ecosystems (GDE) to occur within the watercourses passing through the project land, being Booroo Ponds and Rainbow Creek respectively.</p>

### 3. STRATEGIC CONTEXT

#### 3.1 Strategic plans and policies

The project is supported by strategic planning both at the local level and at the State and Federal levels. At a strategic level, the project provides an opportunity to:

- support Australia's commitments to reduce greenhouse gas emissions
- contribute to NSW achieving net-zero emissions by 2050
- deliver on commitments in the Federal Government's RET Scheme
- assist in meeting energy demand and improving energy security and reliability for NSW.

A high-level discussion of the key strategic plans and policies and alignment with the project is provided in **Table 3-1**.

Visual representation of the project in context with the Yass Valley Settlement Strategy 2036 is provided in **Figure 3-1**.



Table 3-1: Project alignment with strategic plans and policies

Strategy, plan, or policy	Description and purpose	Project alignment
<b>National and international context</b>		
The 2015 United Nations Framework Convention on Climate Change (UNFCCC) "Paris Agreement"	<p>The Paris Agreement is a legally binding international treaty to combat climate change. The goal of the agreement is to limit global temperature rise this century to well below two degrees Celsius and to attempt to limit temperature increase to 1.5 degrees Celsius compared to pre-industrial levels (United Nations Framework Convention on Climate Change, 2022).</p> <p>The Australian Government has committed to reduce emissions by 26–28 per cent compared to 2005 levels by 2030.</p>	The project will contribute to meeting Australia's commitments through the generation of renewable energy and resultant annual reduction in greenhouse gas emissions.
Large-Scale Renewable Energy Target Scheme	<p>The Large-Scale Renewable Energy Target (LRET) incentivises the development of renewable energy power stations in Australia, through a market involving the creation and sale of certificates known as Large-Scale Generation Certificates (LGCs).</p> <p>The LRET involves the generation of an additional 33,000 gigawatt hours of additional renewable energy annually under the <i>Renewable Energy (Electricity) Amendment Bill 2015</i> (Clean Energy Regulator, 2022).</p>	Once operational, the project will generate up to 263 gigawatt hours of electricity annually contributing to the LRET target.
Integrated System Plan 2022	The Integrated System Plan (ISP) provides an integrated roadmap for the development of the National Electricity Market (NEM) over the next 20 years. The most recent ISP was released on 30 July 2022. The key objective of the ISP 2022 is to support Australia's highly complex and rapid energy transformation towards net zero emissions, enabling low-cost renewable energy and essential transmission to	<p>The project will contribute to addressing the objective of supplying renewable energy to provide consumers with reliable, and secure and affordable power.</p> <p>The project is outside the current REZs, however due to the location of the Transgrid Substation and existing transmission</p>

Strategy, plan, or policy	Description and purpose	Project alignment
	provide consumers with reliable, and secure and affordable power. The ISP 2022 identifies actionable and future projects that can achieve Australia's power needs (Australian Energy Market Operator, 2022). This includes the locations of proposed REZs in Australia that can connect to existing transmission networks.	infrastructure that pass through the project land it would not require the development of new transmission infrastructure that the REZ program is intended to facilitate.
<b>State context</b>		
Net Zero Plan Stage 1: 2020-2030	The Net Zero Plan Stage 1: 2020-2030 is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's plan to grow the economy, create jobs and reduce emissions over the next decade.	The project will contribute to meeting Australia's commitments through the generation of renewable energy and resultant annual reduction in greenhouse gas emissions.
New South Wales Electricity Strategy 2019	The New South Wales Electricity Strategy (NES) aims to address key challenges in providing "a reliable, affordable and sustainable electricity future that supports a growing economy". The strategy supports approximately \$8 billion of private investment in the New South Wales electricity system over a 10-year period, including \$5.6 billion in regional New South Wales. The plan also aims to generate 1,200 jobs, predominantly in regional New South Wales (Department of Planning, Industry and Environment, 2019).	The project is consistent with the NES as it provides renewable energy that, in combination with other renewable projects, is expected to result in lower cost of power in comparison to wholesale prices.

Strategy, plan, or policy	Description and purpose	Project alignment
NSW Electricity Infrastructure Roadmap 2020	The Electricity Infrastructure Roadmap is the NSW Government's plan to transform our electricity system into one that is cheap, clean and reliable. The roadmap emphasises the need for NSW to transition to renewable energy and aims to replace NSW's ageing coal-fired power stations with a coordinated portfolio of energy generation, storage and network investment. The roadmap is expected to help reduce NSW electricity emissions by 90 million tonnes by 2030 and support NSW to deliver on its net zero by 2050 ambitions (NSW Energy, 2020).	The project will contribute to achieving the vision of the roadmap by producing renewable energy to replace NSW's ageing coal fired power stations and would contribute to annual reductions in greenhouse gas emissions, in combination with other renewable projects.
<b>Regional context</b>		
South East and Tablelands Regional Plan 2036	The Regional Plan is the NSW Government's plan strategy for guiding land use planning decisions for the South East and Tablelands region for the next 20 years. Renewable energy is identified as a priority growth sector for the region with the aim to diversify the economy. The region aims to be a hub of renewable energy excellence taking advantage of the established network of high voltage transmission lines that traverse the region.	The project will contribute to the development of the region as a renewable energy hub. The location of the project aligns with the plan by locating the facility directly adjacent to the existing Transgrid Substation and associated high voltage transmission lines.
Southern Tablelands Regional Economic Development Strategy 2018 - 2022	<p>The strategy sets out a long term economic vision and associated strategy for three LGAs being:</p> <ul style="list-style-type: none"> <li>• Goulburn-Mulwaree</li> <li>• Upper Lachlan Shire</li> <li>• Yass Valley.</li> </ul> <p>The LGA's form an economic region and the strategy is aimed at growing the region's strengths to provide a highly liveable community with opportunities to strengthen and increase investment in regional development within the region.</p>	The project will strengthen the region's electricity network and development of renewable energy generation projects within the region.

Strategy, plan, or policy	Description and purpose	Project alignment
<b>Local context</b>		
Yass Valley Council Local Environmental Plan 2013	The LEP defines what land may be used for as well as development standards and controls that apply to the land. The development footprint includes land zoned as C4 Environmental Living and SP2 Infrastructure. Part 2 of the LEP details the development types allowed in each land zone.	<p>The project would be planned with consideration of the objectives of each of the zones (as described in Part 2 of the LEP) and identify how the project is consistent with these objectives and allows adjoining land to be developed in accordance with these objectives.</p> <p>The permissibility of solar farm developments in NSW is determined by the <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i> (Transport and Infrastructure SEPP).</p> <p>Clause 2.36(1) of the Transport and Infrastructure SEPP provides that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed non-residential zone. The development footprint is located on land zoned as C4 Environmental Living and SP2 Infrastructure under the Yass Valley Council LEP. The SP2 zoned land is a prescribed non-residential zone and therefore the project is partly permitted with consent.</p> <p>Clause 4.3.8(3) of the <i>Environmental Planning and Assessment Act 1979</i> states that development consent for an SSD may be granted despite the development being partly</p>

Strategy, plan, or policy	Description and purpose	Project alignment
		prohibited by an environmental planning instrument, refer to <b>Section 5</b> .
Yass Valley Council Local Strategic Planning Statement 2036	The Yass Valley Settlement Strategy seeks to compliment the Regional Plan detailing a comprehensive settlement strategy for the Yass Valley LGA. The Strategy includes recommendations as to how the Yass Valley Council can approach current and future urban growth pressures to deliver environmentally, economically and socially sustainable settlements for the period 2016-36 and beyond.	<p>A preliminary analysis has been undertaken on the key sites identified within the Settlement Strategy for rezoning in the future. As can be seen by <b>Figure 3-1</b>, the project land does not impede on areas identified within the Strategy.</p> <p>The Transgrid Substation and network of transmission lines has been identified as a limitation to settlement growth to the west and south-west of Yass. Development of this land utilising the existing infrastructure enables use of this land and economic benefits to the local and regional markets.</p>



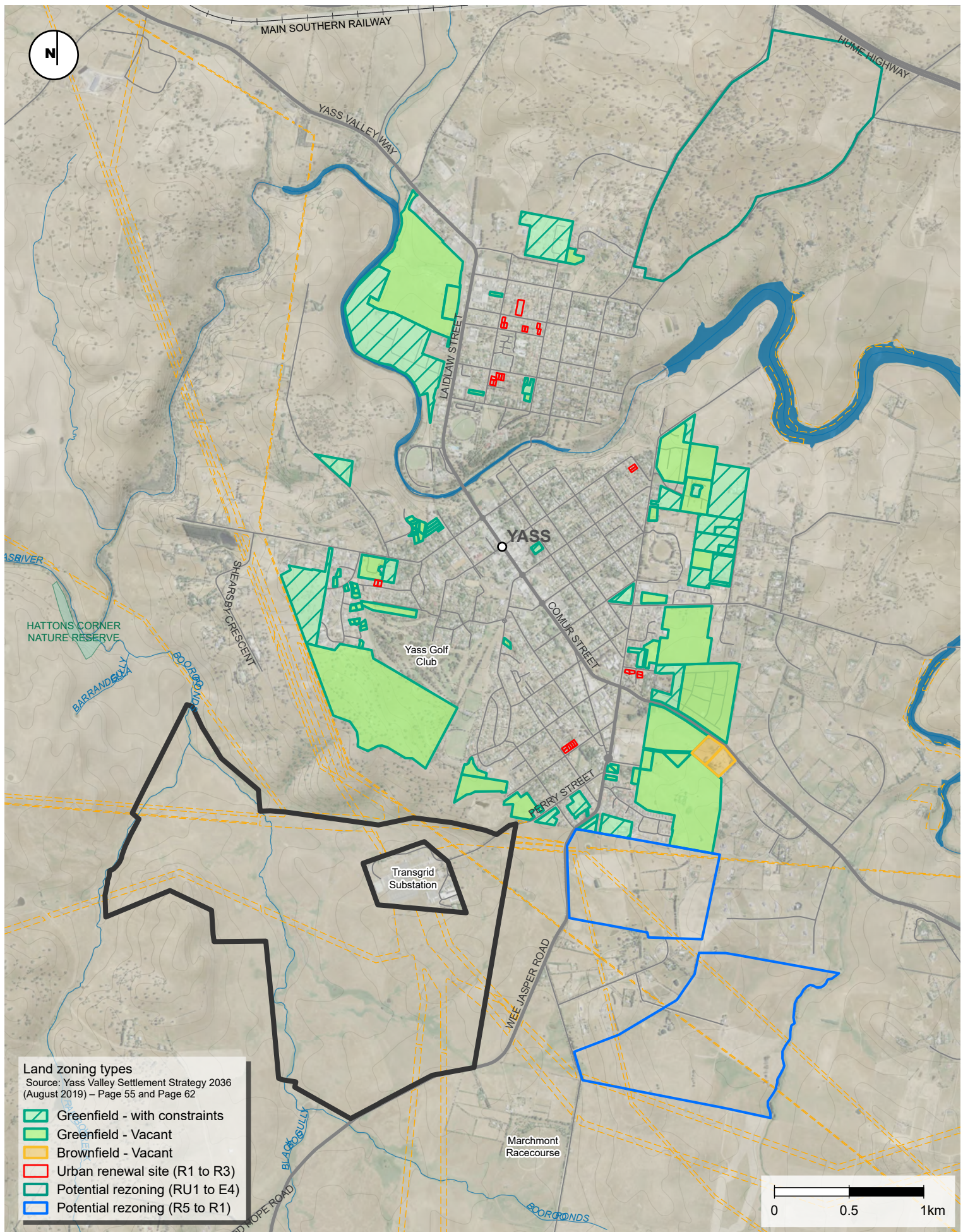









Figure 3-1 | Yass Solar Farm overlay on Yass Valley Settlement Strategy's proposed rezoning sites



### 3.2 Key risks or hazards

The key risks or hazardous features that have the potential to affect the project land are outlined below.

 Flooding	The project land is not identified as flood prone land. No flood studies have been conducted which include the project land. A flood model will be developed to appropriately characterise the flood behaviour during the EIS.
 Bushfire	The project land is within a designated bush fire prone area as category 3 vegetation (refer to <b>Section 8.3.5</b> ).
 Contamination	No known contaminated sites have been identified within the project land (refer to <b>Section 8.4.1</b> ).
 Climate change	<div>  </div> <p>The project land is projected to experience a 0.7°C increase in the daily average temperature in the near future (2020-39) and an additional 0.7°C increase in the far future (2060-79) (AdaptNSW, 2022).</p> <div>  </div> <p>Rainfall is projected to change by +5% per year in the near future and by -5% per year in the far future (AdaptNSW, 2022).</p> <div>  </div> <p>The number of high fire danger days per year is expected to increase by 0.5 days per year in the near future and by 1 day per year in the far future (AdaptNSW, 2022).</p>

### 3.3 Cumulative considerations

The major projects in the Yass Valley region include:

- Yass Valley Wind Farm
- Wallaroo Solar Farm
- Nanima Road rehabilitation.

Consideration of the project within the context of the above projects as well as other major projects proposed within a 100 kilometre radius is addressed in **Section 8.5**.

### 3.4 Site selection and justification

The project land has been identified as a viable location for a solar photovoltaic facility due to the proximity of the existing Transgrid Substation and high voltage transmission network, and available connection capacity.

The site also has:

- available and suitable land for a project of suitable size to justify connection costs
- existing rural land uses surrounding the site and low density of surrounding dwellings
- willingness of landholders to be involved in the project
- topography suitable for a photovoltaic facility with minimal earthworks
- limited areas of intact native vegetation
- accessibility from the local and regional road network
- visual protection from the Yass township provided by a natural ridge line.



A summary of the key technical, site and environmental factors considered is presented in **Table 3-2**.

**Table 3-2: Key factors consideration in site selection**

Factor	Considerations and justification
<b>Technical feasibility</b>	
Quality of solar resource	The solar resource within the project land has shown that the area has potential for a solar farm to productively generate electricity.
Suitability of land topography for solar arrays and associated infrastructure	Proximity of existing electricity generating infrastructure provides an opportunity to the project. The site topography and efficiency for solar radiation would be considered further in ongoing development of the project layout.
Landholder discussions and property constraints	All solar arrays and associated infrastructure are proposed to be located on freehold land. Waterways and parcels of Crown land would be avoided where practicable.
Availability and capacity of connection to the NEM	The project would connect to the existing Transgrid Substation and associated transmission infrastructure.
<b>Site and environmental constraints</b>	
Renewable Energy Zones	The project is not located within a REZ. The project is however located in close proximity to the existing Transgrid Substation and associated transmission infrastructure. The project would therefore not require development of new transmission infrastructure that the REZ program is intended to facilitate.
Proximity to regional cities	The closest regional city is Goulburn, which is approximately 72 kilometres to the east of Yass and within the Goulburn-Mulwaree Council local government area. Wagga Wagga is the next closest regional city, more than 140 kilometres to the south west of the site. The site is approximately 33 kilometres north of the New South Wales and Australian Capital Territory border.
Important agricultural land	The site does not include mapped Biophysical Strategic Agricultural Land. Siting of solar arrays and associated infrastructure would be determined with consideration of land quality and agricultural practices.
Visibility and topography	Visual protection from the Yass township is provided by a natural ridge line to the north of the site. Siting of solar arrays and associated infrastructure would be determined with consideration of visual impacts to sensitive receivers.
Biodiversity	Large areas of the site are disturbed/grazing and improved pastures. Biodiversity constraints would be considered further in ongoing development of the project layout, with the view to avoid and minimise impacts to biodiversity and remnant native vegetation.

Factor	Considerations and justification
Aboriginal cultural heritage	Places of Aboriginal significance are located within the development footprint and generally associated with the watercourses. Aboriginal cultural heritage constraints would be considered further in ongoing development of the development footprint with the view to avoid and minimise impacts to items or places of significance to the Aboriginal people and culture

### 3.5 Community Benefit Sharing Framework

ENGIE is committed to sharing the benefits of its projects and creating positive social and economic outcomes for local stakeholders. ENGIE are in the early stages of developing a community benefit sharing framework for the Yass Solar Farm and intend to work closely with the community and other key stakeholders to help understand local needs and explore opportunities to share the benefits of the project.

Specifically, the Community Benefit Sharing Program would aim to:

- give back to the communities that host our projects
- support and build stronger, more resilient communities
- contribute to achieving local plans and goals
- develop positive and lasting relationships with the communities where we operate
- encourage cooperation among community groups, local organisations and neighbouring renewable projects to achieve long-lasting positive outcomes.

The Yass Solar Farm would provide a range of direct and indirect economic benefits including local employment and contractor opportunities, with increased spending and activity in the local economy. ENGIE will work with Yass Valley Council on a range of benefit sharing opportunities and community-led initiatives.

#### 3.5.1 Yass Valley Council

As part of early engagement activities, ENGIE has undertaken preliminary discussions with Yass Valley Council and other key stakeholders regarding community benefit programs and broader initiatives, refer to **Section 6.4**.

Yass Valley Council has a standard Voluntary Planning Agreement (VPA) template established, which outlines the required percentage of project capital expenditure to be committed towards community benefits, and to be spread across the asset life in annual payments, increasing by Consumer Price Index (CPI).

Yass Valley Council has also issued a letter to ENGIE which includes the following recommendation:

- a commitment to implement provisions of Council's Community Enhancement Fund Policy DA POL 20 and engage in a dialogue with Council and the Community to deliver benefits to the community, which may include but not limited to:
  - initial and ongoing monetary contributions towards the community.
  - local energy discounts scheme for the Yass Township.

ENGIE will continue to engage with Yass Valley Council throughout the approvals process to identify unique opportunities and deliver significant benefits for the Yass region, such as community and neighbour benefit sharing programs and VPAs.

### **3.5.2 Near neighbours and the community**

ENGIE intends to work with local businesses where possible to stimulate the local economy and supply chains. ENGIE are firmly committed to creating jobs for local people and engaging with Indigenous and local suppliers.

As the project progresses and in consultation with the community, additional opportunities would be developed such as grants, scholarships and sponsorship programs that provide significant benefits to the local community.

If successful, ENGIE would be committed to launching special offers and campaigns for local residents in co-operation with the retail business Simply Energy, which would aim to be provided upon operation of Yass Solar Farm.

### **3.6 Project need**

2022 has seen electricity prices in NSW and Australia significantly rise. In May 2022, the NSW short-term wholesale price of electricity was reportedly 80 per cent higher than in 2021 while National wholesale energy prices had increased 140 per cent in 12 months. The Australian Energy Regulator announced an 18.3 per cent increase to benchmark electricity price, taking effect in July 2022, expected to further increase the price of electricity (AAP Consulting, 2023).

In June 2022, the Australian Energy Market Operator (AEMO) suspended wholesale spot market trading on the East Coast of Australia to ensure reliable supply. Price caps implemented by AEMO to limit rising electricity costs, resulted in unprofitable conditions for electricity generators. Consequently, electricity generators withdrew from the energy market, reducing supply in a period of notably high demand. This nexus of high demand and high energy production cost has highlighted vulnerabilities within the East Coast energy market (AAP Consulting, 2023).

A key driver in State and National electricity prices has been the increasing cost of fossil fuel energy sources. Instability and restriction of global supply chains, exacerbated by conflict in the Ukraine, have led to market prices for fossil fuels to increase notably in Australia. Renewable energy and energy storage have been identified as an appropriate measure to reduce energy prices and reduce State and National vulnerability to global instability (AAP Consulting, 2023).

NSW is currently undergoing an energy sector transformation. The NEM (managed by the AEMO) is transitioning from a system dominated by a small number of large coal-fired generators to one of diverse renewable and distributed energy generation and storage. Modelling indicates that 14 gigawatts (60 per cent of current coal capacity) may be withdrawn by 2030 and all coal generation could withdraw by 2040 (Australian Energy Market Operator, 2022).

The closure of large coal-fired power stations has the potential to put pressure on the future supply of energy, particularly when considering that electricity consumption in NSW is forecast to increase in the future (Australian Energy Market Operator, 2022). This highlights the urgent need to develop and connect new renewable energy to the NEM, noting that more renewables are required to replace conventional generators because of their lower capacity factors due to the intermittency of the electricity that they produce (Australian Energy Council, 2017).

Australia's vast natural capital means that it has one of the best solar and wind resources on the planet, setting viable foundations for a strong renewable sector, particularly in rural environments. The construction of wind farms in Australia forms part of the wider transition toward renewable energy and a more sustainable future for the country (AAP Consulting, 2023).

The NSW Government is leading the development of REZs across NSW. Five REZs have been announced in NSW, of which four have been formally declared. The four REZs include:

- Central-West Orana
- New England
- Hunter-Central Coast
- South West.

A fifth REZ in the Illawarra region has been drafted.

Although the project is not located within a REZ the project is justified and in the public interest as:

- it is suitably located in a region with ideal climatic and physical conditions for large-scale wind energy generation
- it is close to the proposed Central West Orana REZ transmission line providing a connection to dispatch electricity to the NEM
- it would largely affect agricultural land uses that are compatible with large-scale wind energy generation
- it would not result in significant biophysical, social or economic impacts
- it would create employment opportunities and benefits to the local and regional economy.

The consequences of not proceeding with the project would include:

- loss of opportunity to reduce greenhouse gas emissions and move towards cleaner electricity generation
- loss of a renewable energy supply that would assist in reaching the RET
- loss of additional electricity generation and supply into the NEM
- loss of social and economic benefits created through the provision of direct and indirect employment opportunities during the construction and operation of the project, as well as flow on social and economic benefits.

## 4. THE PROJECT

### 4.1 Project components

#### 4.1.1 Overview

The project would include the following key components:

- up to approximately 220,000 single axis tracking photovoltaic modules (solar panels)
- electrical infrastructure including:
  - approximately 30 power conversion units (PCUs) which include inverters for converting direct current (DC) power to alternating current (AC)
  - onsite substation containing two main transformers and associated switchgear
  - overhead and underground electrical reticulation connecting the solar farm elements
  - onsite connection from the substation via a new 330 kilovolt underground/ overhead transmission line connecting into the Transgrid Substation
  - BESS with 250 megawatt / 500 megawatt-hour capacity
- other permanent onsite ancillary infrastructure including:
  - operational and maintenance facility
  - a temperature-controlled spare parts storage facility
  - SCADA facilities
  - a workshop and associated infrastructure
  - access roads, both to the project and internal access roads
  - carparking area
  - security fencing and landscaping
- temporary construction ancillary infrastructure including:
  - construction compounds
  - laydown areas
  - parking areas
  - access tracks and associated infrastructure, including gates and fencing
  - potential construction workforce accommodation.

Indicative locations of infrastructure are presented in **Figure 4-1**.

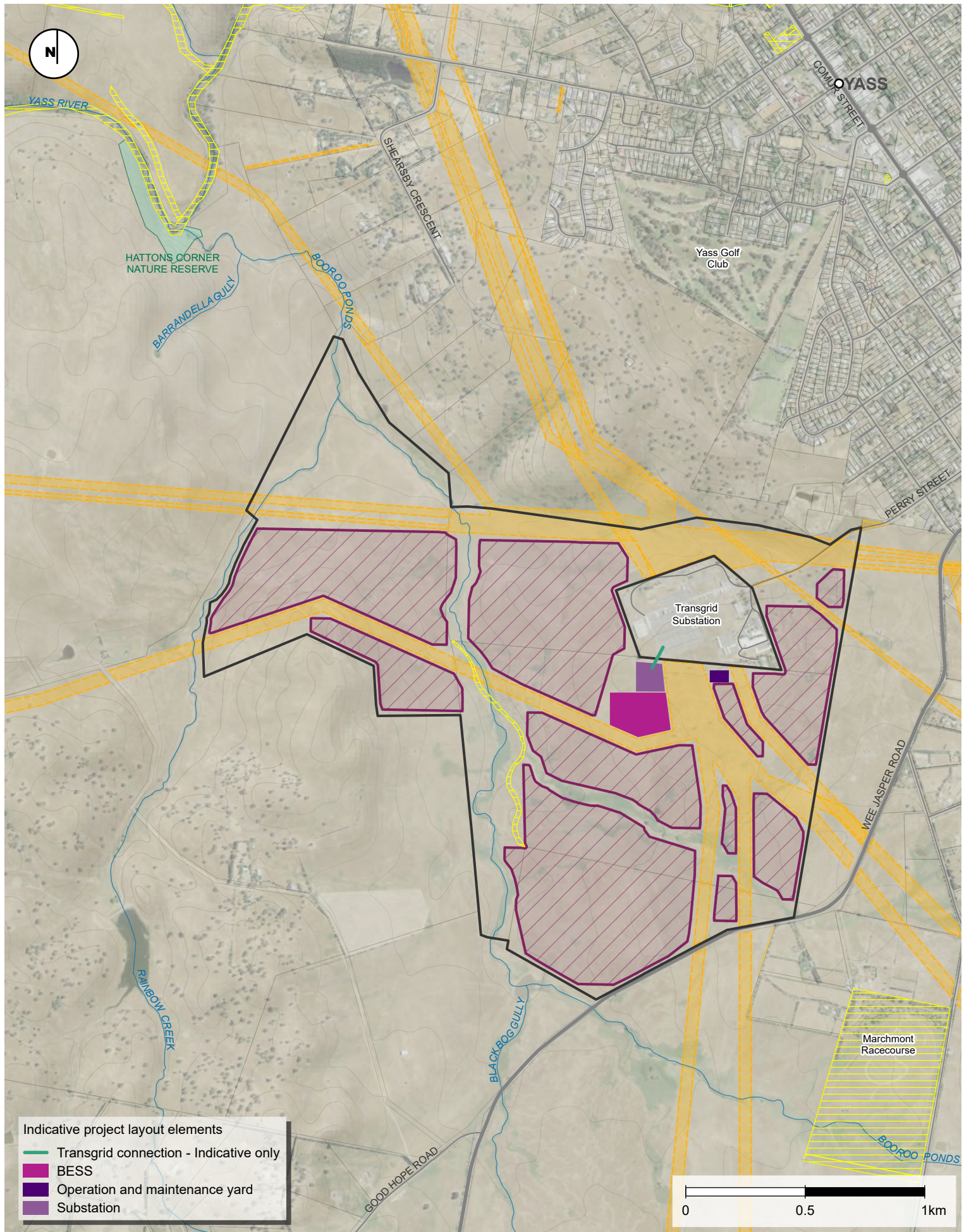
At the end of its operational life, the project would be decommissioned and land that is impacted by the project would be appropriately rehabilitated in consultation with the affected landholders.

#### 4.1.2 Solar panels

The project would include arrays of photovoltaic modules. The size and number of photovoltaic modules and inverters required to reach the proposed capacity is subject to detailed design and further refinement during the detailed design and EIS process.

The modules would be mounted on single-axis tracking mounting structures, which allow the modules to track the sun throughout the day. Compared to fixed-tilt mounting systems, single-axis tracking mounting structures capture more of the sun's energy and therefore generate more power. An example of typical solar panel arrays is provided in **Figure 4-2**.





RAMBOLL AUSTRALIA - GIS MAP file : 318001526\_GIS\_P001\_ScopingReport | F004\_SiteLayout\_V14  
Aerial photography from NSW Government Spatial Services

Figure 4-1 | Project layout





**Figure 4-2: Example of photovoltaic arrays**

The module configuration would be determined during detailed design and would depend on market availability.

Depending on the final technology selected, the height of the bottom of the solar modules would typically range from 0.3 to 1.5 metres above ground level. The maximum height of modules is anticipated to be up to a maximum of three metres above ground level.

The footings that would be used for the mounting structures would comprise either screw piles, driven piles (with or without pre-drilling), concrete footings, or a combination, such as driven piles with concrete filling. The final footing selection would be subject to geotechnical investigations and determined through development of the detailed design for the project.

The modules would be typically installed in parallel rows with approximately 5 to 11 metres space between each row allowing for each module to tilt from -60 degrees to +60 degrees. The rows of the modules would typically be aligned in a north-south direction, allowing the panels to tilt from east to west during the day, tracking the sun's movement. The layout of each array would be refined based on further environmental assessment undertaken in the EIS, development of detailed design, and in consultation with stakeholders.

#### **4.1.3 Power conversion units**

The solar panels would be connected to power conversion units, which would be situated throughout the development footprint. The power conversion units convert the DC electricity generated by the photovoltaic modules into AC and step up the voltage to reduce losses. Approximately 30 power conversion units would be required for the project.

The power conversion units typically comprise three main components: inverters, transformers and a ring main unit. The power conversion units would be positioned between the arrays and the access tracks and would be assembled on a concrete pad or footings. A typical power conversion unit could be expected to be up to 4.5 metres high, 13 metres long, and up to three metres wide.

The final type, design and quantity of the power conversion units would be dependent on relative cost, efficiency, and reliability of units available on the market at the time of detailed design.

### **Inverters**

Inverters convert the DC electricity into AC to allow the solar generated energy to be fed into the electricity grid. The final selection of inverters would be undertaken during detailed design and would consider factors such as minimising maintenance, maximising reliability and the optimal amount of redundancy.

### **Transformers**

As part of each power conversion unit, skid-mounted transformers would be installed to step up the voltage to the internal reticulation voltage across the solar farm. One or more main transformers would also be installed in the project substation to step up the internal reticulation voltage to the connection point voltage.

#### **4.1.4 Electrical reticulation**

Underground or aboveground cables would be installed to connect each power conversion unit, both in the solar farm and BESS, to the project substation. The energy would then be transformed into a higher voltage via one or more transformers to match the voltage of the transmission network. An underground/ overhead high voltage transmission line would then transport the energy to the existing Transgrid Substation via a new 330 kilovolt underground/ overhead transmission line, to then be dispatched to the Transgrid electricity transmission network.

#### **4.1.5 Battery energy storage system and substation**

##### **Battery energy storage system**

The Battery Energy Storage System (BESS) would allow for the storage and export of renewable energy within the network so that it can be used during times of peak demand (energy arbitrage). It would also provide various Market Ancillary Services to the NEM, assisting in network stabilisation and facilitating higher volumes of renewable energy generation.

The BESS is expected to include a combination of solid structures or enclosures housing the batteries, power conversion units, and a range of cables and overhead conductors, providing a total capacity of approximately 500 megawatts per hour of storage. The specific height of structures within the battery storage area are not expected to exceed 4.5 metres in height.

Advances in battery storage technology have been continuous and rapid. Commercial scale battery storage is a relatively new technology that is rapidly evolving and decreasing in cost. Due to this rapidly evolving technology, the final technology choice and battery storage capacity for the project is subject to final selection and detailed design.

##### **Substation and grid connection**

Underground or above-ground cables would run from each power conversion unit (solar and BESS) to the project substation, where the voltage would be transformed to align with the voltage of the transmission network. The project substation would be connected to the existing Transgrid electricity network via a new 330 kilovolt underground/ overhead transmission line.

An indicative location of the BESS and project substation within the project land has been shown on **Figure 4-1**. A location near the Transgrid Substation would be favourable to minimise electricity losses. The footprint of the BESS and project substation would have a combined area of approximately 5.5 hectares, subject to further refinement.

#### **4.1.6 Permanent on-site ancillary infrastructure**

In addition to the infrastructure described above, a compound area of approximately two hectares would be required. The compound would house the substation and control room along with the following ancillary infrastructure:

- an administration building including meeting facilities and amenities
- operations and maintenance workshop
- spare parts storage facility
- onsite car parking area to be located near the administration building.

In addition, the following ancillary infrastructure would be provided within the development footprint:

- permanent lighting and CCTV
- security fencing and vegetation screen
- lightning protection.

The buildings would likely be single story structures up to six metres high (subject to detailed design). These structures would be set back from the road frontages and sited near the primary site access point to allow for ease of access for the workforce, to maximise the area available for the solar arrays and provide sufficient area for the BESS.

An indicative location for the compound area (operations and maintenance yard) is shown on **Figure 4-1** and the final location and configuration is subject to detailed design.

The compound area facilities would be connected to the local electricity supply to provide amenities for the administration and control buildings. Water requirements would be provided for within the compound area via rainwater tanks or mains water connection (if available and in consultation with Yass Valley Council). Ongoing water requirements would include amenities (with appropriate pumps and filters), washing of modules, and firefighting requirements.

On site sewerage treatment would be required for the construction phase of the project. The sewerage treatment solution would be provided in accordance with Yass Valley Council requirements and preferences, and location of the system would be determined based on the detailed design for the project.

Lighting and CCTV would be installed for the duration of the operational stage of the project, including low level night-time lighting. Lighting would be required for safety, maintenance, and security purposes and would likely be provided in key locations of the compound area and potentially at power conversion units around the solar farm and the BESS. Lighting outside of these key locations would only be switched on if maintenance activities are required at night.

Security fencing would be installed along the perimeter of the site. A vegetation screen would be provided if and where required. Separate fencing would also be provided around high voltage electrical equipment such as the project substation. The height of the fencing is not anticipated to be greater than three metres.

Lightning protection masts would be installed in the project substation and may also be installed at some power conversion units, with the final number and siting to be determined during detailed design and dependent on meteorological conditions at the site. The lightning protection masts are typically thin, tubular structures, and between ten and 21 metres tall (subject to detailed design), with a concrete base and earthing.

The specific locations for the permanent onsite ancillary infrastructure would be confirmed during detailed design of the project and would be located entirely within the development footprint. Some facilities may also be amalgamated to service a combination of technologies, subject to detailed design.

#### **4.1.7 Access track network**

The solar farm and BESS would require an access track network to enable both access to the site for maintenance and emergency service vehicles from the surrounding road network, and access between infrastructure within the site. All site access arrangements would be developed in consultation with Yass Valley Council and landowners.

The access track network would comprise internal tracks of approximately four metres wide between the solar arrays and power conversion units to allow for sufficient vehicle manoeuvring, including large vehicle deliveries. These tracks would also provide access to the project substation, BESS, and associated infrastructure. Gates would be installed where the access tracks meet the perimeter road to restrict access.

The access track network would be appropriately designed, constructed, and maintained to allow for necessary access to solar and electrical infrastructure for all stages of the project. The design of the access network, including access points from the public road network, is subject to detailed design.

#### **4.2 Property and easements**

The project land comprises six properties all privately owned.

The high voltage transmission line connecting the project substation to the Transgrid Substation may require an easement or other agreement depending on its location.

During operation, an agreement may be required for the ongoing operation and maintenance of the transmission line. This agreement would include certain limitations for landholders relating to the use of the land within the easement, to ensure the safe operation of the infrastructure and minimise risks to safety. The number of properties requiring lease agreements and easements for the transmission line would be determined and assessed as the design develops.

Upon the decision made to decommission the solar farm and BESS, infrastructure would be decommissioned, and land would be appropriately rehabilitated in consultation with the landholders and use would be returned to the landholder.

#### **4.3 Project staging, timing and sequencing**

The project includes the following key stages:

- construction
- operation
- decommissioning.

#### **4.4 Construction**

##### **4.4.1 Construction phases**

Construction of the project would be undertaken in the following phases:

- **Phase 1. Detailed design and site investigations:** Detailed design, including the design of electrical reticulation, geotechnical investigation and design, and other project elements.



- **Phase 2. Site preparation:** Pre-construction activities such as site preparation and vegetation clearing, installation of environmental management measures (such as erosion and sediment controls) and protection mechanisms for watercourses and exclusion zones, utility adjustments, erection of site and workers compounds; and upgrades to public roads if required (refer to **Section 4.4.3**)
- **Phase 3. Main construction works:** Onsite civil works including access tracks and permanent drainage works, solar arrays, BESS and electrical infrastructure construction (if the BESS is constructed concurrently), installation of electrical reticulation and ancillary infrastructure
- **Phase 4. Commissioning:** Activities to be undertaken prior to operation such as testing of modules and tracks and energising substations.

#### 4.4.2 Temporary construction ancillary facilities

Several temporary construction ancillary facilities would be required during construction. These would typically include:

- construction compounds – inclusive of site offices, car parking and amenities
- laydown areas – suitable for plant and equipment
- construction access tracks and associated infrastructure such as gates and fencing.

The locations of all temporary infrastructure would be determined following detailed site investigations during preparation of the EIS. Where possible, areas that are to be disturbed through the temporary construction activities would be repurposed for operational uses to prevent further land disturbance.

#### 4.4.3 Haulage routes

Investigations into the suitable access route for construction would be undertaken in consultation with Yass Valley Council and Transport for NSW. It is anticipated that materials would primarily arrive via the most effective route and be transported to site by heavy vehicles up to B-double in size, however some oversize overmass vehicles may also be required.

#### 4.4.4 Construction program, hours and workforce

The timing of construction would be dependent on project approval; however, it is expected to commence in 2025 and run for a period of approximately 24 months. Phase 2, site preparation, is expected to take six months followed by Phase 3, main construction works, for an approximate 18 month period. The peak construction period would include the first three to six months of the main construction works.

The project would likely require up to 150 construction workers during peak periods, which are expected to be during Phase 3 of the project when the main construction works would be undertaken (refer to **Section 4.1.1**). However, the construction program and workforce are subject to detailed design, construction methodology and scheduling. Opportunities would be available for local construction workers to maximise the local work force onsite. Further details would be included in the EIS, including a consideration of the potential cumulative impacts associated with accommodation, infrastructure, and services as part of the social impact assessment.

Construction would be undertaken during standard daytime construction hours consistent with the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009) (ICNG) which are:

- 7am to 6pm Monday to Friday
- 8am to 1pm on Saturdays

- No works on Sunday or public holidays.

The construction program, hours and workforce is subject to detailed design, construction methodology and scheduling. Further details will be included in the EIS, including a consideration of the potential cumulative impacts associated with accommodation, infrastructure, and services as part of the social impact assessment.

#### **4.5 Operation**

The project would likely operate 24 hours per day, seven days per week with the operations and maintenance team attending site during standard working hours unless responding to an alarm, fault, or major maintenance works. Approximately two full time equivalent employees would be required to operate and maintain the solar farm.

Ongoing monitoring and maintenance would be required, including maintenance of the solar panels, associated infrastructure, vegetation, and internal access tracks.

The expected operating life for the solar farm is 30 years before any major replacements or refurbishments would be required. At a point in time prior to the end of the projects operating life, and according to equipment performance, equipment condition and project viability, ENGIE would consider whether to either repower or decommission the project at the end of the project's life.

#### **4.6 Decommissioning**

Should it be determined that the project would be decommissioned, associated infrastructure would be decommissioned and removed for sale, recycling or disposal. Access tracks and hardstand areas would be remediated to prepare a suitable soil profile for subsequent sowing with an appropriate ground cover mix. Land impacted by the project would be appropriately rehabilitated in consultation with the affected landholders.

#### **4.7 Alternatives considered**

ENGIE purchased the Yass Solar Farm project from Tetris Energy in 2022. As stated in **Section 1.2.4**, in March 2020 DPE issued the SEARs for this project. ENGIE has extended the previously proposed project land by including an additional three land parcels.

ENGIE will assess alternative configurations and potential development footprints to those identified by Tetris Energy and explore the usability of the additional project area.

## 5. STATUTORY CONTEXT

The key statutory considerations for the project under the EP&A Act and other relevant NSW and Commonwealth legislation are outlined in **Table 5-1**. The relevant statutory requirements for the project will be outlined in further detail within the EIS.

**Table 5-1: Statutory requirements for the project**

Matter	Requirements for the project
<b>Power to grant consent</b>	<p>The project meets the threshold for SSD and is subject to assessment under Part 4 of the EP&amp;A Act. Approval for the project will be sought under Part 4, Division 4.7 of the EP&amp;A Act.</p> <p>Under Section 4.36(2) of the EP&amp;A Act, a State Environmental Planning Policy (SEPP) may declare any development, or any class or description of development, to be SSD. Under the provisions of Clause 2.6(1) of <i>State Environmental Planning Policy (Planning Systems) 2021</i> (Planning Systems SEPP), a development is classified as SSD if:</p> <p style="padding-left: 40px;">(a) <i>the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and</i></p> <p style="padding-left: 40px;">(b) <i>the development is specified in Schedule 1 or 2.</i></p> <p>Schedule 1, Clause 20 of the Planning Systems SEPP determines 'electricity generating works' to be SSD if it meets the following criteria:</p> <p style="padding-left: 40px;"><i>Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:</i></p> <p style="padding-left: 40px;">(a) <i>has a capital investment value of more than \$30 million.</i></p> <p>The project is a development for the purpose of electricity generation and exceeds the threshold for SSD with a capital investment value of more than \$30 million.</p> <p>Under Division 4.2, Section 4.5 of the EP&amp;A Act the consent authority for SSD is the Independent Planning Commission (if the development is of a kind for which the Commission is declared the consent authority by an environmental planning instrument) or the Minister (if the development is not of that kind).</p>
<b>Permissibility</b>	<p>The permissibility of solar farm developments in NSW is determined by <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i> (Transport and Infrastructure SEPP).</p> <p>Clause 2.36(1) of the Transport and Infrastructure SEPP provides that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed non-residential zone. The development footprint is on land zoned as C4 Environmental Living and SP2 Infrastructure under the Yass Valley Council LEP. Although C4 Environmental Living is not a prescribed non-residential zone as defined by Clause 2.35, the SP2 Infrastructure zone is and works within SP2 land is therefore permissible with consent.</p> <p>Under Clause 4.38(3) of the <i>Environmental Protection and Assessment Act 1979</i>, a SSD may be granted development consent despite the development being partly prohibited by an LEP. The development, which</p>

Matter	Requirements for the project
	includes both SP2 and C4 zoned land, may therefore be permitted with consent.
<b>Other approvals</b>	<p><b>Approvals not required for SSD</b></p> <p>Clause 4.41 of the EP&amp;A Act clarifies that development consent for SSD includes authorisations under the following statutory provisions, meaning that separate planning approval processes do not apply for:</p> <ul style="list-style-type: none"> <li>• a permit under section 201, 205 or 219 of the <i>Fisheries Management Act 1994</i> (FM Act)</li> <li>• an approval under Part 4, or an excavation permit under section 139, of the <i>Heritage Act 1977</i></li> <li>• an Aboriginal Heritage Impact Permit (AHIP) under section 90 of the <i>National Parks and Wildlife Act 1974</i></li> <li>• a bushfire safety authority under section 100B of the <i>Rural Fires Act 1997</i></li> <li>• a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the <i>Water Management Act 2000</i> (WM Act).</li> </ul> <p><b>EPBC Act Approval</b></p> <p>Any action which could have a significant impact on a MNES must be referred to the Minister for the Environment and Energy. The nine MNES protected under the EPBC Act are:</p> <ul style="list-style-type: none"> <li>• World heritage properties</li> <li>• National heritage places</li> <li>• wetlands of international importance (listed under the Ramsar Convention)</li> <li>• listed threatened species and ecological communities</li> <li>• migratory species protected under international agreements</li> <li>• Commonwealth marine areas</li> <li>• The Great Barrier Reef Marine Park</li> <li>• nuclear actions (including uranium mines)</li> <li>• a water resource, in relation to coal seam gas development and large coal mining development.</li> </ul> <p>A search of the Commonwealth Protected Matters Search Tool (PMST) completed on 14 February 2023 indicated the project land has the potential to contain three listed threatened ecological communities (TECs) and 20 listed threatened fauna species. No threatened flora species or critically endangered habitat under the EPBC Act and BC Act have been identified.</p> <p>One TEC, the Southern Tableland Grassy Box Woodland, has been identified as potentially occurring within the study area. The community is associated with a critically endangered ecological community (CEEC), Box Gum Woodland and Derived Native Grasslands, under the BC Act and EPBC Act. Under the EPBC Act, condition thresholds must be met in order to be considered part of a listed CEEC. Further surveys are required in order to confirm if the areas mapped as Southern Tableland Grassy Box Woodland meet the condition thresholds for CEEC under the EPBC Act.</p> <p>Should the Commonwealth listed form of the Box Gum Woodland and Derived Native Grassland be determined as present in the development</p>



Matter	Requirements for the project
	<p>footprint, an EPBC Referral to the Commonwealth DCCEEW would be required.</p>
	<p><b>Environmental protection licence</b></p> <p>Under Section 48 of the <i>Protection of Environment Operations Act 1997</i> (POEO Act), an Environment Protection Licence (EPL) from the NSW Environmental Protection Authority (EPA) is required for scheduled activities listed in Schedule 1.</p> <p>Although “electricity generation” is listed under Schedule 1, Clause 17 of the POEO, generation by solar power is not included in this definition. The project is therefore not a scheduled activity and is unlikely to require an EPL.</p>
	<p><b>Road approvals</b></p> <p>An approval is required under Section 138 of the <i>Roads Act 1993</i> to permit the erection of a structure or carry out a work in, on or over a public road. These would be obtained prior to the commencement of relevant works.</p> <p>Any road upgrades required for the project and impact assessment of the upgrades will be assessed and identified in the EIS.</p>
	<p><b>Biodiversity Offsets Scheme</b></p> <p>Entry into the Biodiversity Offset Scheme (BOS) is automatically triggered for SSD projects. The biodiversity assessment which will be prepared to accompany the EIS will provide a discussion of the management and protection of listed threatened species of native flora and fauna and threatened ecological communities (TECs) and assess biodiversity offsets consistent with the BOS.</p>
	<p><b>Water access licences</b></p> <p>Water access licenses may be required for the project. Water sources for construction and operations will be identified and quantified within the EIS. Detailed investigations will be carried out as part of the EIS to determine whether proposed earthworks would impact on aquifers or groundwater. Relevant license and approvals would be obtained prior to the commencement of construction.</p>
	<p><b>Native title</b></p> <p>Under the <i>Native Title Act 1993</i> (Native Title Act), native title claimants can make an application to the Federal Court to have their native title recognised by Australian law. Preliminary investigations indicate no native titles within the project land.</p>
	<p><b>Crown land</b></p> <p>Under the <i>Crown Land Management Act 2016</i>, consent from the Land Division, Department of Primary Industries (DPI) is required for works over Crown Land. One crown land parcel lies within the project land which separates Lot 7141 DP 1095199 and Lot 7142 DP 1095199. This will be further investigated in the EIS and the Department of Planning and Environment (Crown Land) will be consulted during the assessment process.</p>
	<p><b>Lease of premises and subdivision</b></p> <p>ENGIE has entered into land agreements with owners of the affected land. Subdivision of land for contestable assets may be required if the</p>

Matter	Requirements for the project
	<p>engineering layout requires ancillary infrastructure such as on-site switching stations.</p> <p><b>Dangerous goods</b></p> <p>Dangerous goods transportation licences will be required under the <i>Dangerous Goods (Road and Rail Transport Act) 2008</i> for vehicles and drivers if more than 500 L or 500 kg of dangerous goods are required to be delivered to the site. Dangerous goods required to be transported during construction and operations would be identified and quantified within the EIS and all required licences and approvals obtained prior to the commencement of relevant construction activities.</p> <p><b>Heavy Vehicle National Law</b></p> <p>Approvals would be required should the project require the transport of any infrastructure by over size and over mass vehicles. This will be confirmed in the EIS.</p>
<b>Pre-conditions to exercising the power to grant consent</b>	<p>No pre-conditions to exercising the power to grant approval have been identified for the project. An EIS will be prepared in accordance with relevant legislative requirements and guidelines.</p>
<b>Mandatory matters for consideration</b>	<p><b>Environmental Planning and Assessment Act 1979</b></p> <p>The project is consistent with the Section 1.3 objectives of the EP&amp;A Act, which are:</p> <ul style="list-style-type: none"> <li>a) <i>to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,</i></li> <li>b) <i>to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,</i></li> <li>c) <i>to promote the orderly and economic use and development of land,</i></li> <li>d) <i>to promote the delivery and maintenance of affordable housing,</i></li> <li>e) <i>to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,</i></li> <li>f) <i>to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</i></li> <li>g) <i>to promote good design and amenity of the built environment,</i></li> <li>h) <i>to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,</i></li> <li>i) <i>to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,</i></li> <li>j) <i>to provide increased opportunity for community participation in environmental planning and assessment.</i></li> </ul> <p>Section 4.15 of the EP&amp;A Act describes the matters for consideration in assessing SSD, which includes the provisions of relevant environmental planning instruments, proposed instruments that have been the subject of public consultation, development control plans, planning agreements and statutory regulations. The assessment of SSD must also consider the likely</p>

Matter	Requirements for the project
	<p>impacts of the development, suitability of the site, any submissions received and the public interest. These will be considered in the EIS.</p>
	<p><b>Biodiversity Conservation Act 2016</b></p> <p>The Minister for Planning and Homes is required to take into account the impact of the development on biodiversity values as assessed in the Biodiversity Development Assessment Report (BDAR). The Minister may (but is not required to) further consider under the Act the likely impact of the proposed development on biodiversity values.</p>
	<p><b>National Parks and Wildlife Act 1974</b></p> <p>Governance, care, control and management of national parks, nature reserves, Aboriginal areas and historic sites are detailed under the <i>National Parks and Wildlife Act 1974</i> (NPW Act). The objectives of the NPW Act include the conservation of nature, objects, places or features such as habitats, biological diversity, landforms and places of Aboriginal, social or historical value. These objectives are achieved by applying principles of ecologically sustainable development. Impacts to biodiversity and heritage values will be assessed in more detail as part of the EIS.</p>
	<p><b>Heritage Act 1977</b></p> <p>The <i>Heritage Act 1977</i> (Heritage Act) provides for the conservation of environmental heritage items in NSW. It is used to regulate the impacts of development on the State's European and Aboriginal heritage assets. Administered by the NSW Heritage Office, the Heritage Act details the statutory requirements for protecting historic buildings and places and includes any place, building, work, relic, movable object or precinct, which may be of historic, scientific, cultural, social, archaeological, natural or aesthetic value. A heritage impact assessment will be included in the EIS consistent with the requirements of the Heritage Act.</p>
	<p><b>Fisheries Management Act 1994</b></p> <p>The FM Act is in place to conserve fish stocks, habitats and threatened species, populations and communities, to preserve fishery resources for future generations. The FM Act requires consideration of proposed construction and operation of the project which may affect fish passage or cause adverse impact to threatened fish species.</p> <p>Mapped key fish habitats and protected riparian lands occur within the project land. Potential for direct impacts to aquatic habitats would be primarily associated with access track crossings of waterways and would be assessed within the EIS.</p>
	<p><b>Rural Fires Act 1997</b></p> <p>The <i>Rural Fires Act 1997</i> aims to prevent, mitigate and suppress bush and other fires whilst protecting people, property and infrastructure from damage and having regard to the principles of ecological sustainable development. Consultation is required to be undertaken with the Rural Fire Service (RFS) and local Fire Brigades to determine the features required to minimise the threat of fire both to and from the project.</p> <p>Based on bushfire prone land mapping, the site contains category 3 vegetation which is considered to present a medium bushfire risk. A small section of category 1 vegetation is present to the north west of the project land.</p>

Matter	Requirements for the project
	<p>Bushfire risk will be considered in the context of the <i>Rural Fires Act 1997</i> at all levels of the development process, from project design through to decommissioning and will be assessed in more detail as part of the EIS.</p> <p><b>Contaminated Land Management Act 1997</b>  The <i>Contaminated Land Management Act 1997</i> establishes a process for investigating and where appropriate, remediating land that the EPA considers to be contaminated significantly enough to require regulation under Division 2 of Part 3. Under Section 60, a person whose activities have contaminated land or a landowner whose land has been contaminated is required to notify the EPA when they become aware of the contamination. The project does not contain land listed on the Contaminated Lands Register.</p> <p><b>Soil Conservation Act 1938</b>  The <i>Soil Conservation Act 1938</i> allows for conservation of soil resources and erosion management. Notices can be issued under Section 15A to control erosion or degradation. The construction of the project would follow best practice methods and a management plan will be prepared to guide soil management during construction to minimise sedimentation of downstream waterways. This would be documented further in the EIS.</p> <p><b>State Environmental Planning Policy (Resilience and Hazards) 2021</b>  Part 3 of Chapter 3, 'Hazardous and Offensive Development', applies to any development which falls under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'.  As the project would include a battery energy storage system with a maximum capacity of approximately 200 megawatts, the EIS will include a preliminary hazard analysis (PHA) will be prepared in accordance with the <i>State Environmental Planning Policy (Resilience and Hazards) 2021</i> (Resilience and Hazards SEPP), <i>Multi-Level Risk Assessment</i> and <i>Applying SEPP 33</i>.  The EIS will include an assessment of potential hazards and risks including but not limited to bushfires, spontaneous ignition, human health (electromagnetic fields) and the proposed grid connection infrastructure and the proposed internal solar arrays and central substations against relevant guidelines.  These potential hazards are discussed in <b>Section 8.3.5</b>.</p> <p><b>Yass Valley Council Local Environmental Plan 2013</b>  The relevant provisions of the <i>Yass Valley Local Environmental Plan 2013</i> (Yass Valley LEP) for consideration include:</p> <ul style="list-style-type: none"> <li>• Clause 2.3 - Zone objectives and land use table</li> <li>• Clause 5.10 – Heritage conservation</li> <li>• Clause 5.11 – Bush fire hazard reduction</li> <li>• Clause 6.1 - Earthworks</li> <li>• Clause 6.2 – Terrestrial biodiversity</li> <li>• Clause 6.4 – Groundwater vulnerability</li> <li>• Clause 6.5 – Riparian land and watercourses</li> <li>• Clause 6.7 – Highly erodible soils</li> </ul>



Matter	Requirements for the project
	The requirements outlined in the above clauses would be considered in the EIS as they relate to the project.

## 6. ENGAGEMENT

ENGIE is committed to an open and responsive engagement process that builds trust and constructive relationships with the community and other stakeholders. ENGIE aims to understand the values, concerns and needs of those directly and indirectly affected by its operations by proactively seeking input and feedback early and throughout the life of the project.

ENGIE has based its approach to engagement in alignment with regulatory approval requirements, our experience on similar projects and industry best practices to ensure consistent, targeted, and meaningful engagement. This section outlines the approach to engagement, the regulatory and industry requirements and corporate principles guiding the engagement process and provides a summary of engagement activities planned and delivered to date.

### 6.1 Consultation objectives

ENGIE recognises the importance of consistent, targeted and meaningful engagement with communities and stakeholders and is committed to the following guiding principles:

- **We communicate** decisions that will affect stakeholders as early as possible, transparently, and through channels that are accessible to all groups in the community
- **We listen to feedback** and are clear with stakeholders where they can influence outcomes / cocreate / participate in the decision-making process
- **We incorporate stakeholder feedback** wherever possible and follow through where there has been a commitment made; and
- **We give confidence** to regulators, governments, decision-makers and other stakeholder representatives by demonstrating our stakeholder engagement approach.

The objectives of stakeholder and community engagement are to:

- identify and engage with the local community and key stakeholders
- build a foundation of strong relationships and community support
- ensure stakeholders are informed, consulted and involved
- wherever possible, activities would continue to be conducted with emphasis on stakeholder collaboration and empowerment
- uphold the four principles set by the Clean Energy Council (accepted rules of conduct) of community engagement which include openness, inclusiveness, responsiveness and accountability
- provide an accessible complaints management process as a mechanism for feedback to ENGIE.

### 6.2 Stakeholder and community engagement strategy

The stakeholder and community engagement strategy is guided by the requirements of relevant policies and guidelines including:

- *Undertaking Engagement Guidelines for State Significant Projects* (Department of Planning, Industry and Environment, 2021b)
- *Social Impact Assessment Guideline for State Significant Projects* (Department of Planning, Industry and Environment, 2021c)
- *Large-Scale Solar Energy Guideline* (Department of Planning, Industry and Environment, 2022)
- *State Significant development guidelines – prepared a scoping report* (Department of Planning, Industry and Environment, 2021a)

### 6.3 Stakeholders

Stakeholder identification was undertaken to inform the broader EIS. Stakeholders, being individuals or groups that may be affected by the project, are people who:

- live, work, or recreate near the project
- have an interest in the proposed action or change
- use or value a resource associated with the project or project land
- are affected by the project.

Key stakeholders who may be directly or indirectly impacted by the project, or who have an interest in the project, including those who are potentially vulnerable or marginalised groups within the community have been identified in **Table 6-1**.

**Table 6-1: Stakeholders**

Stakeholder group	Stakeholder name	Potential interests relevant to the project
<b>Government</b>		
Local	Yass Valley Council	<ul style="list-style-type: none"> <li>• construction and operational traffic impacts and potential road upgrades</li> <li>• employment and workforce opportunities</li> <li>• broader benefits and stimulation of the regional economy</li> <li>• construction workforce accommodation strategy</li> <li>• materials to be used in construction</li> <li>• construction and operational noise and visual amenity impacts</li> <li>• waste quantities and disposal</li> <li>• agriculture and land use</li> <li>• community consultation</li> </ul>
	Yass Valley Councillors	<ul style="list-style-type: none"> <li>• Mayor Allan McGrath</li> <li>• Deputy Mayor Jasmin Jones</li> <li>• Councillor Adrian Cameron</li> <li>• Councillor Cayla Pothan</li> <li>• Councillor Cecil Burgess OAM</li> <li>• Councillor Jim Abbey</li> <li>• Councillor Kim Turner</li> <li>• Councillor Kristin Butler</li> <li>• Councillor Mike Reid</li> </ul>
State	The Hon. Wendy Tuckerman MP (NSW Member for Goulburn, Minister for Local Government)	<ul style="list-style-type: none"> <li>• project details, assessment pathway and timing</li> <li>• approach to community and stakeholder engagement</li> <li>• adequate assessment of environmental impacts and ongoing environmental management</li> <li>• role of the project in the context of the Government's electricity infrastructure roadmap</li> </ul>

Stakeholder group	Stakeholder name	Potential interests relevant to the project
		<ul style="list-style-type: none"> <li>social and economic benefits to the local community from the project</li> </ul>
	NSW Energy Minister Penny Sharpe	<ul style="list-style-type: none"> <li>project details, assessment pathway and timing</li> <li>approach to community and stakeholder engagement</li> <li>adequate assessment of environmental impacts and ongoing environmental management</li> <li>role of the project in the context of the Government's electricity infrastructure roadmap</li> </ul>
	DPE	<ul style="list-style-type: none"> <li>project details, assessment pathway and timing</li> <li>approach to community and stakeholder engagement</li> <li>adequate assessment of environmental impacts and ongoing environmental management</li> <li>role of the project in the context of the Government's electricity infrastructure roadmap</li> </ul>
	DPE – BCS	<ul style="list-style-type: none"> <li>biodiversity impacts</li> <li>biodiversity offsets</li> <li>Aboriginal and historic heritage</li> <li>water and soils</li> <li>flooding</li> </ul>
	DPI – Agriculture	<ul style="list-style-type: none"> <li>sediment and erosion controls</li> <li>closure strategy</li> <li>land capability</li> <li>land use</li> <li>biosecurity</li> <li>amenity impacts from traffic</li> </ul>
	DPI – Fisheries	<ul style="list-style-type: none"> <li>aquatic ecology</li> <li>waterway crossings</li> <li>riparian vegetation</li> </ul>
	DPI – Water and the NSW Department of Natural Resources Access Regulator	<ul style="list-style-type: none"> <li>watercourses</li> <li>water supply arrangements</li> <li>surface water and groundwater impacts</li> <li>flooding</li> <li>erosion and sediment control</li> </ul>
	EPA	<ul style="list-style-type: none"> <li>dust emissions</li> <li>storage of chemicals, fuels and batteries</li> <li>noise and vibration</li> </ul>



Stakeholder group	Stakeholder name	Potential interests relevant to the project
		<ul style="list-style-type: none"> <li>waste management</li> <li>surface water protection</li> </ul>
	Heritage NSW	<ul style="list-style-type: none"> <li>impacts to Aboriginal cultural heritage</li> <li>historic heritage</li> </ul>
	Transport for NSW	<ul style="list-style-type: none"> <li>traffic impacts</li> </ul>
	Fire and Rescue NSW	<ul style="list-style-type: none"> <li>bushfire hazards and emergency planning</li> </ul>
	NSW Rural Fire Service	<ul style="list-style-type: none"> <li>bushfire hazards and emergency planning</li> <li>impacts to asset protection zones</li> </ul>
	South East Local Land Services (LLS)	<ul style="list-style-type: none"> <li>impacts to Aboriginal cultural heritage</li> <li>land use</li> <li>biosecurity</li> </ul>
	Office of The Registrar: Aboriginal Land Rights Act (ALRA)	<ul style="list-style-type: none"> <li>impacts to Aboriginal cultural heritage</li> </ul>
	Service NSW Crown Lands Office	<ul style="list-style-type: none"> <li>development on Crown lands</li> </ul>
Commonwealth	Hon Kristy McBain MP (Commonwealth Member for Eden-Monaro, Minister for Regional Development, Local Government and Territories)	<ul style="list-style-type: none"> <li>project details, assessment pathway and timing</li> <li>approach to community and stakeholder engagement</li> <li>adequate assessment of environmental impacts and ongoing environmental management</li> <li>role of the project in the context of the Government's electricity infrastructure roadmap</li> <li>social and economic benefits to the local community from the project</li> </ul>
	DCCEEW	<ul style="list-style-type: none"> <li>impacts to MNES under the EPBC Act</li> </ul>
	National Native Title Tribunal	<ul style="list-style-type: none"> <li>impacts to Aboriginal cultural heritage</li> </ul>
	Australian Energy Market Operator (AEMO)	<ul style="list-style-type: none"> <li>connection to the national electricity transmission network</li> </ul>
<b>Community</b>		
Directly involved landowners	Host landholders	<ul style="list-style-type: none"> <li>general and detailed project information</li> <li>land acquisition, leasing and access</li> <li>mitigation and management of potential impacts</li> </ul>

Stakeholder group	Stakeholder name	Potential interests relevant to the project
	Associated landholders	<ul style="list-style-type: none"> <li>• general and detailed project information</li> <li>• neighbour agreements</li> <li>• mitigation and management of potential impacts</li> </ul>
Residences with potential direct or indirect visual and / or amenity impacts	Non-associated landholders	<ul style="list-style-type: none"> <li>• general and detailed project information</li> <li>• amenity impacts</li> <li>• conflict with adjacent land use</li> <li>• mitigation and management of potential impacts</li> </ul>
Residences without potential direct or indirect visual and amenity impacts but within the Yass township / within 5km	Local community	<ul style="list-style-type: none"> <li>• general project information</li> <li>• amenity impacts</li> <li>• mitigation and management of potential impacts</li> <li>• explore potential for involvement in the project</li> </ul>
Broader community located outside the locality (i.e. greater than 5km)	Broader community	<ul style="list-style-type: none"> <li>• general project information</li> <li>• mitigation and management of potential impacts</li> </ul>
Aboriginal community and stakeholder groups	<p>Registered Aboriginal Parties (consulted in accordance with <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010</i> (DECCW))</p> <p>Onerwal Local Aboriginal Land Council (LALC)</p> <p>Ngunnawal Nation Traditional Owners Network Group</p>	<ul style="list-style-type: none"> <li>• general project information</li> <li>• Aboriginal heritage</li> <li>• adequacy of consultation</li> <li>• mitigation and management of potential impacts to items of heritage significance</li> </ul>
Local businesses and community service providers	Various	<ul style="list-style-type: none"> <li>• general project information</li> <li>• project benefits and opportunities</li> <li>• impacts on the local community, infrastructure and services</li> <li>• mitigation and management of potential impacts</li> </ul>
Nearby projects	Springvale Solar Farm	<ul style="list-style-type: none"> <li>• cumulative impacts</li> </ul>
	Conroy's Gap Wind Farm	<ul style="list-style-type: none"> <li>• cumulative impacts</li> </ul>

Stakeholder group	Stakeholder name	Potential interests relevant to the project
	Bango Wind Farm	<ul style="list-style-type: none"><li>• cumulative impacts</li></ul>
	Yass Valley Wind Farm	<ul style="list-style-type: none"><li>• cumulative impacts</li></ul>
Local media	Yass Tribune	<ul style="list-style-type: none"><li>• general project information</li><li>• project benefits and opportunities</li><li>• impacts on the local community, infrastructure and services</li></ul>
	Yass Valley Times	<ul style="list-style-type: none"><li>• general project information</li><li>• project benefits and opportunities</li><li>• impacts on the local community, infrastructure and services</li></ul>
	Yass Valley community group Facebook Page	<ul style="list-style-type: none"><li>• general project information</li><li>• project benefits and opportunities</li><li>• impacts on the local community, infrastructure and services</li></ul>
	Yass FM	<ul style="list-style-type: none"><li>• general project information</li><li>• project benefits and opportunities</li><li>• impacts on the local community, infrastructure and services</li></ul>
Special interest groups	Local community action group/s including Yass Solar Action Group	<ul style="list-style-type: none"><li>• general project information</li><li>• cumulative impacts</li><li>• mitigation and management of potential impacts</li></ul>
	Clean Energy Council	
	NSW Farmers Association	
Network Service providers		
Electricity grid	Transgrid	<ul style="list-style-type: none"><li>• connection to transmission infrastructure for evacuation of the electricity generated by the project</li></ul>
Distribution network	Essential Energy	<ul style="list-style-type: none"><li>• connection to the distribution network for auxiliary supply</li></ul>

## 6.4 Engagement carried out

### 6.4.1 Scoping phase consultation activities

Details of consultation undertaken with the community during the scoping phase is outlined in **Table 6-2**.

Table 6-2: Summary of scoping phase consultation activities undertaken

Stakeholder Group	Stakeholder	Date	Method	Engagement activities
Community	Host landowners	Nov 2022 - May 2023	Emails, meetings, and phone calls	Discussions on the project, updates, land agreements and potential impact.
	Near neighbours	Dec 2022	Letterbox drop	Letter and factsheet distributed to the Yass locality which included a QR code to direct residents to the project webpage and complete an online Community Benefits survey.
		Dec 2022 – Mar 2023	Emails, meetings, and phone calls	Targeted discussions and on-site meetings were held with approximately 10 neighbouring landholders on the project, updates and potential impact.
	General community	Nov 2022 – May 2023	Community benefits survey	47 responses were received to an online community attitudes survey from November 2022 to May 2023. Six noted no concerns. A summary of the survey results is provided in <b>Section 6.4.2.</b>
		7 and 8 Feb 2023	Community information sessions	More than 50 community members attended the Community Information Sessions which were held at the Yass Soldiers' Memorial Hall.
		Nov – May 2023	Emails, meetings, and phone calls	<ul style="list-style-type: none"> <li>• A Q&amp;A factsheet was sent to the community mailing list in March 2023 and published on the project webpage, to provide further information relation to the key issues raised during the community information sessions and subsequent community and landholder meetings</li> <li>• 1800 phone line specific to the project available for community to call</li> <li>• Project specific email address available for community to contact</li> </ul>
		Dec 2022 – May 2023	Media engagement	<ul style="list-style-type: none"> <li>• Press release on 13 December 2022</li> <li>• Radio ads on Yass FM Radio 24 January – 7 February</li> <li>• Radio interview with Senior Development Manager, Meredith Anderson, January 2023</li> </ul>



Stakeholder Group	Stakeholder	Date	Method	Engagement activities
				<ul style="list-style-type: none"> <li>Radio ads on Yass FM Radio 5 May – 24 May 2023</li> <li>Print and online advertising:               <ul style="list-style-type: none"> <li>Yass Valley Times 20 January – 8 February 2023, May 2023</li> <li>Yass Tribune digital campaign 24 January – 6 February 2023</li> <li>Print and digital campaign 16 -24 May 2023</li> <li>Yass Phoenix January – May 2023</li> </ul> </li> </ul>
		24 and 25 May 2023	Community information sessions	Approximately 30 community members attended the Community Information Sessions which were held at the Yass Soldiers' Memorial Hall.
	Yass Solar Action Group	24 May 2023	Meeting	<ul style="list-style-type: none"> <li>In person meeting with approximately 12 members of the Yass Solar Action Group and four members of the ENGIE project team</li> <li>Potential impacts and risks associated with the Project were discussed.</li> <li>ENGIE will continue to engage with the Yass Solar Action Group to address key topics raised.</li> </ul>
Local Aboriginal groups	Local Aboriginal Land Council	Feb – May 2023	Emails and phone calls	<ul style="list-style-type: none"> <li>An invitation was sent to Onerwal LALC Dec 2022. A meeting was to be held on 8 February 2023 however the representative was unable to attend.</li> <li>Representatives from Onerwal LALC attended in-person community information sessions held in May 2023. An interim CEO has been appointed and the group will be calling for board members in the coming weeks.</li> <li>ENGIE will continue to engage with members of the group to provide opportunities for the LALC and Traditional Custodians to be involved in the project and help shape its benefits to the community.</li> </ul>

Stakeholder Group	Stakeholder	Date	Method	Engagement activities
Business owners	Suppliers and local business owners	Feb 2023 – May 2023	Emails, meetings, website form submissions and phone calls	<ul style="list-style-type: none"> <li>A number of local business owners attended the February Community Information Sessions. Nine local and other businesses/jobseekers have registered their interest regarding employment and/or business services in respect of the project.</li> <li>An online form has been created on the project webpage to capture the details of local businesses, suppliers and jobseekers who are interested in supplier and employment opportunities. 13 suppliers and local businesses have registered their interest to date.</li> </ul>
Yass High School	Principal and Deputy Principal	Feb 2023	Meeting	Discussions at the Community Information Session regarding training, upskilling and opportunities for students to participate in site surveys.
Local Business Chamber	Business Development Manager (Department of Regional NSW)	Feb 2023 May 2023	Meeting, email	An invitation was sent to Yass Valley Business Chamber in January and May 2023 to attend the Community Information Session. Discussions were held during the Information Session regarding ENGIE's attendance at local business networking event and Region Connect events.
Local government	Yass Valley Council General Manager	Nov 2022	Meeting	An online meeting with Council's General Manager was held in November 2022 to provide an overview of the project and gain feedback on potential issues, land zoning and community engagement activities. Key topics discussed included potential community concerns, town planning within the Yass township and potential bushfire risk.
	Yass Valley Councillors	Feb 2023	Meeting/ workshop	ENGIE held a presentation to Yass Valley Council senior management and councillors to introduce and seek feedback on the project. Key topics discussed included community benefits, project timeline, infrastructure, potential impacts and land use.

Stakeholder Group	Stakeholder	Date	Method	Engagement activities
	Yass Valley Council	May 2023	Meeting	An online meeting with Council's Acting Manager Strategic Planning and Manager Development Control to discuss land zoning current and proposed, workers' accommodation and local opportunities, community engagement and benefits and land use.
	Yass Valley Council	June 2023	Meeting	An online meeting was held with Council's Acting Manager Strategic Planning and members of the Council's Planning and Environment Division to discuss Yass Valley Settlement Strategy 2036.
	Yass Valley Council	26 Sept 2023	Meeting	A meeting was scheduled between DPE, Council and ENGIE to discuss the project. See DPE meeting summary below.
	Yass Valley Council	October and November 2023	Emails	Several emails were sent between Council and ENGIE to arrange a meeting to review and discuss the proposed changes to the Yass Solar Farm layout prior to the lodgement of the scoping report. Unfortunately, a meeting did not proceed prior to lodgement due to scheduling conflicts. ENGIE noted that they would continue to engage with Council throughout the assessment process in the new year.
State government	DPE	11 Dec 2022	Letter	Introduction to ENGIE's proposal and discussion of the requirement to withdraw the previous SSD application for a solar farm for the site.
		12 Dec 2022	Meeting	A meeting was held with DPE to discuss the withdrawal of the previous SSD application for a solar farm on the site, Engie's proposal (including its differences with the original proposal) and the process to be followed for withdrawal.
		22 Dec 2022	Email	Formal request for withdrawal of the previous SSD application
		31 May 2023	Pre-scoping meeting	A meeting was held with DPE to summarise the content of the scoping report

Stakeholder Group	Stakeholder	Date	Method	Engagement activities
		26 Sept 2023	DPE and Council pre-lodgement	A meeting was scheduled between DPE, Council and ENGIE to discuss the project. DPE and ENGIE proceeded with the meeting to discuss visual impacts, land use and lodgement of the scoping report. Council was not present at the meeting.
	DPE – BCS	22 Dec 2022	Letter	Letter introducing the project to DPE-BCS, discussion of the preliminary findings, and a request for advice regarding survey requirements
		8 Feb 2023	Email	Further discussion of survey requirements of threatened species, and nominating the proposed species expert for two species
		21 April 2023	Meeting	Discussion of survey requirements for threatened species, including the species expert approach for two species.
	The Hon. Wendy Tuckerman MP	Feb 2023	Meeting	Introduction to the project, social and economic benefits to the local community
	The Hon. Kristy McBain MP	April 2023	Meeting	Introduction to the project, social and economic benefits to the local community
Network service provider	Transgrid	June 2023	Pre-feasibility enquiry	<p>On the 16 June 2022, Transgrid provided Preliminary Technical Advice regarding the connection of a 350MW BESS system to Yass substation. It states that a direct connection into the 330kV bus at Yass Substation is possible under the following conditions – “<i>Connection to this location may not require augmentation to the shared network. During unfavourable network conditions, generation at this location may be subject to output limitation. There may also be system strength concerns during weak network conditions.</i>”</p> <p>Although the current system is an 100 megawatt solar farm plus a 250 megawatt / 500 megawatt-hour BESS, at this preliminary stage connection is possible as the net system size remains at 350 megawatt.</p>

#### 6.4.2 Outcomes of consultation

During the early planning stage, ENGIE's engagement activities have focused on introducing the project and providing opportunities for the community and other stakeholders to provide valuable local feedback, and discuss potential issues and concerns, benefits of the project.

##### Near neighbours

Significant engagement has been undertaken by ENGIE with neighbouring landowners and those living closest to the project. This has included letter box drops, emails, phone calls, on-site meetings and follow up communications. Feedback received to date from the near neighbours has included general project discussions and queries around potential impacts. The key issues raised have been captured and provided in **Table 6-3**.

##### Community

Consultation undertaken during the scoping phase has provided valuable early input into the understanding of stakeholder needs and potential issues. A summary of the outcomes of consultation undertaken to date is provided in **Table 6-3**.

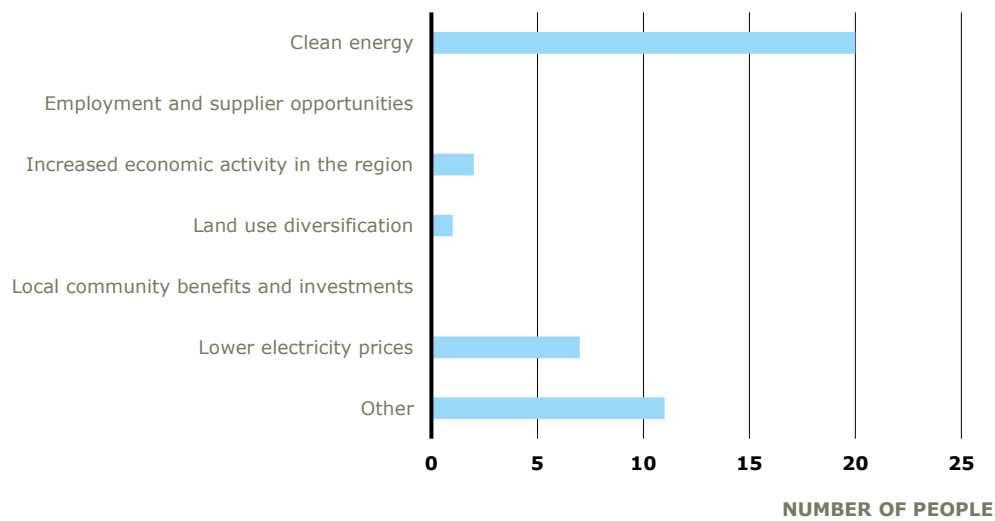
**Table 6-3: Summary of community feedback**

Aspect	Feedback	Where addressed in this report
<b>Project specific engagement</b>		
Land use	<ul style="list-style-type: none"> <li>land use suitability for renewable energy opposed to residential developments</li> <li>changes to land use affecting the availability of land for agricultural purposes</li> <li>impacts on property value</li> </ul>	<b>Section 8.4.1</b>
Visual	<ul style="list-style-type: none"> <li>concerns about changes to the visual landscape, including potential impacts from glint and glare (for both nearby neighbours and those further away, such as those living in Shearsby Crescent)</li> </ul>	<b>Section 8.3.2</b>
Traffic and access	<ul style="list-style-type: none"> <li>amenity and access impacts, specifically for those living along the access and haulage routes during construction</li> </ul>	<b>Section 8.3.4</b>
Noise	<ul style="list-style-type: none"> <li>understanding of the potential noise impacts for those living near the project, including along haulage and access routes and how it may impact on way of life</li> </ul>	<b>Section 8.3.6</b>
Hazards and risks	<ul style="list-style-type: none"> <li>fire risk and potential health impacts to people near the project</li> </ul>	<b>Section 8.3.5</b>
Social	<ul style="list-style-type: none"> <li>employment opportunities and community benefits resulting from the project including distributive equity</li> <li>upskilling opportunities for students and jobseekers</li> </ul>	<b>Section 8.3.7</b> <b>Section 8.4.4</b>
<b>Additional feedback from nearby projects</b>		
Biodiversity	<ul style="list-style-type: none"> <li>impacts to biodiversity including threatened species</li> </ul>	<b>Section 8.3.1</b>
Traffic and access	<ul style="list-style-type: none"> <li>increased traffic impacts discouraging visitors to the region</li> </ul>	<b>Section 8.3.4</b>
Economic	<ul style="list-style-type: none"> <li>benefits to local businesses and service providers, and improved economic sustainability</li> </ul>	<b>Section 8.4.4</b>

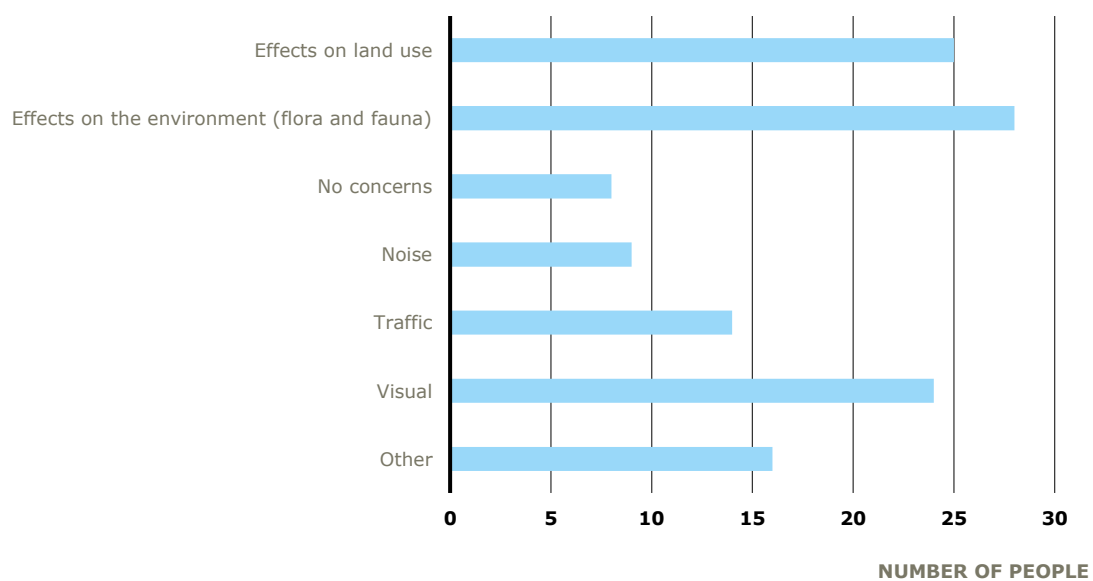


Aspect	Feedback	Where addressed in this report
<b>Project specific engagement</b>		
Renewable energy	<ul style="list-style-type: none"> <li>ability of solar and wind to economically and efficiently meet the needs of the NEM</li> </ul>	<b>Section 3</b>

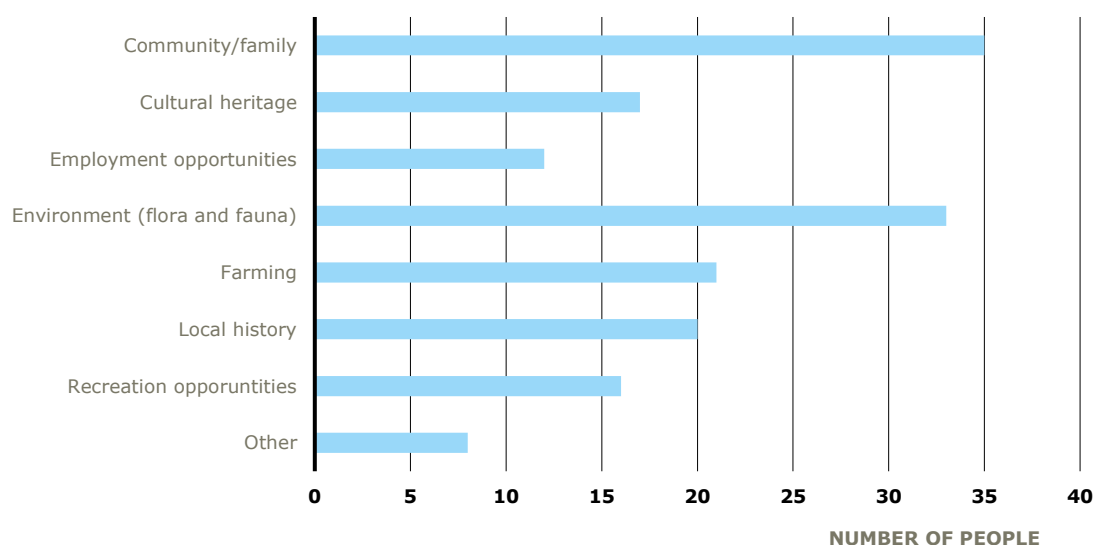
Community feedback and responses to the community benefits survey are shown in **Figure 6-1** to **Figure 6-3**.



**Figure 6-1: Community perception of project benefits**



**Figure 6-2: Main community concerns of the project**



**Figure 6-3: Community values of the local area**

### Aboriginal stakeholder engagement

An invitation was sent to Onerwal LALC in December 2022 and also in May 2023. A meeting was to be held on 8 February 2023 however the representative was unable to attend the in-person meeting, or the subsequent online meeting scheduled for 21 April 2023.

ENGIE extended the invitation to Onerwal LALC to attend the Community Information Sessions to be held in May with the opportunity for an in-person meeting. Representatives from Onerwal LALC attended in-person community information sessions held in May 2023.

ENGIE will continue to engage with members of the group to provide opportunities for the LALC and Traditional Custodians to be involved in the project and help shape its benefits to the community.

In addition, the project was advertised in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (Department of Environment, Climate Change and Water NSW, 2010b) from 8 February 2023 to 2 March 2023. A total of 20 Aboriginal parties registered an interest in the project assessment.

### Local Council

Yass Valley Council has provided feedback on the project through the meetings detailed in **Table 6-2** and via a letter addressed to the ENGIE project team dated 22 June 2023, included in **Appendix 1**. Council raised a number of key issues to be addressed by the project. These issues and how they will be assessed or managed during the EIS phase are included in **Table 6-4**.

**Table 6-4 Key Yass Valley Council concerns and proposed approach**

Issue raised	Proposed approach
Biodiversity Impact on biodiversity particularly along the Booroo Ponds watercourse.	A BDAR would be prepared to meet the requirements of the BC Act, define the biodiversity values of the development footprint, potential impacts of the project and detail appropriate management and mitigation

Issue raised	Proposed approach
	measures to minimise the identified impacts. Refer to <b>Section 8.3.1</b> .
<p>Viewshed</p> <p>Potential impact of the project on 'scenic views' from residential lands identified for future settlement</p>	<p>A landscape and visual impact assessment would be prepared for the project, refer to <b>Section 8.3.2</b>, and include consideration of the Yass Valley Settlement Strategy as identified in <b>Figure 3-1</b>.</p>
<p>Construction workers and accommodation</p> <p>Discussions around accommodation needs for workers and issues with local employment due to higher salaries offered in Canberra.</p>	<p>An accommodation strategy would be developed for the project and included within the project description of the EIS. The strategy would be based on the outcomes of the technical assessments, specifically the social impact assessment. The EIS would assess the potential impacts associated with the final accommodation strategy.</p>
<p>Community benefit programs</p> <p>Yass Valley Council have established a Voluntary Planning Agreement (VPA) template, that has been implemented for energy projects in the area and for the life of the project.</p>	<p>The Yass Valley Council VPA stipulates the equivalent of 1% of project capital expenditure should be committed to community benefits, to be spread across the asset life in annual payments, increasing by CPI, ENGIE intends to create a community benefits program for local initiatives which may include training, employment and upskilling of local residents and the broader community.</p>
<p>Land use and property value</p> <p>Some community members concerned about maintaining the agricultural landscape and rural lifestyle. Three redevelopment zones identified in the area, one of which may have views of the project.</p>	<p>The proposed Yass Solar Farm project is unlikely to significantly reduce the overall agricultural productivity of the region. ENGIE will undertake further investigations on the rezoning of the proposed land for the project. As part of these investigations, ENGIE will review the recommendations outlined in <i>the Yass Valley Settlement Strategy 2036</i>, to help guide the development planning and ensure the project has a positive and sustainable impact on the local community and the broader Yass Valley region.</p>
<p>Local road network</p> <p>Impact of the project on the local road network</p>	<p>A traffic and transport impact assessment would be prepared for the project, refer to <b>Section 8.3.4</b>. A quantitative traffic and access assessment would be undertaken to determine the potential impacts of additional light and heavy vehicle movements (including over dimensional vehicles) on the local road network during construction. The assessment would identify the requirements for any road upgrades if required for the project.</p>

### State government agencies

A meeting was held with BCS on 21 April 2023 to discuss the project and the biodiversity assessment methodology. Key items discussed included:

- the potential presence of the Striped Legless Lizard and Golden Sun Moth, two threatened fauna species, and the survey requirements
- the preliminary plant community type mapping and the requirement for additional investigations to confirm communities, the potential for threatened species, and biodiversity credit requirements.

The proposed approach to the biodiversity assessment is discussed in **Section 8.3.1** and considers comments raised in this meeting. ENGIE will continue to consult with BCS throughout development of the EIS.

### 6.5 Engagement to be carried out

ENGIE recognises the importance of consistent, targeted and meaningful engagement and will continue to work with stakeholders and the local community and create opportunities to provide input and feedback throughout the planning approval process and throughout construction and ongoing operations.

Further engagement activities will aim to build and strengthen the existing relationships with the community and other key stakeholders.

Details of stakeholder consultation that will be undertaken during the preparation of the EIS is outlined in **Table 6-5**.

**Table 6-5: Proposed Environmental Impact Statement phase consultation**

Engagement activity	Stakeholder	Consultation level
Social Impact Assessment engagement activities	<ul style="list-style-type: none"> <li>• general community</li> <li>• local residents</li> <li>• key stakeholders</li> <li>• community groups</li> <li>• First Nations, Traditional Owners and Torres Strait Islanders</li> <li>• local business and suppliers</li> </ul>	Involve
Community information sessions	<ul style="list-style-type: none"> <li>• general community</li> <li>• local residents</li> <li>• key stakeholders</li> </ul>	Consult
Project-specific website, email address, and free call 1800 community hotline	<ul style="list-style-type: none"> <li>• all stakeholders</li> </ul>	Inform
Factsheets/newsletters	<ul style="list-style-type: none"> <li>• general community</li> <li>• neighbours</li> <li>• interested business owners and suppliers</li> <li>• project mailing list subscribers</li> </ul>	Inform
Community surveys	<ul style="list-style-type: none"> <li>• all stakeholders</li> </ul>	Consult
	<ul style="list-style-type: none"> <li>• Councillors and staff – Yass Valley Council</li> </ul>	Consult

Engagement activity	Stakeholder	Consultation level
Project briefings and presentations	<ul style="list-style-type: none"> <li>DPE</li> <li>BCS</li> <li>Transport for NSW</li> <li>Yass Valley Business Chamber</li> </ul>	
	<ul style="list-style-type: none"> <li>Members of Parliament – Hon Kristy McBain MP, Wendy Tuckerman MP</li> </ul>	Inform Consult
	<ul style="list-style-type: none"> <li>NSW Rural Fires Services</li> </ul>	Collaborate
	<ul style="list-style-type: none"> <li>local media – radio, newspaper, television</li> </ul>	Inform
Site tours	<ul style="list-style-type: none"> <li>Key stakeholders</li> <li>local schools</li> </ul>	Inform Consult Collaborate
Cumulative impacts consultation	<ul style="list-style-type: none"> <li>other developers or contractors undertaking construction in the area</li> </ul>	Consult Collaborate
Management of cultural heritage including walk on Country	<ul style="list-style-type: none"> <li>Registered Aboriginal Parties (RAP)</li> </ul>	Collaborate
Pre-vocational training, traineeships and apprenticeships	<ul style="list-style-type: none"> <li>local employment and training providers</li> </ul>	Collaborate



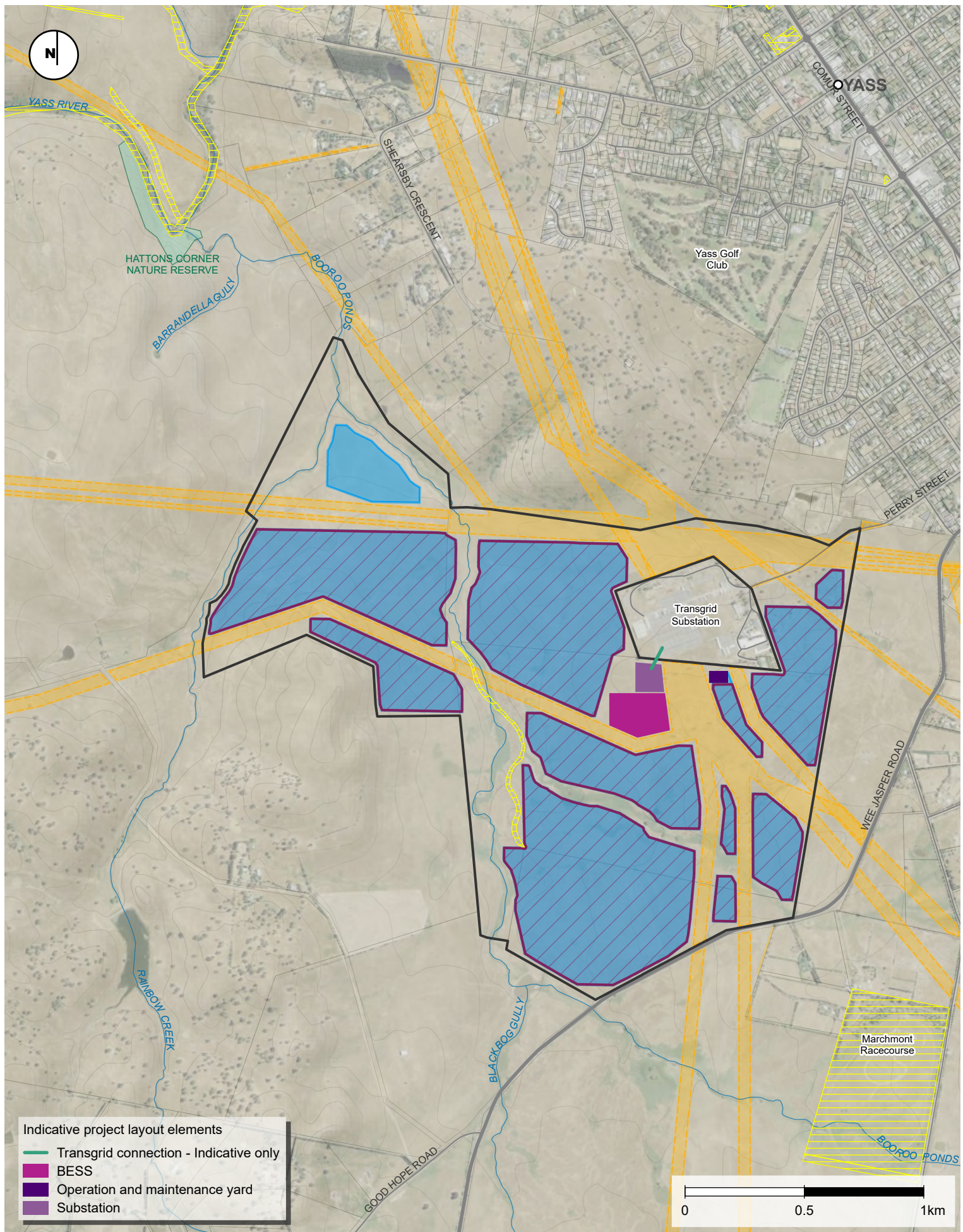
## 7. PROJECT REFINEMENT

Based on consultation undertaken to date and the results of the preliminary assessments, ENGIE made refinements to the originally proposed development footprint. The development footprint originally proposed by ENGIE included an area of approximately 195 hectares. The development footprint has been refined to 186 hectares with removal of solar arrays in the north west corner of the project land. The development footprint refinement is shown in **Figure 7-1**.

The project received community feedback on the potential impacts of the project on the residents of Shearsby Crescent. ENGIE has taken this feedback into consideration, as well as consultation undertaken with Council and DPE, and refined the project accordingly.

In addition to the refined development footprint, ENGIE reduced the maximum height of the solar arrays from five metres down to three metres across the project. This solar array height reduction will further reduce visual impacts to the wider Yass community.

The refinements are a direct result of the engagement activities which have taken place with community and key stakeholders. The refined development footprint will achieve a reduction in visual impacts to surrounding residents and the wider community. It will also reduce potential impacts to Aboriginal cultural heritage due to five known registered Aboriginal sites known to occur in the north west portion of the project land, refer to **Section 8.3.3**.



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Figure 7-1 | Development footprint refinement

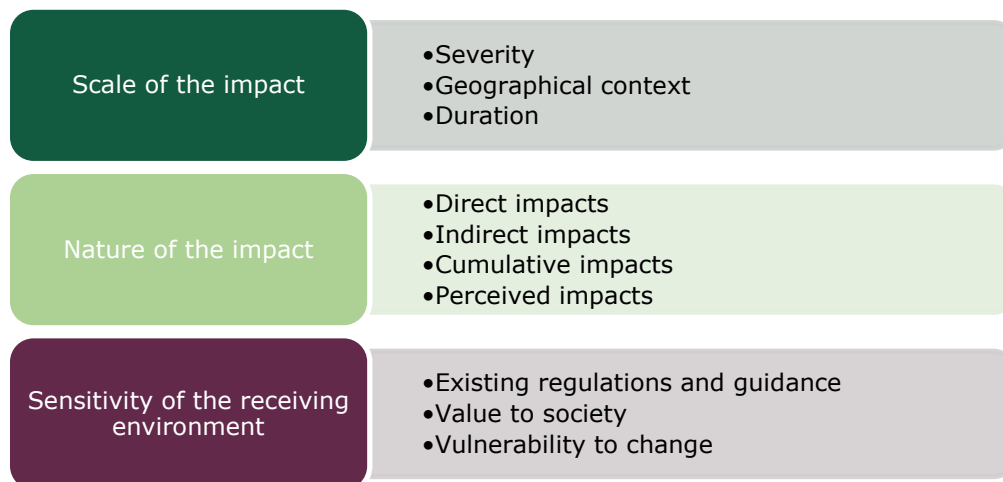


## 8. PROPOSED ASSESSMENT OF IMPACTS

### 8.1 Scoping methodology

In accordance with the Scoping Report Guideline, the following factors were considered to identify matters requiring further assessment in the EIS:

- the **scale** and **nature** of the likely impacts of the project and the **sensitivity of the receiving environment** (refer to **Figure 8-1**)
- whether the project is likely to generate **cumulative impacts** with other relevant projects in the area
- the ability to **avoid**, **minimise** and/or **offset** the impacts of the project, to the extent known at the scoping stage. This includes consideration of factors that could be incorporated into the detailed design and potential for mitigation measures and land agreements to address residual impacts
- the **complexity of the technical assessment** including data and investigations required, methods and any uncertainties.



**Figure 8-1: Key factors to consider during scoping – Appendix C of the Scoping Report Guideline**

A scoping summary table for the project is provided in **Appendix 2**. The scoping summary table provides an overview of expected issues and, the proposed assessment approach for the issues requiring further assessment in the EIS and lists the relevant legislation, plans, policies, or guidelines that would be relevant to the proposed assessment. This table also highlights whether any specific community engagement would be undertaken and if a cumulative impact is anticipated.

Matters that have been identified as requiring further assessment for the EIS have been separated into 'key issues' and 'other issues'. These are presented in **Section 8.3** and **Section 8.4** respectively.

Key issues are those that may generate some material impact based on the information that is currently available. Other issues are those that have been determined as unlikely to have a material impact based on existing available information. However, this may change through the preparation of more detailed assessments as part of the EIS, and as community and stakeholder engagement progresses.

This chapter also outlines those matters that have been identified to require no further assessment in the EIS. These are presented in **Section 8.6**.

## 8.2 Categorisation of assessment matters

Each matter and its proposed level of assessment (detailed or standard) is identified in **Table 8-1**. The matters considered in the assessment are consistent with those listed in Appendix B of the Scoping Report Guideline. Specific matters have been grouped where relevant.

**Table 8-1: Categorisation of assessment matters summary**

Level of assessment	Assessment matter
Detailed (key issues)	<ul style="list-style-type: none"> <li>• Amenity – visual (landscape character and visual), noise and vibration</li> <li>• Access – traffic and parking, access to property (traffic and access)</li> <li>• Biodiversity – conservation areas, terrestrial flora and fauna, aquatic flora and fauna</li> <li>• Heritage – Aboriginal</li> <li>• Social – way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, decision-making systems</li> <li>• Hazard and risks – bushfire, dangerous goods, hazardous and offensive development, battery storage, electromagnetic fields, electromagnetic interference</li> </ul>
Standard (other issues)	<ul style="list-style-type: none"> <li>• Air – atmospheric emissions, gases, particulate matter</li> <li>• Built environment – private property (included in land chapter)</li> <li>• Economic – natural resource use, livelihood</li> <li>• Heritage – historic</li> <li>• Land – stability, land capability, topography, land use, biosecurity, land contamination, private property, public land</li> <li>• Water – hydrology, flooding, water quality, water availability</li> <li>• Waste and resources</li> </ul>
Matters requiring no further assessment	<ul style="list-style-type: none"> <li>• Access – port and airport facilities, road and rail facilities</li> <li>• Amenity – odour</li> <li>• Built environment – public infrastructure, design quality</li> <li>• Economic – opportunity cost</li> <li>• Hazards and risks – coastal hazards, dams safety, groundwater contamination, land movement, environmental hazards</li> <li>• Land – soil chemistry</li> <li>• Heritage – natural</li> </ul>

## 8.3 Key issues

### 8.3.1 Biodiversity

#### Preliminary investigations

The preliminary biodiversity investigations were undertaken on the broader study area as identified in **Figure 8-2**. This area encompasses the full extent of the land leased by ENGIE.

Database analysis was conducted of the BioNet Atlas and the Commonwealth PMST on the study area with a ten kilometres buffer. The search found the study area has the potential to contain 20 listed threatened fauna species and four native vegetation communities:

- Southwest Riverflat Red Gum Forest
- Southern Tableland Grassy Box Woodland
- Southwest Foothills Stringybark-box Grassy Forest
- Southwest Ranges Stringybark Exposed Forest.

Review of the Biodiversity Values Map (BV Map) (Department of Planning and Environment, n.d.) confirmed that parts of the study area are mapped on the BV Map. The BV mapping within the project land largely follows the mapped watercourses of Rainbow Creek and Booroo Ponds (refer to **Figure 8-2**) and therefore, is based on presence of riparian lands.

A preliminary desktop assessment and subsequent ecological survey, conducted over two days in September 2022, was completed by Cumberland Ecology (2023). The desktop assessment focused on identifying ecological constraints within the study area. The ecological surveys were preliminary reconnaissance surveys to examine and verify the mapping of the condition and extent of the different plant communities identified in the desktop assessment. This included conducting Vegetation Integrity assessments in accordance with the Biodiversity Assessment Method (BAM). A summary of the report is provided below, the report is included in **Appendix 2**.

#### Existing environment

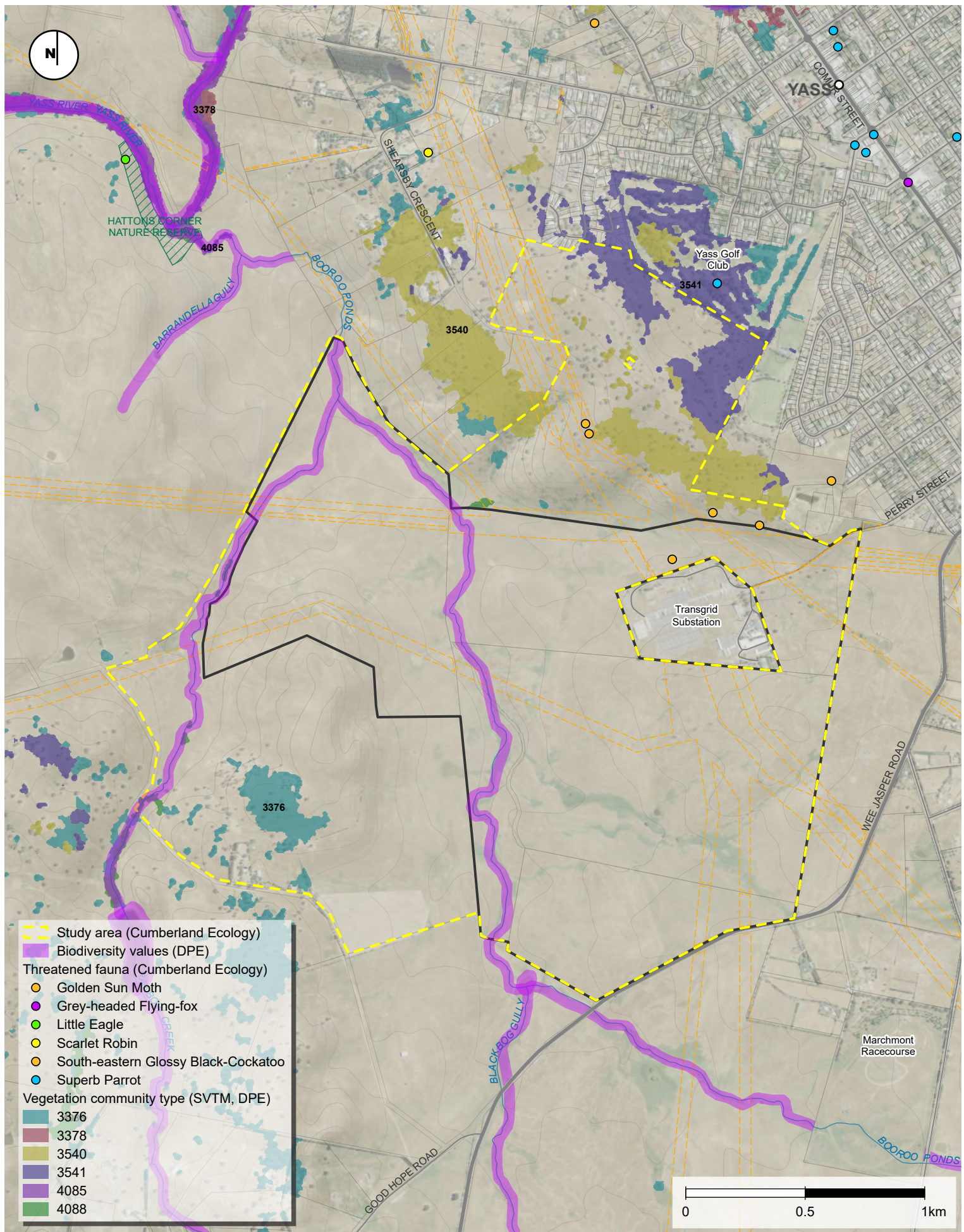
##### Bioregions

The study area is located in the NSW South Eastern Highlands bioregion. Features of the subregions that apply to study area are described in **Table 8-2**.

**Table 8-2: Characterisation of the subregions within the study area (Sahukar R., 2003)**

Feature	Description
<b>South Eastern Highlands – Murrumbateman</b>	
Geology	Fine-grained Palaeozoic sedimentary and meta-sedimentary rocks, minor areas of coarse acid volcanics. Tertiary alluvial terraces along mainstreams.
Landform	Undulating plateau with rounded hills and peaks, entrenched meandering streams with chain of ponds tributaries
Soils	Mottled yellow and brown texture contrast soils with strongly bleached topsoils. Dark organic loams and clay loams on valley floors. Saline patches present
Vegetation	Blakely's red gum, yellow box, on lower slopes, red stringybark, bundy and white gum on ridges. Areas of apple box, and mottled gum. Limited swampy flats and valley floor grasslands





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Figure 8-2 | Biodiversity - Preliminary vegetation mapping and threatened species records

### Vegetation

The study area is located on land primarily used for agricultural activities and grazing. The preliminary biodiversity assessment found that the land is largely characterised by grassland and scattered trees, with scattered occurrences of woodland/forest mainly occurring in the north and southwest of the study area, predominantly outside of the project land.

Available broad-scale vegetation mapping indicates that patches of four native vegetation communities are potentially present within the study area. The vegetation communities, Plant Community Type (PCT) and significance is summarised in **Table 8-3**. The distribution of the predicted broad-scale vegetation communities is shown in **Figure 8-2**.

**Table 8-3: Vegetation communities within the study area (broad-scale vegetation mapping)**

Vegetation formation	PCT Name	PCT	EPBC Act	BC Act
Forested wetlands	Southwest Riverflat Red Gum Forest	4088	-	-
Grassy Woodlands	Southern Tableland Grassy Box Woodland	3376	CE	CE
Dry Sclerophyll Forests (Shrub-grass sub-formation)	Southwest Foothills Stringybark-Box Grassy Forest	3540	-	-
Dry Sclerophyll Forests (Shrub-grass sub-formation)	Southwest Ranges Stringybark Exposed Forest	3541	-	-

Table note: CE = Critically Endangered

Source: Cumberland Ecology (2023)

One threatened ecological community (TEC), Southern Tableland Grass Box Woodland was identified as occurring within the study area. This community is associated with the Box Gum Woodland TEC, listed as a critically endangered ecological community (CEEC) under the BC Act and the EPBC Act.

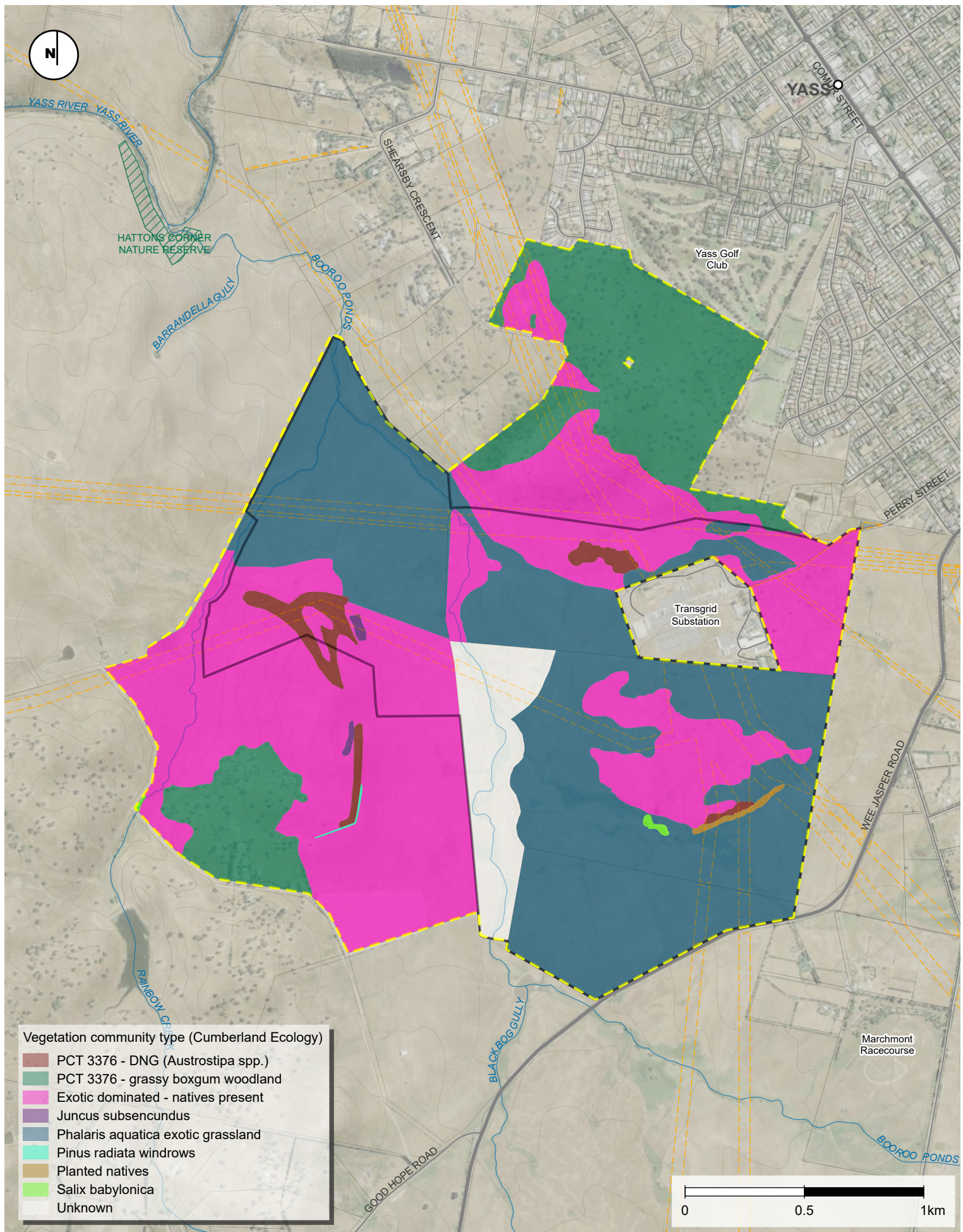
The reconnaissance surveys were undertaken to further define the vegetation mapping within the study area with the vegetation map units/vegetation zones described in **Table 8-4**. The indicative distribution of these communities within the study area is shown in **Figure 8-3**. The survey methodology and survey locations are detailed in the ecological assessment in **Appendix 3**.

**Table 8-4: Vegetation communities within the study area (field survey)**

PCT (if applicable)	Vegetation zone	Description
3376	Condition 1 Box Gum Grassy Woodland	Characterised by an open woodland with a sparse canopy of eucalypts. The canopy species commonly includes <i>Eucalyptus melliodora</i> (Yellow Box), <i>Eucalyptus blakelyi</i> (Blakely's Redgum) and <i>Eucalyptus bridgesiana</i> (Apple Box). Other species infrequently observed includes <i>Eucalyptus dives</i> (Broad-leaved Peppermint). The understorey includes mainly exotic grasses. The native understorey species include <i>Austrostipa scabra</i> ssp. <i>falcata</i> (Rough



PCT (if applicable)	Vegetation zone	Description
		Speargrass), <i>Austrostipa bigeniculata</i> , <i>Microlaena stipoides</i> var. <i>stipoides</i> (Weeping Grass) and <i>Elymus scaber</i> (Common Wheatgrass).
3376	Condition 2 Derived Native Grassland	Dominated by <i>Austrostipa scabra</i> ssp. <i>falcata</i> (Rough Speargrass) and <i>Austrostipa bigeniculata</i> . The other native species present include <i>Crassula sieberiana</i> (Australian Stonecrop) and <i>Elymus scaber</i> (Common Wheatgrass).
3376	Condition 3 Exotic Dominated Natives Present	Dominated by exotic pasture species such as include <i>Lolium perenne</i> (Perennial Ryegrass), <i>Trifolium repens</i> (Clover) and <i>Acetosella vulgaris</i> (Sorrel) although varying coverage of native grasses and forbs do occur, namely <i>Austrostipa scabra</i> ssp. <i>falcata</i> (Rough Speargrass), <i>Austrostipa bigeniculata</i> and <i>Elymus scaber</i> (Common Wheatgrass).
3376	Condition 4 Phalaris Grassland	Dominated by <i>Phalaris aquatica</i> (Phalaris). The other exotic species present include <i>Lolium perenne</i> (Perennial Ryegrass), <i>Trifolium repens</i> (Clover) and <i>Onopordum acanthium</i> (Scotch Thistle). The native species infrequently observed include <i>Rumex brownii</i> (Swamp Dock) and <i>Asperula conferta</i> (Common Woodruff).
-	Rush	Dominated by <i>Juncus subsecundus</i> (Rush). The other species present include <i>Phalaris aquatica</i> (Phalaris) and <i>Austrostipa bigeniculata</i> .
-	Willow	Dominated by <i>Salix babylonica</i> (Weeping Willow). Other species present include <i>Rumex crispus</i> (Curly Dock) and <i>Callitriche stagnalis</i> (Common Starwort).
-	Planted Exotic Trees	Includes <i>Pinus</i> (Pine) and <i>Cupressus</i> (Cypress) species planted in a windrow in the southwest of the study area. Also, the occasional tree is found in the southwest within wooded areas
-	Planted Native trees	Includes the natives <i>Eucalyptus polyanthemos</i> (Red Box), <i>Eucalyptus melliodora</i> (Yellow Box) and <i>Acacia dealbata</i> (Silver Wattle). Exotic Cherry Blossom are also planted among this vegetation type namely <i>Prunus serrulata</i> (Japanese Cherry) and <i>Prunus speciose</i> (Ohshima Cherry).



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Aerial photography from NSW Government Spatial Services

Figure 8-3 | Biodiversity - Preliminary ground-truthed vegetation map of the study area



The reconnaissance surveys mapped the grasslands as a derived native grassland (DNG) form of the Southern Tableland Grassy Box Woodland PCT. It is acknowledged that some grassland areas could potentially comprise Natural Temperate Grasslands of the South Eastern Highlands listed as CEEC under the EBPC Act. More detailed ecological surveys during the EIS would further define the grasslands that are present.

#### Threatened flora

The preliminary biodiversity assessment found that no threatened flora species have been recorded in the project locality as per database searches conducted.

#### Threatened fauna

A total of 20 threatened fauna species have been recorded in the project locality and may have potential to occur within the project land. The species are listed in **Table 8-5**.

**Table 8-5: Threatened fauna recorded in the project locality**

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Likelihood of occurrence
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V		Possible
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	E	Low
<i>Hieraaetus morphnoides</i>	Little Eagle	V		Possible
<i>Lophoictinia isura</i>	Square-tailed Kite	V		Unlikely
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V		Low
<i>Polytelis swainsonii</i>	Superb Parrot	V	V	Likely
<i>Falco subniger</i>	Black Falcon	V		Unlikely
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V		Low
<i>Chthonicola sagittate</i>	Speckled Warbler	V		Low
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V		Possible
<i>Petroica boodang</i>	Scarlet Robin	V,P		Possible
<i>Petroica phoenicea</i>	Flame Robin	V		Possible
<i>Stagonopleura guttata</i>	Diamond Firetail	V		Low
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Possible
<i>Myotis macropus</i>	Southern Myotis	V		Low
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V		Low
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V		Unlikely
<i>Synemon plana</i>	Golden Sun Moth	V	V	Likely
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	Unlikely
<i>Delma impar</i>	Striped Legless Lizard	V	V	Possible



### Habitat

Most of the study area is comprised of cleared land, dominated by grassland vegetation which is likely to have limited value for native fauna. The small, isolated patches of woodland, primarily located outside of the project land, may provide habitat for native fauna species such as:

- Little Eagle (*Hieraaetus morphnoides*)
- Scarlet Robin (*Petroica boodang*)
- Superb Parrot (*Polytelis swainsonii*)
- Grey-headed Flying Fox (*Pteropus poliocephalus*)
- Golden Sun Moth (*Synemon plana*)
- Striped Legless Lizard (*Delma impar*)
- Microchiropteran bats

The koala has not been recorded within ten kilometres of the study area. No feed tree species (as listed in Schedule 1, Chapter 3 of the Biodiversity and Conservation SEPP) were identified within the study area in which the koala relies upon. Based upon this information, the study area does not support potential core koala habitat.

Preliminary consultation with the Biodiversity and Conservation Division of the Department of Planning and Environment (BCD) determined that BCD considered that detailed investigations would be required for the following species:

- Golden Sun Moth (*Synemon plana*)
- Striped Legless Lizard (*Delma impar*).

The mapped watercourses through the site, particularly the higher order watercourses, being Booroo Ponds and Rainbow Creek, have been mapped as Key Fish Habitat and therefore are likely to provide habitat for aquatic and semi-aquatic species. The watercourses may provide some connectivity to the wide locality, however, due to the lack of riparian vegetation this is likely to be limited.

## **Potential impacts**

### Vegetation

Based on the very low vegetation integrity scores generated for the grassland areas, the habitat is substantially degraded so much so that the species are unlikely to utilise the specific vegetation zones, however, this would be further assessed during the EIS.

### Threatened flora and fauna

As identified in **Table 8-5**, several threatened fauna species may have potential to occur due to the presence of potential habitat in the form of native vegetation patches, riparian corridors and dams. However, due to the project land avoiding areas characterised as PCT 3376 Condition 1, the requisite habitat constraints for several species are absent, therefore, those threatened fauna species including birds, bats and koala can be excluded from further assessment (Cumberland Ecology, 2023).

Threatened species records within the study area are limited to recent records (2022-2023) for the Golden Sun Moth. No threatened vertebrate species have been recorded within the study area to date, and records in the immediate vicinity of the study area include mobile avifauna such as Little Eagle (*Hieraaetus morphnoides*), Scarlet Robin (*Petroica boodang*) and Superb Parrot (*Polytelis swainsonii*), as shown in **Figure 8-2**.

There is a low probability that the highly mobile threatened species (birds) would present as a substantial constraint to future development as the development footprint has predominantly avoided the current clusters of native vegetation. However, associated habitat features are present within the project land for the Golden Sun Moth and Striped Legless Lizard and will be further assessed during the EIS.

#### Watercourses

Although the project is exempt from requiring a controlled activity approval under the WM Act due to being a SSD, works within the vegetated riparian zone (VRZ) buffer would be avoided where possible. Some works, such as enabling traversing of the VRZ within the project land, may be required to facilitate the project.

A summary of the potential biodiversity impacts from the project is provided in **Table 8-6**.

**Table 8-6: Potential impacts – Biodiversity**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Removal of terrestrial vegetation	High / Long term	Direct	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>• Avoid – design the project to avoid high value vegetation</li> <li>• Minimise – minimise clearing of vegetation where practical</li> <li>• Offset – vegetated areas that cannot be avoided in clearing works would be offset through the BOS as required</li> </ul>
Construction	Disturbance / loss of habitat	High / Long term	Direct	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>• Avoid – design the project to avoid high value habitat</li> <li>• Minimise – minimise removal of habitat where practical</li> <li>• Offset – habitat that cannot be avoided in clearing works would be offset through the BOS as required</li> </ul>
Construction	Indirect impacts to fauna (light, noise, vibration)	Moderate / Short term	Indirect	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>• Avoid – undertake pre-clearing surveys to identify and relocate fauna prior to commencing works if required</li> <li>• Minimise – minimise noise and vibration emissions where practical through the implementation of best practice management</li> </ul>

**Assessment level and approach**

A BDAR would be prepared to meet the requirements of the BAM established under Section 6.7 of the BC Act. The BDAR would also include detailed investigations of the two species, the Golden Sun Moth (*Synemon plana*) and the Striped Legless Lizard (*Delma impar*) as per consultation with BCD.

The preparation of the BDAR would include the following methodology:

- desktop review of available background information, mapping, and publicly available databases
- field surveys of the development footprint
- field surveys on land subject to construction works outside the development footprint such as road upgrade works if required
- continued refinement of project infrastructure to avoid and minimise potential impacts to biodiversity
- assessment of impacts to biodiversity values, determination of required biodiversity
- offsets for the project
- provision of management and mitigation measures to minimise identified impacts.

Additional to the NSW BOS assessment obligations under the BC Act, any proposed clearing of areas containing Box Gum Woodland and DNG forms or Natural Temperate Grasslands would require consideration if the impacts result in a Serious and Irreversible Impact. Should the Commonwealth listed form of the Box Gum Woodland and DNG or Natural Temperate Grasslands be determined as present in the development footprint, an EPBC Referral to the Commonwealth DCCEEW would also be required.

The project would also be referred to DCCEEW for potential impacts to MNES protected by the EPBC Act.

Further discussions would be had with the BCD to discuss vegetation integrity scores and survey requirements.

**Watercourses**

The sensitivity and classification of Key Fish Habitat under the FM Act would need to be assessed through surveys of the mapped watercourses. Although Key Fish Habitat do not form part of the BDAR, the assessment can be included as a separate section.

### 8.3.2 Landscape Character and Visual

#### Preliminary investigations

A preliminary landscape character and visual impact assessment was completed by Moir Landscape Architecture (Moir LA) and is included in **Appendix 4**. The preliminary landscape character and visual impact assessment was conducted to:

- determine potential sensitive receptors for further assessment
- prepare a preliminary Zone of Visual Influence (ZVI)
- identify key viewpoints, landscape features and character zones
- undertake a preliminary visual impact assessment.

#### Existing environment

##### Sensitive receivers

The preliminary visual impact assessment is required to identify public and private viewpoints within four kilometres of the proposed development in accordance with the *Large-Scale Solar Energy Guideline Technical Supplement - Landscape and Visual Impact Assessment* (Department of Planning and Environment, 2022).

Sensitive receivers located within four kilometres of the project are shown in **Figure 2-2**. This includes two associated receivers and 2,683 non-associated receivers. The high number of non-associated receivers resulting from the proximity of the project to the township of Yass.

Due to the large number of non-associated dwellings with similar views towards the development footprint, 12 clusters were identified with the highest potentially impacted dwellings selected as a representative dwelling (refer to **Figure 8-4**). From the 12 clusters, 18 representative dwellings were selected. 44 additional non-associated dwellings were selected to be assessed due to either their proximity or elevated position in relation to the development footprint, providing a total of 62 non-associated dwelling receptors.

##### Viewpoints

The preliminary visual assessment considered representative viewpoints from public roads and rail lines within 2.5 kilometres of the project. A total of 16 public viewpoints were selected to represent roads within 2.5 kilometres of the study area (refer to **Figure 8-4**).

##### Landscape character zones

Preliminary landscape character zones (LCZs) have been developed for the project to divide the landscape based on common distinguishing visual characteristics. The LCZs developed for the project are shown in **Figure 8-5** and include:

- LCZ01 – Towns and settlements
- LCZ02 – Water corridors
- LCZ03 – Undulating grazing pastures.



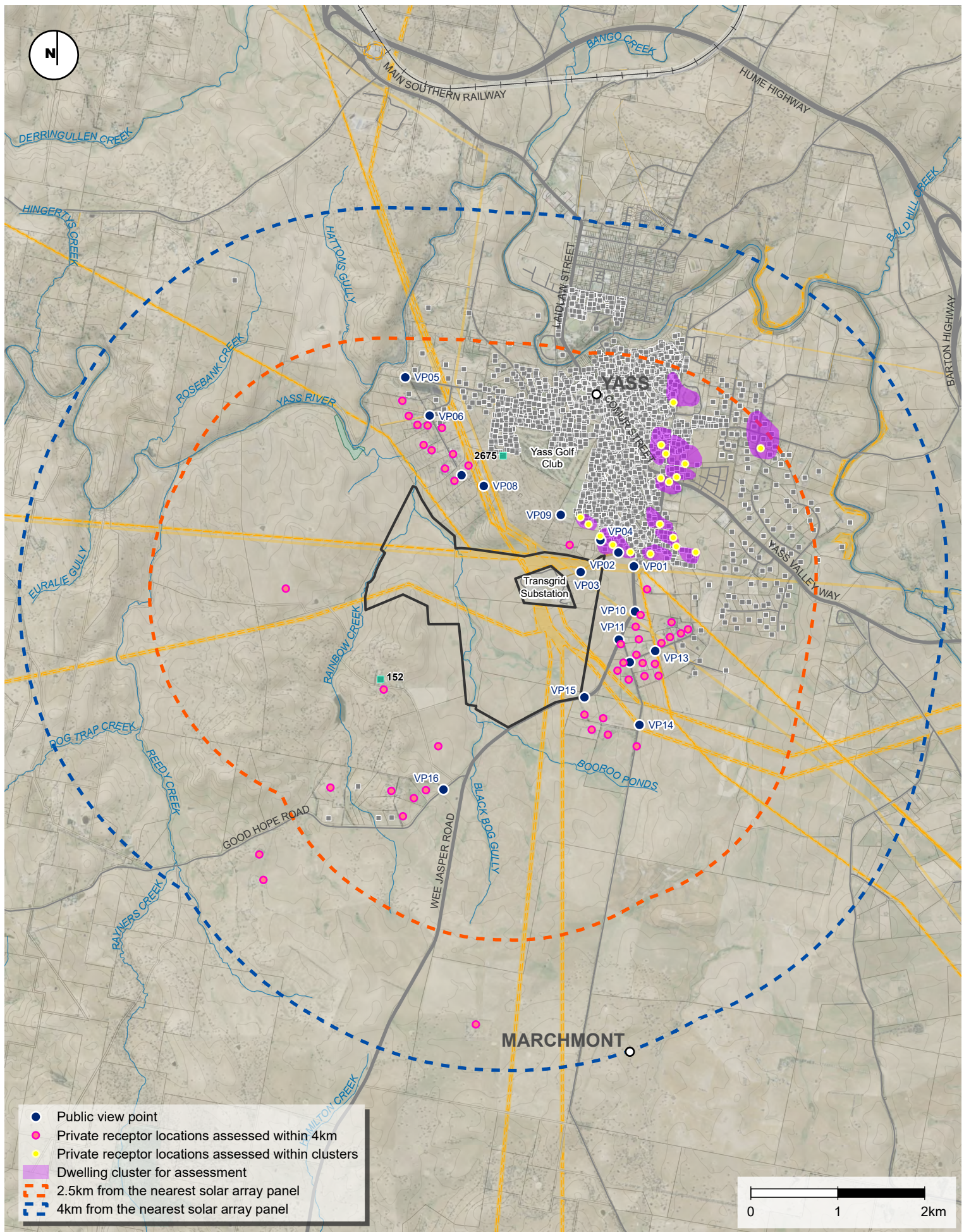


Figure 8-4 | Landscape and visual character - Clusters and representative private and public viewpoints



Figure 8-5 | Landscape character and visual - Preliminary landscape character zones



## Potential impacts

### Vertical and horizontal field of view

The field of view represents the total observable area that can see in a vertical (**Figure 8-6**) or horizontal plane (**Figure 8-7**). The horizontal field of view has been calculated based on the project land and presents a worse case scenario.

#### Project located above and below viewpoint (a - c)



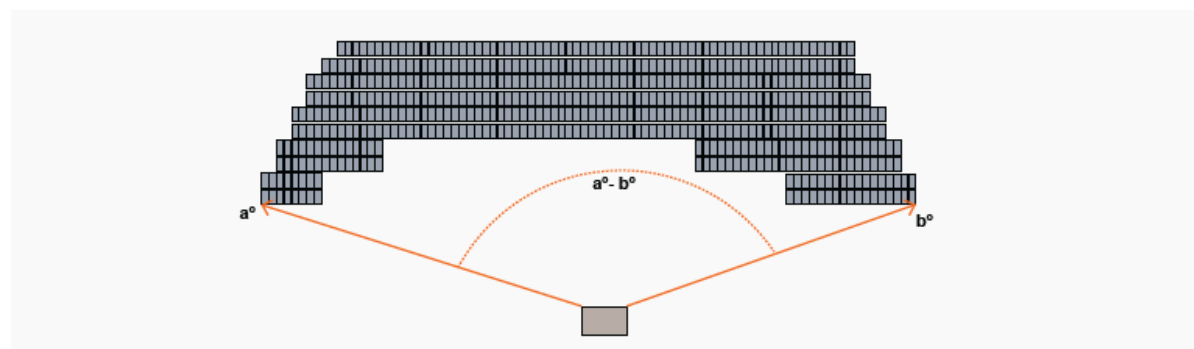
#### Project located above viewpoint (a - b)



#### Project located below viewpoint (b - c)



**Figure 8-6: Vertical Field of View**



**Figure 8-7: Horizontal Field of View**

The field of view calculation considers both private and public viewpoints (refer to **Figure 8-4**). The preliminary assessment identified 52 non-associated dwelling receptors and 13 road receptors (public viewpoints) that will require further detailed assessment at the EIS phase (**Appendix 5**).

### Viewshed mapping

The viewshed map identifies all areas from which the project may be viewed (refer to **Figure 8-8**). The viewshed is based on a maximum panel height of three metres which represents a worst-case scenario (refer to description of photovoltaic modules in **Section 4.1.2**).

The viewshed map provides an assessment based on topography alone and does not consider intervening elements such as vegetation and structures. The viewshed map, therefore, represents a theoretical worst-case scenario.

Based upon the undulating topography of the area surrounding the project alone, the project is not likely to be visible from the town of Yass, potential views of the majority of the project may be available to those of elevated areas immediately north and south of the development footprint, and areas in excess of 2.5 kilometres to the northwest. Some views of the project may also be available from settlements to the north and immediately east of the project, and some elevated dwellings to the north, north east and south west.

The reverse viewshed mapping shows the areas within the development footprint of highest visibility (refer to **Figure 8-8**). The reverse viewshed map shows that of the identified 2,683 non-associated dwellings, 396 non-associated dwellings will likely have views to much of the project. The EIS would further investigate the viewshed of the project and include a detailed assessment to obtain a more realistic representation of the visual impact of the project based on other contributing factors such as vegetation screening and structures.

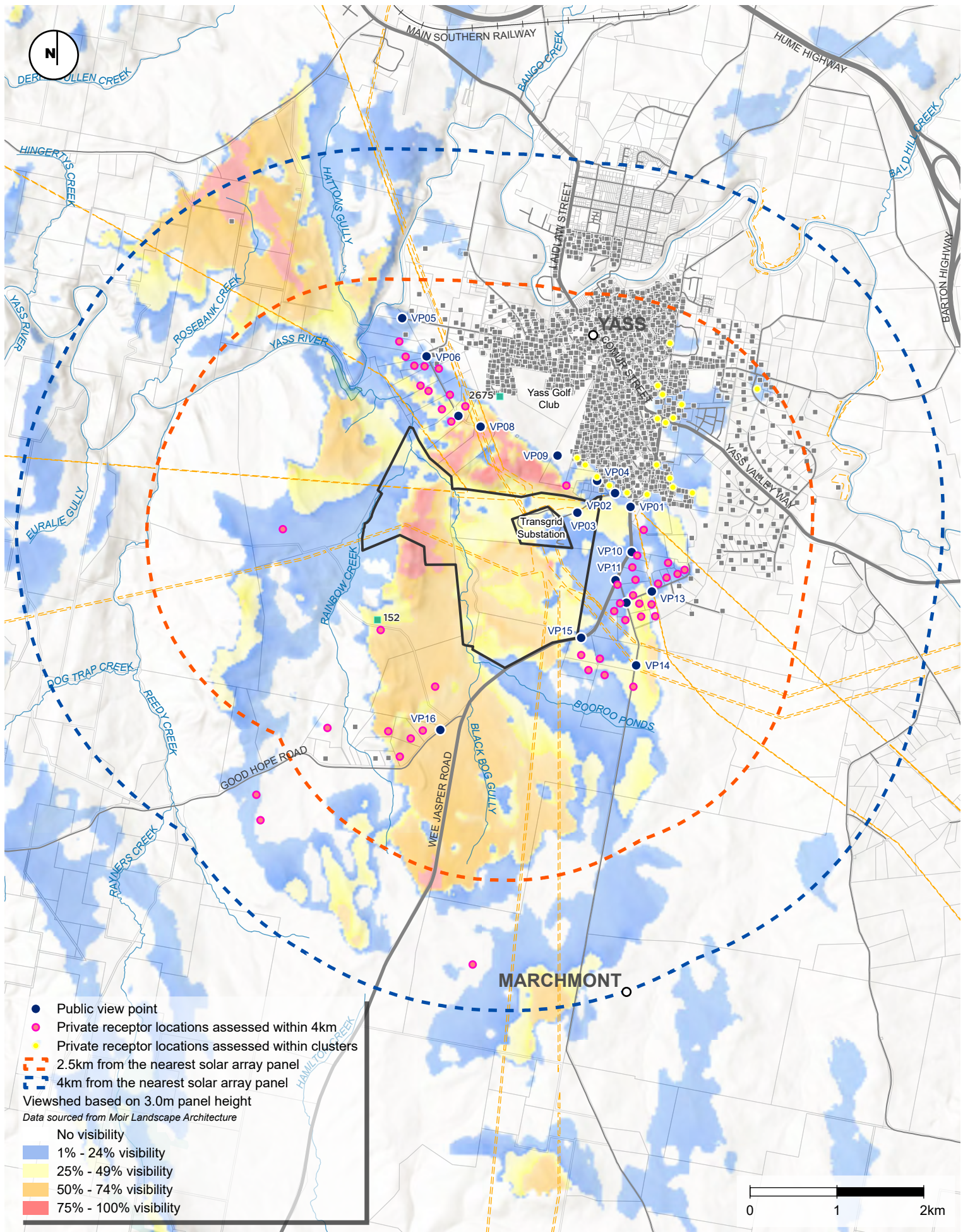


Figure 8-8 | Landscape character and visual - Viewshed map



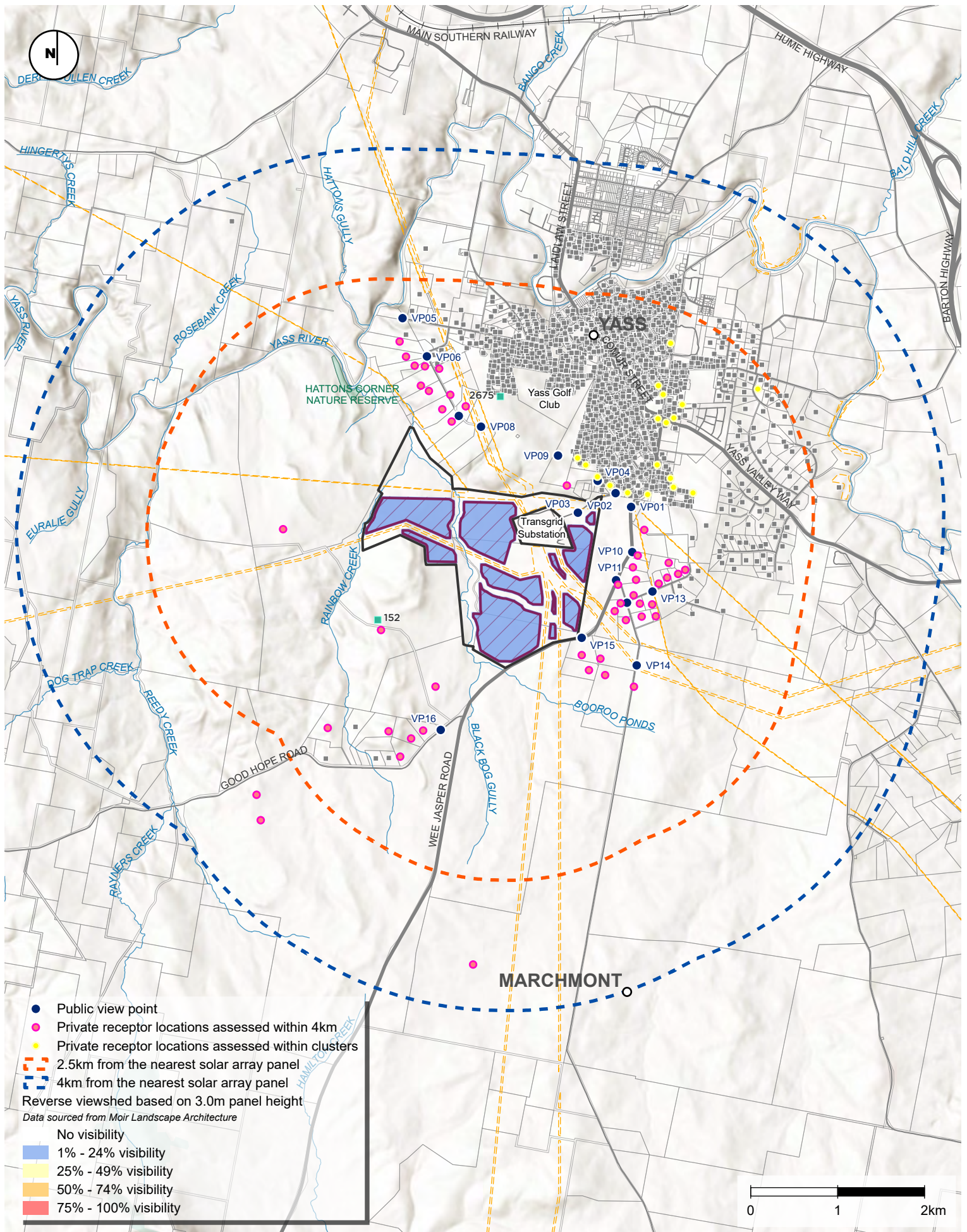


Figure 8-9 | Landscape character and visual - Reverse viewshed map

A summary of the potential visual impacts from the project is provided in **Table 8-7: Potential impacts - Visual**

**Table 8-7: Potential impacts - Visual**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Temporary reduction in visual amenity from construction infrastructure	Moderate / Short term	Direct	Sensitive (social value)	Y	<p>Minimise – located temporary construction infrastructure away from sensitive receptors where possible</p> <p>Minimise – install fencing around perimeter of to obstruct view of construction</p>
Operation	Reduction in visual amenity from project infrastructure	High / Long term	Direct	Sensitive (social value)	Y	<p>Avoid – avoid placing large infrastructure in locations where high visual impacts would be perceived</p> <p>Minimise – establish vegetation planting to provide screening</p>
Operation	Changes to the landscape character from agricultural to electrical infrastructure	High / Long term	Direct	Sensitive (social value)	Y	<p>Minimise – locate photovoltaic modules in less publicly visible areas where practicable</p>

### Assessment level and approach

A landscape and visual impact assessment would be prepared for the project in accordance with the *Large-Scale Solar Energy Guideline* (Department of Planning and Environment, 2022a) and the *Large-Scale Solar Energy Guideline Technical Supplement - Landscape and Visual Impact Assessment* (Department of Planning and Environment, 2022). A glint and glare assessment would also be prepared in accordance with Appendix C of the *Large-Scale Solar Energy Guideline* (Department of Planning and Environment, 2022a).

The landscape and visual impact assessment would include the following methodology:

- desktop assessment and application of preliminary assessment tools to identify public and private viewpoints
- preparation of zone of influence diagrams based on the maximum panel height of the photovoltaic modules
- photographic analysis from private viewpoints within four kilometres of the project
- a detailed receptor assessment including preparation of panoramic photomontages and determination of visual impact ratings
- recommendations for visual mitigation measures for dwellings identified with moderate or high visual impact ratings.

### 8.3.3 Heritage – Aboriginal

#### Existing environment

The project land is located within the eastern boundaries of the territory of the Ngunnawal tribal and linguistic group which borders the territory of the Gundungurra tribal and linguistic group to the east and Wiradjuri tribal and linguistic group to the north (Australian Institute of Aboriginal and Torres Strait Islander Studies, 2022).

Several locations within the Yass region are of cultural significance including North Yass, Edgerton, Hollywood, Bango Creek, Pudman Creek and Blakney Creek (Australian Institute of Aboriginal and Torres Strait Islander Studies, 2022). Two historical Aboriginal places are located within Yass:

- Yass Aboriginal Cemetery (located two kilometres north from the site)
- Oakhill Aboriginal Reserve (located four kilometres northeast from the site).

No native title claims were identified in the region of the project land. It is also unlikely that there are any land claims under the *Aboriginal Land Rights Act 1983* as the project land is freehold land.

A search of the Heritage NSW administered AHIMS database was undertaken 15 September 2022, identifying eight registered Aboriginal sites within the project land (refer to **Figure 8-10**), comprising:

- one Aboriginal site recorded on Lot 5 DP1165198
- seven Aboriginal sites recorded on Lot 7 DP15756.

An Aboriginal archaeological and cultural heritage significance assessment was undertaken by Kayandel Archaeological Services (KAS) in 2010 for the proposed Tulla Park development (Kayandel Archaeological Services, 2010). The assessment included a field survey across Lot 7 DP15756, Lot 5 DP15756, Lot 6 DP15756 (now Lot 2 DP1246686), and Lot 4 DP15756. Lot 7 DP15756 occurs within the project land, and the remaining lots are located west and south of the project land. Artefacts were found at 34 locations across the field survey area indicating the potential for further Aboriginal sites to be found within the development footprint for the project.

Based on the preliminary assessment, taking into consideration the landforms within the site (creek lines and ridgelines) and review of the AHIMS data and previous studies undertaken, the following types of previously unrecorded Aboriginal sites may be present in the site:

- **isolated finds:** these sites can occur anywhere, particularly within undisturbed contexts, and may be identified within the site
- **open artefact scatters:** this site type is not predicted to be common as most of the project land is within flat landforms distant to reliable water sources, and high degree of disturbance in the site
- **culturally modified trees:** this site type is predicted to be rare although may be present where mature vegetation is present.

Due to the large project land area and comparably smaller development footprint of the proposed project infrastructure, it is feasible that potential impacts to the landforms with identified Aboriginal objects can be minimised through design refinement.



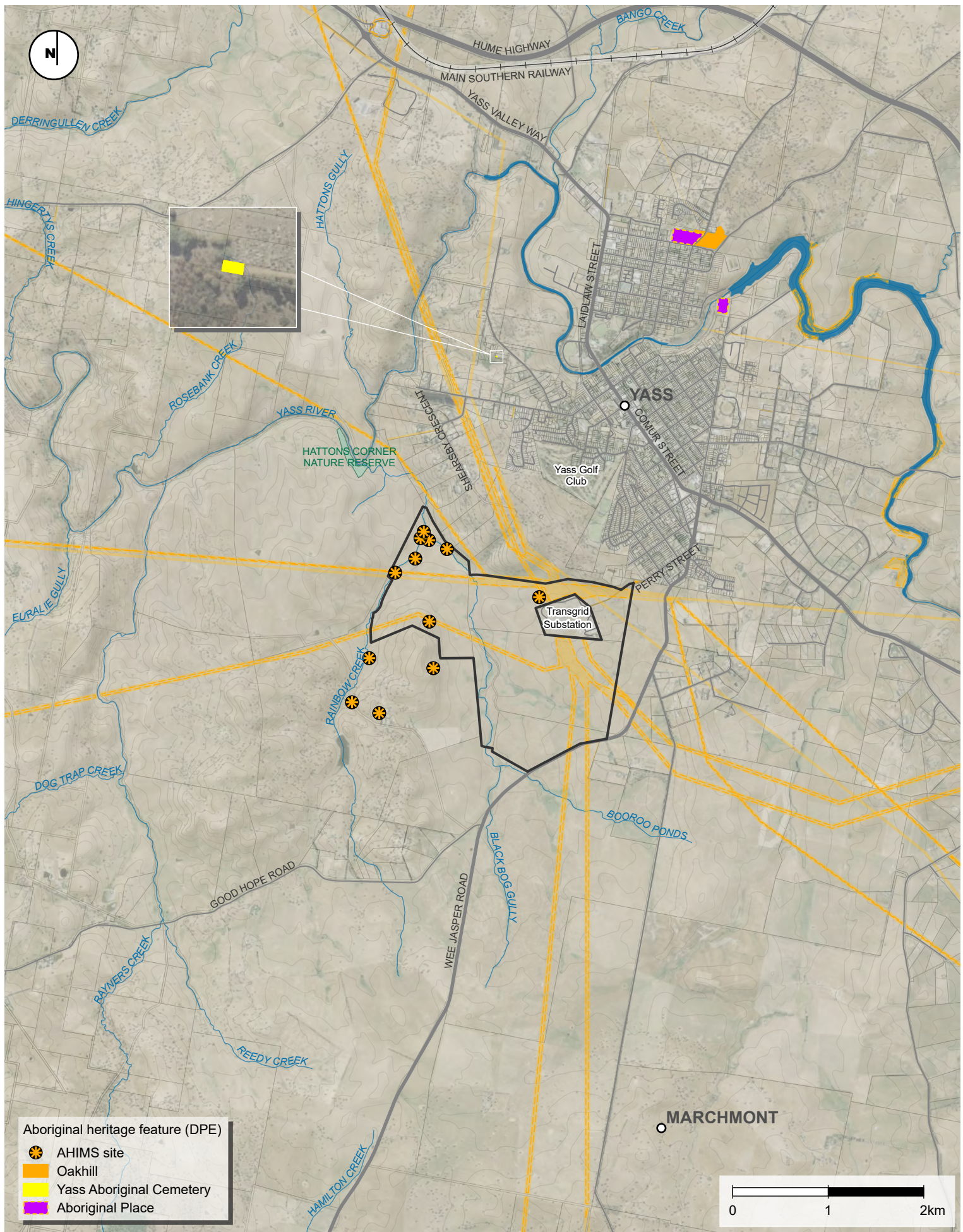


Figure 8-10 | Aboriginal heritage - Registered Aboriginal sites



### Potential impacts

A summary of the potential Aboriginal heritage impacts from the project is provided in **Table 8-8**.

**Table 8-8: Potential impacts – Aboriginal heritage**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Potential to impact on previously recorded Aboriginal objects, sites, or culturally modified trees	High / Long term	Direct	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Avoid – siting of infrastructure would be designed to avoid known sites and sensitive landforms (i.e. creek lines and ridgelines)</li> <li>Offset – any sites that cannot be avoided would be salvaged by an archaeologist</li> </ul>
Construction	Potential to impact on previously unrecorded Aboriginal objects, sites, or culturally modified trees	High / Long term	Direct	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Avoid – siting of infrastructure would be designed to avoid sensitive landforms (i.e. creek lines and ridgelines)</li> <li>Minimise – an unexpected find procedure would be developed and implemented during construction</li> <li>Offset – any sites that cannot be avoided would be salvaged by an archaeologist</li> </ul>
Construction and operation	Potential to impact on social or cultural values of the project land	High / Long term	Perceived	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Minimise – consultation with Aboriginal representatives to define and understand social and cultural values of the project land</li> </ul>

### Assessment level and approach

The assessment of Aboriginal cultural heritage values would be addressed in an Aboriginal Cultural Heritage Assessment Report (ACHAR). Preparation of the ACHAR would include consultation with Registered Aboriginal Parties (RAPs) and Local Aboriginal Land Council/s.

The assessment would follow the *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (Code of Practice), (Department of Environment, Climate Change and Water NSW, 2010a), the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (Office of Environment and Heritage, 2011) and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (Department of Environment, Climate Change and Water NSW, 2010b).

The preparation for the ACHAR would include the following methodology:

- desktop review to develop a predictive model for the location of Aboriginal objects within the development footprint and outside the project land that may be subject to disturbance (such as road upgrade locations)
- conduction consultation with the Aboriginal community to establish RAPs for the project
- site survey with the assistance of the Aboriginal community to identify any Aboriginal objects that may be present, as well as identifying any landforms where subsurface archaeological deposits may be present
- identify any areas/landforms of cultural significance in consultation with the Aboriginal community
- undertake test excavation if warranted
- determination of the significance of the Aboriginal objects and/or landforms identified during the site survey in consultation with the Aboriginal community
- assessment of the impact to identified Aboriginal heritage values including both tangible and intangible values
- development of mitigation measures to minimise impacts to Aboriginal cultural values.

### 8.3.4 Traffic and access

#### Preliminary investigations

A preliminary desktop traffic and access assessment has been completed and includes:

- review of surrounding road network
- review appropriate transport routes
- identify other potential impacts that may be caused during construction, operation and decommissioning related to traffic and transport.

#### Existing environment

##### Surrounding road network

The road network surrounding the project is shown on **Figure 8-11** and includes private, local, and regional roads. The surrounding road network includes the following key roads:

- **Wee Jasper Road** – the project would have direct access to Wee Jasper Road which is the only road to Yass from Boambolo. The road is a narrow, two-way road with a single lane in both directions. Wee Jasper Road traverses north-south, bordering the eastern side of the project land.
- **Perry Street** – is a local road that provides the main access point into the Transgrid Substation and would provide direct access to the project. Perry Street is a narrow, two-way

road with a single lane in both directions that traverses northeast-southwest through a residential area and into the northern section of the development footprint.

- **Yass Valley Way** – occurs to the northeast of the project and is the main road traversing northwest-southeast through Yass, connecting Yass to the Hume Highway (M31) and Barton Highway (A25). Yass Valley Way is a two-way road with a single lane in both directions.
- **Hume Highway (M31)** – is a two-way highway with two lanes in both directions, that connects Melbourne to Sydney. The Hume Highway traverses approximately northeast-southwest occurring to the northeast of the project.

#### Access Routes

The project would primarily be accessed from:

- the south via Wee Jasper Road > Green Street > Grand Junction Road > Comur Street > Yass Valley Way > Hume Highway
- the north via Perry Street > Grand Junction Road > Comur Street > Yass Valley Way > Hume Highway.

The project would also require an internal access track network connecting the solar arrays and associated infrastructure. The access tracks would be established for construction and maintained for use as operational access tracks.

#### Haulage routes

It is anticipated that construction materials and infrastructure would largely be transported to the project area via road from the Port of Newcastle. Some deliveries may also come from Canberra or Sydney (subject to resource supplier selection and port capabilities and fees etc).

It is anticipated that materials would primarily arrive via the most effective route and be transported to site by heavy vehicles up to B-double in size, however some oversize overmass vehicles may also be required. This is to be confirmed in the EIS.

#### Road and intersection upgrades

Some upgrades to public roads may be required to provide appropriate capacity and performance during construction which would be confirmed during the EIS.

#### **Potential impacts**

There are expected to be traffic and transport impacts that will need to be assessed, primarily associated with construction, and increased light vehicles and heavy vehicles on the surrounding road network. These impacts may include:

- intersection performance impacts on the surrounding road network
- traffic performance on the surrounding road network
- temporary disruptions to traffic and active transport movements around the project including potential impacts to road user safety
- impacts on the condition of roads due to increase construction traffic
- temporary impacts to property access and active transport along haulage and worker routes associated with road widening or road intersection upgrades that may be required.

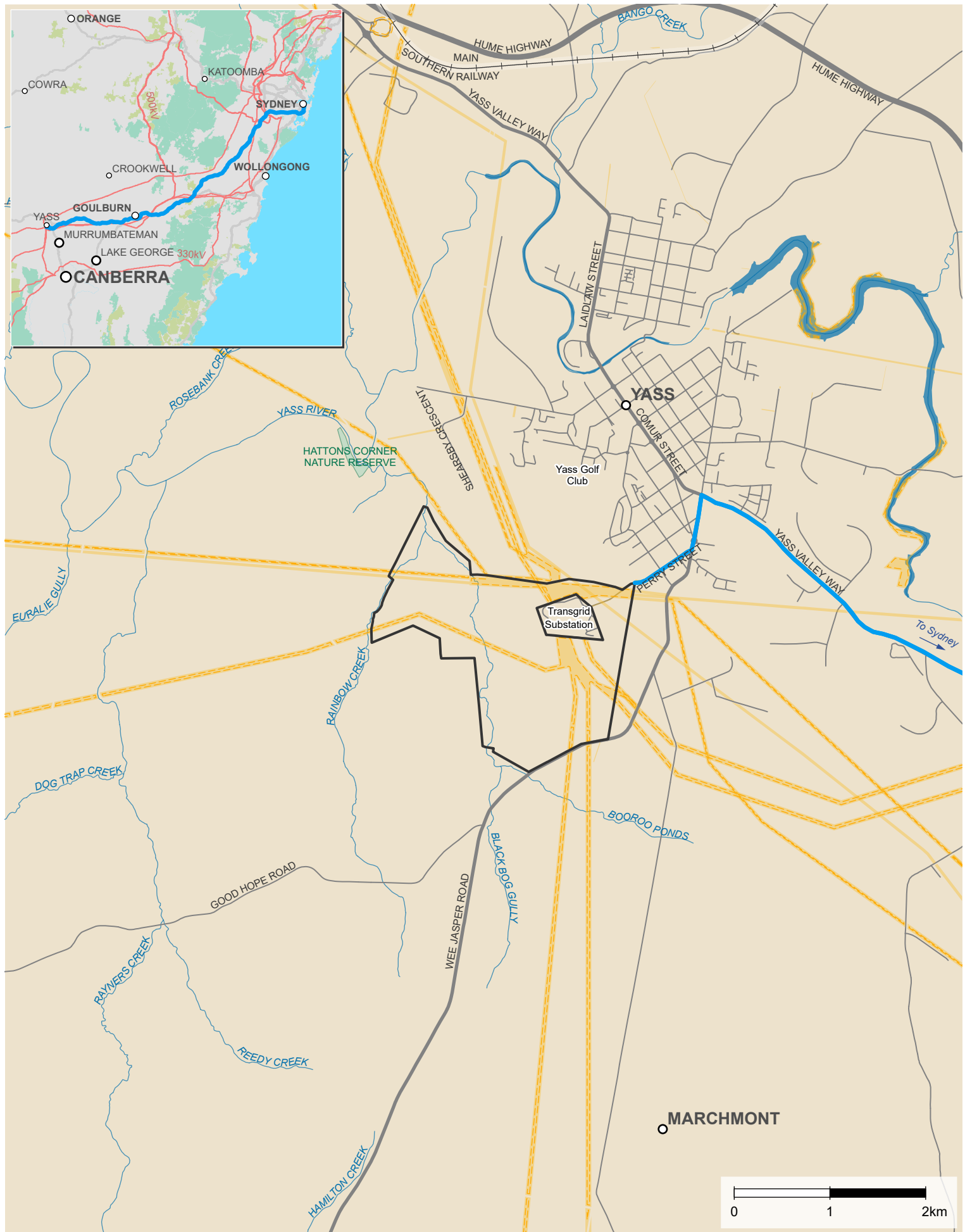
During construction of the project, it is expected that potential impacts to the existing traffic on the local road network will be associated with the generation of light vehicles for worker movement and heavy vehicles for construction plant, equipment, materials, and waste removal.



Post construction, traffic demand would decrease as the project enters the operational phase. Once the project is operational, most of the vehicles accessing the site would be light vehicles, aside from some heavy vehicles that may be required to undertake maintenance activities and repairs. Minimal impact is expected from operational traffic.

Traffic demand during decommissioning is expected to either be lower or equivalent to the construction period. Therefore, impacts are anticipated to be either be similar or less than those expected during construction with similar or reduced mitigation measures required.

A summary of the potential traffic and access impacts from the project is provided in **Table 8-9**.



#### KEY

- Project land
- Electricity transmission line easement
- Access route
- Railway
- National Parks and Reserves
- Waterway

Figure 8-11 | Traffic and access - Proposed access route

**Table 8-9: Potential impacts – traffic and access**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Increased traffic on the local road network affecting: <ul style="list-style-type: none"> <li>• traffic performance</li> <li>• intersection performance</li> <li>• road user safety</li> <li>• the condition of the roads</li> </ul>	Moderate / Short term	Direct Cumulative	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>• Minimise – implementation of traffic controls</li> <li>• Minimise – implementation of road and intersection upgrades where required in consultation with road authorities, Energy and Yass Valley Council</li> </ul>
Construction	Temporary disruptions to traffic movements on the local road network	Moderate / Short term	Direct Cumulative	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>• Minimise – implementation of traffic controls</li> </ul>
Construction	Upgrades to roads and intersections required to accommodate oversize overmass vehicles	Low / Short term	Direct	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>• Minimise – design of road and intersection upgrades will be undertaken in consultation with road authorities and Yass Valley Council</li> </ul>

### Assessment level and approach

The traffic and transport impact assessment would include obtaining an understanding of the existing traffic, transport and road conditions surrounding the project. This would include review and analysis of the following:

- review of local council traffic and road policies
- conducting traffic surveys to assess existing road usage at key intersections
- assessment of existing traffic and transport network through:
  - traffic volumes along the access routes
  - review and safety assessment of crash data (along the access routes)
  - safe intersection sight distance assessment at site access points
  - assessment of critical intersections using Austroads intersection warrants
  - review of public transport / school transport services
  - review of active transport facilities
  - review of existing parking provisions and property access.

A quantitative traffic and access assessment would be undertaken to determine the potential impacts of additional light and heavy vehicle movements (including over dimensional vehicles) on the local road network during construction. The assessment would identify the requirements for any road upgrades if required for the project.

Access to the project would be required by several types of vehicles and potential routes will need to be assessed for proposed access points into the development footprint. The route assessments would include identification of proposed vehicle movements to and surrounding the development footprint and provision of recommendations and considerations for the assessed routes.

As ongoing traffic impacts during operation are expected to be very minor, a qualitative assessment would be undertaken to assess broadscale impacts on local roads, access, public and active transport, and parking, along with potential impacts of the project during operation and decommissioning.

A qualitative assessment would also be undertaken to assess the cumulative impacts of the project, involving a review of nearby developments and considering the likely traffic volumes, distribution and access routes.

### 8.3.5 Hazards and risks

#### Existing environment

##### Battery storage

The *Large-Scale Solar Energy Guideline for State Significant* (Department of Planning and Environment, 2022a) identifies battery storage (and associated chemicals) as a key element of a solar farm to be considered in a hazards and risk assessment.

Appendix 3 of the *Applying SEPP 33* (Department of Planning, 2011b) lists the industries that may fall within the Resilience and Hazards SEPP (former SEPP 33), which do not include solar farms or energy storage facilities. However, the BESS facilities proposed for the project are likely to utilise lithium-ion batteries, which are listed as Class 9 – Miscellaneous dangerous goods. While Class 9 materials are excluded from the SEPP 33 screening test, the hazards related to these materials should be considered in accordance with the *Applying SEPP 33 Guidelines*.



#### Electromagnetic fields

Electromagnetic field (EMF) associated with the generation, distribution and use of electricity is classified as extremely low frequency electromagnetic field. Short term exposure to very high levels of electromagnetic field can be detrimental to human health. As the electrical equipment would be designed and installed in accordance with the relevant guidelines for EMF exposure, the EMF levels produced by the project would be expected to be within the recommended exposure limits at all publicly accessible locations.

#### Bushfire risk

The *Large-Scale Solar Energy Guideline for State Significant Development* (Department of Planning and Environment, 2022a) lists bushfire hazard and risk associated with construction and operation of a solar farm as an issue to be considered. In particular, the potential for fire spreading to the solar development or being caused by the onsite solar equipment and associated cables, panels or transmission lines.

The project land is identified as category 3 bushfire prone land (refer to **Figure 8-12**). Vegetation category 3 is considered to be medium bush fire risk vegetation and consists of grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.

Bushfire protection zone, accessways for Rural Fire Services and water storage tanks around critical infrastructure would be required to be established as part of the project.

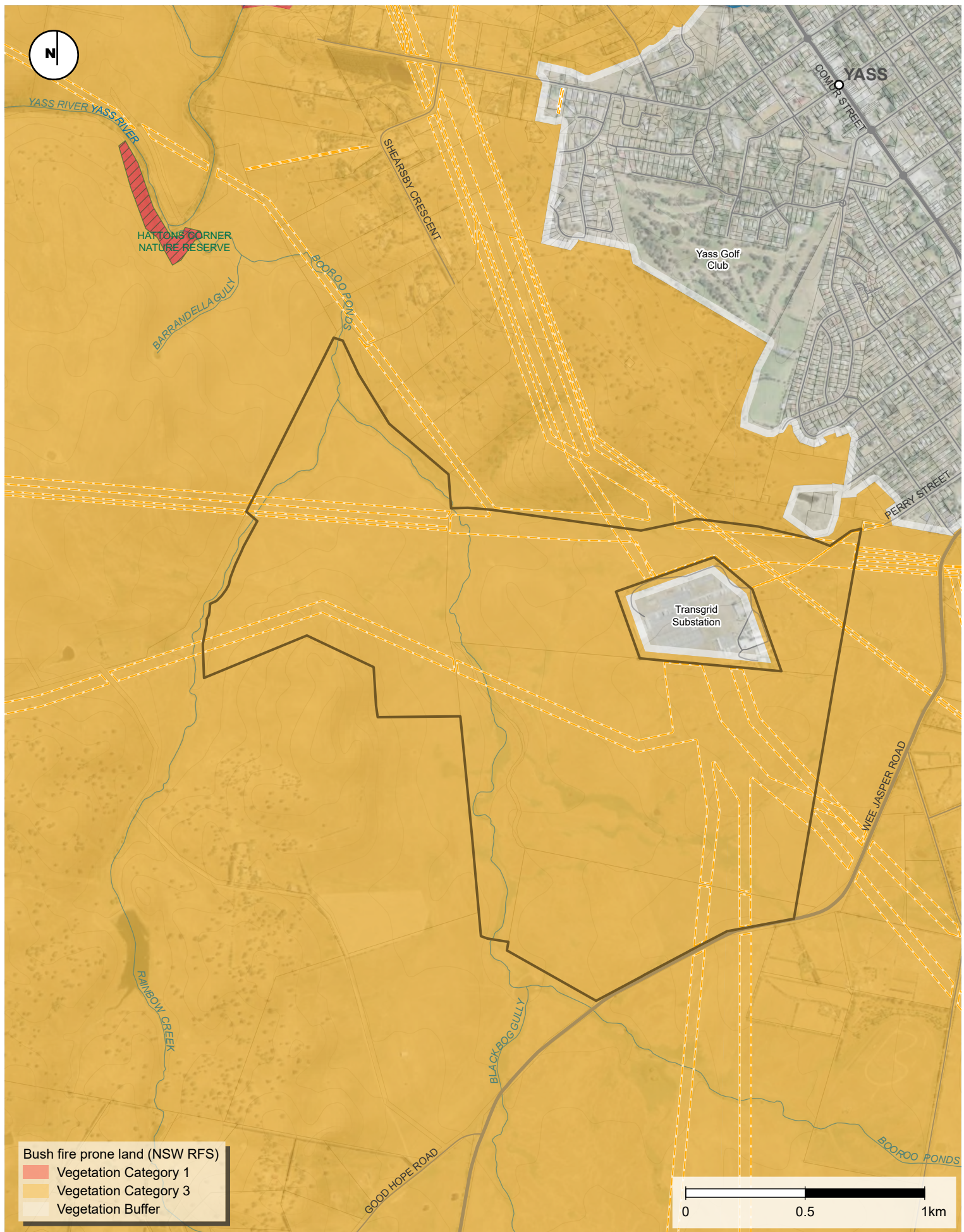
#### Flooding

The project land is traversed by a number of water ways and overland flow paths which may be subject to minor flooding (refer to **Section 8.4.2**).

The project land is not identified as flood prone land. The *Yass Flood Study* (WMA Water, 2016) and the subsequent *Yass Floodplain Risk Management and Plan* (Lyll and Associates Consulting Water Engineers, 2021) did not include the project land, therefore no flood studies were identified as relevant to the site. A flood model will be required to appropriately characterise the baseline flood behaviour.

#### Dangerous goods

'Hazardous materials' are defined in *Applying SEPP 33* (Department of Planning, 2011), as substances that fall within the classification of the Australian Dangerous Goods Code (ADGC) and have a Dangerous Goods (DG) classification. The project would likely include the use of dangerous goods such as liquified petroleum gas, refrigerants and gasoline.



RAMBOLL AUSTRALIA - GIS MAP file : 318001526\_GIS\_P001\_ScopingReport | F011\_Hazards\_V06  
Aerial photography from NSW Government Spatial Services

Figure 8-12 | Hazards and risks – Bushfire prone land mapping

## Potential impacts

A summary of the potential hazards and risks associated with the project is provided in **Table 8-10**.

**Table 8-10: Potential impacts – hazards and risks**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
<b>Battery storage</b>						
Operation	Failure of BESS safety features resulting in electric shock, fire, flash burns, explosion or exposure to hazardous chemicals and released gases	High / Short term	Indirect	Sensitive (environmental value)	N	<ul style="list-style-type: none"> <li>Avoid – locate BESS away from sensitive receptors where possible</li> <li>Minimise – design BESS in accordance with relevant guidelines and standards</li> <li>Minimise – the BESS would be monitored during operations and regularly maintained</li> </ul>
<b>Electromagnetic fields</b>						
Operation	Short term exposure to very high levels of electromagnetic field can be detrimental to human health	High / Short term	Direct	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Avoid – locate electrical infrastructure away from sensitive receptors where possible</li> <li>Minimise – design electrical infrastructure in accordance with relevant guidelines and standards</li> </ul>

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
<b>Bushfire</b>						
Construction and operation	Potential for bushfire starting from the project or potential for construction to be affected by an external bushfire	High / Long term	Indirect	Sensitive (environmental value) Vulnerable to change	N	<ul style="list-style-type: none"> <li>• Avoid – avoid operating machinery with the potential to spark near vegetated areas</li> <li>• Minimise – management of the solar farm site to reduce available fuel loads during high fire danger periods</li> <li>• Minimise – establish bushfire protection zones around critical infrastructure</li> </ul>
<b>Flooding</b>						
Construction and operation	Potential for construction to be affected by an external flood	Moderate / short term	Indirect	Sensitive (environmental value) Vulnerable to change	N	<ul style="list-style-type: none"> <li>• Avoid – siting of infrastructure would be designed to avoid areas of potential flood impact (adjacent to waterways and/or overland flow paths)</li> <li>• Avoid – avoid operating machinery within adverse weather conditions which may result in flooding</li> <li>• Minimise – management of the solar farm site to minimise obstruction of waterway flows</li> <li>• Minimise – monitor weather bureau and prepare site in the event of high rainfall and potential flooding</li> </ul>



Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
<b>Dangerous goods</b>						
Construction and operation	Risks to public safety from incorrect transport, handling, storage and use of hazardous materials	Low / Short term	Indirect	Sensitive (social value)	N	<ul style="list-style-type: none"> <li>Avoid – minimise the quantity of hazardous materials kept onsite</li> <li>Minimise – transport, store and handle materials in accordance with EPA guidelines</li> </ul>

### Assessment level and approach

A preliminary hazards assessment would be undertaken for the project in accordance with *Hazard Industry Planning Advisory Paper No. 6 –Guidelines for Hazard Analysis* (Department of Planning, 2011a) and *Multi-Level Risk Assessment* (Department of Planning and Infrastructure, 2011). The assessment would consider risks from the BESS such as electric shock, fire, flash burns, explosion or exposure to hazardous chemicals and released gases. It would also consider the potential hazards associated with the transportation of the BESS, which may inform the nominated transport routes.

An EMF assessment would be prepared to assess the potential impacts and risks to human health associated with the electromagnetic fields generated by the project. Typical exposure levels to EMF for the project infrastructure would be assessed against the International Commission on Non-Ionizing Radiation Protection (ICNIRP) *Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields* (International Commission on Non-Ionizing Radiation Protection, 2020).

The bushfire assessment would consider environmental factors that increase the risk of fire (fuel quantity and type, topography and weather patterns), as well as specific activities (such as hot works and construction activities) or infrastructure components that exacerbate combustion or ignition risks (such as transmission lines and other electrical components). The assessment would aim to demonstrate that the project can be designed, constructed, and operated to minimise ignition risks and provide for asset protection consistent with the NSW Rural Fire Service Guidelines – *Planning for Bushfire Protection 2019* (NSW Rural Fire Service, 2019).

The flood model and assessment would determine baseline flood behaviour of the waterways and overland flow pathways. This would be used to inform design of the project and be used to determine post-construction flood conditions. The assessment would identify any management measures that may need to be implemented to manage flood risks both within the study area and on adjacent land.

Dangerous goods required to be transported during construction and operations would be identified and quantified within the EIS and all required licences and approvals obtained prior to the commencement of relevant construction activities. This EIS would evaluate the likely risks to public safety, by focusing on the transport, handling, and use of hazardous materials.

### 8.3.6 Noise and vibration

#### Preliminary investigations

A preliminary desktop noise and vibration assessment was completed and includes:

- identification of closest sensitive receivers
- identifying relevant noise and vibration criteria.

#### Existing environment

##### Sensitive receivers

The closest sensitive receivers to the development footprint are demonstrated in **Table 8-11**.

**Table 8-11: Noise and vibration – sensitive receiver approximate distance from development footprint**

Direction	Approximate distance from development footprint (metres)
East	360
Southeast	200
Southwest	760
West	920
Northeast	255
North	400

Noise criteria

A summary of the noise criteria that would apply to construction and operational activities is provided in **Table 8-12**.

**Table 8-12: Noise criteria that would apply to the project**

Guidelines	Criteria
<b>Construction activities</b>	
<i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change, 2009)	<p>Noise management measures are required to be implemented where predicted or measured construction noise level (<math>L_{eq,15min}</math>) exceeds:</p> <ul style="list-style-type: none"> <li>• <b>During standard hours</b> (7am to 6pm Monday to Friday, 8am to 1pm Saturday): <ul style="list-style-type: none"> <li>- Noise affected – rating background level (RBL) + 10 decibels (dB)</li> <li>- Highly noise affected – 75 dB</li> </ul> </li> <li>• <b>Outside standard hours:</b> <ul style="list-style-type: none"> <li>- RBL + 5 dB.</li> </ul> </li> </ul>
<b>Construction road traffic</b>	
<i>Road Noise Policy</i> (Department of Environment and Climate Change, 2011) (RNP)	<p>Recommended that external road traffic noise levels at sensitive receivers are limited to:</p> <p>Freeway/arterial/sub-arterial roads</p> <ul style="list-style-type: none"> <li>• 60 dB <math>L_{Aeq,15h}</math> during the daytime (7am to 10pm)</li> <li>• 55 dB <math>L_{Aeq,9h}</math> during the night time (10pm to 7am).</li> </ul> <p>Local roads</p> <ul style="list-style-type: none"> <li>• 55 dB <math>L_{Aeq,1h}</math> during the daytime (7am to 10pm)</li> <li>• 50 dB <math>L_{Aeq,1h}</math> during the night time (10pm to 7am).</li> </ul> <p>Where the above criteria are already exceeded, the RNP recommends limiting the increase in road traffic noise levels to no more than 2 dB of the corresponding 'no build option'.</p>
<b>Ancillary infrastructure noise</b>	
NSW <i>Noise Policy for Industry</i> (NPI) (Environment Protection Authority, 2017)	<p>The NPI establishes project noise trigger levels as the lower of the following:</p> <p><b>Amenity level:</b> a criterion established with reference to the land zoning of an area and with the aim of not increasing</p>

Guidelines	Criteria
	<p>industrial noise levels in an area. In the area surrounding the project, it is likely that the amenity level would be 30 dB at night</p> <p><b>Intrusiveness level:</b> 5 dB above the RBL for each time of day. The minimum intrusiveness criterion that can apply is 35 dB at evening and night.</p>

#### Vibration criteria

The potential vibration impacts would be assessed for human exposure and building damage in accordance with the following criteria:

- **Cosmetic and structural damage to buildings:** German Standard DIN 4150: Part 3-1999 Structural vibration – Effects of vibration on structures 1999 (DIN 4150)
- **Human comfort:** NSW Assessing Vibration – A Technical Guideline (Department of Environment and Conservation, 2006) and Transport for NSW Construction Noise and Vibration Strategy (CNVS) (Transport for NSW, 2018).

#### **Potential impacts**

##### Noise generating activities

It is expected that noise and vibration generating activities during construction would include:

- site preparation and establishment
- pile driving and foundations for substations, BESS
- underground cabling
- installation of photovoltaic modules and associated infrastructure
- installation of operation and maintenance buildings
- grading around lower order streams and drainage channels
- removal of temporary site compound.

If the BESS is AC coupled and grouped together in a designated location, there is the potential for noise generation. This potential noise generation would be considered when evaluating and determining the BESS location, design and layout, and if noise attenuation is required.

##### Construction and operation noise and vibration

Given the distance between the development footprint and sensitive receivers, construction, operation, and decommissioning noise and vibration would be assessed in the EIS. It is expected that noise and vibration impacts generated in the construction period would far exceed those during operation and decommissioning. It is expected that impacts would be able to be appropriately controlled to an acceptable level.

A summary of the potential noise and vibration impacts from the project is provided in **Table 8-13**.



**Table 8-13: Potential impacts – noise and vibration**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Noise and vibration impacts from the operation of construction equipment and machinery	Moderate / Short term	Direct	Sensitive (social value) Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Minimise – use best available technologies to reduce noise and vibration emissions</li> </ul>
Construction	Noise impacts from road traffic	Low / Short term	Direct	Sensitive (social value) Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Avoid – planning site access routes to minimise the impact on sensitive land uses as much as is feasible</li> <li>Minimise – restricting deliveries to site to daytime hours where possible</li> </ul>
Operation	Noise impacts from operational infrastructure	Low / Long term	Direct	Sensitive (social value) Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Minimise – use best available technologies to reduce noise and vibration emissions</li> </ul>

### Assessment level and approach

A noise and vibration assessment would be completed for the project in accordance with the Noise Bulletin. The assessment would also include consideration of:

- *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009)
- *NSW Road Noise Policy* (Department of Environment, Climate Change and Water, 2011)
- *Noise Policy for Industry* (Environment Protection Authority, 2017)
- *Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006)
- *British Standard BS7385.2 – 1993 Evaluation and Measurement for Vibration in Buildings, Part 2 – Guide to damage levels from ground borne vibration*
- *German Standard DIN 4150: Part 3-1999 Structural vibration – Effects of vibration on structures 1999* (DIN 4150)
- Transport for NSW *Construction Noise and Vibration Strategy* (CNVS).

The noise and vibration assessment would include the following methodology:

- undertake an initial desktop review to identify noise sensitive receivers from aerial photography
- undertake noise monitoring to determine ambient and background noise levels
- establish project noise goals for the construction and operation of the project
- identify the likely principal noise sources during construction and operation, and their associated noise levels including construction traffic noise
- assess the potential noise, vibration and sleep disturbance impacts associated with construction, operational and decommissioning aspects of the project using a noise prediction method
- provide feasible and reasonable noise and vibration mitigation and management measures where noise or vibration objectives may be exceeded.

Cumulative impacts with other projects in the locality would also be considered.

### 8.3.7 Social

#### Preliminary assessment

To support the scoping report, a preliminary social impact assessment was completed by AAP Consulting (AAP Consulting, 2023) and is provided in **Appendix 5**. The purpose of the assessment was to:

- describe the social locality
- establish the preliminary social baseline
- identify the likely social impacts to the different groups within the social locality
- identify the framework for the approach to social impact assessment in the EIS phase.

#### Existing environment

##### Social locality

Defining the social locality involves consideration of who is most likely to experience direct and indirect impacts because of the project and where those groups of people are located. The social locality will be further refined and updated according to project changes and further investigation of impacts during the assessment phase.

The social locality is inclusive of the suburbs and localities (SAL as per the Australian Bureau of Statistics' (ABS)) that host or are adjacent to the project (refer to **Figure 8-13**), being Yass, the

SAL in which the project is located, Good Hope and Marchmont (the adjacent SALs directly to the southwest and south respectively).

The social locality may extend beyond these boundaries as the project planning progresses to include haulage routes, places of residence of future construction and operational workforce and their primary dependents, and where materials may be sourced for the project. The social locality will be further refined as required during the assessment phase.

#### Social baseline

The project is located within the Yass Valley LGA within the suburb of Yass. Yass has historically been best known for its sheep grazing and merino wool production (Monash University, 2006). Today, the key land uses and economic activities within the region are centred around agriculture, with livestock and wool (Yass Valley Council, n.d. b).

Canberra is located approximately 60 kilometres southeast of Yass. This provides residences with access to employment and education opportunities in the Nation's Capital whilst still maintaining a rural lifestyle (Yass Valley Council, n.d. b).

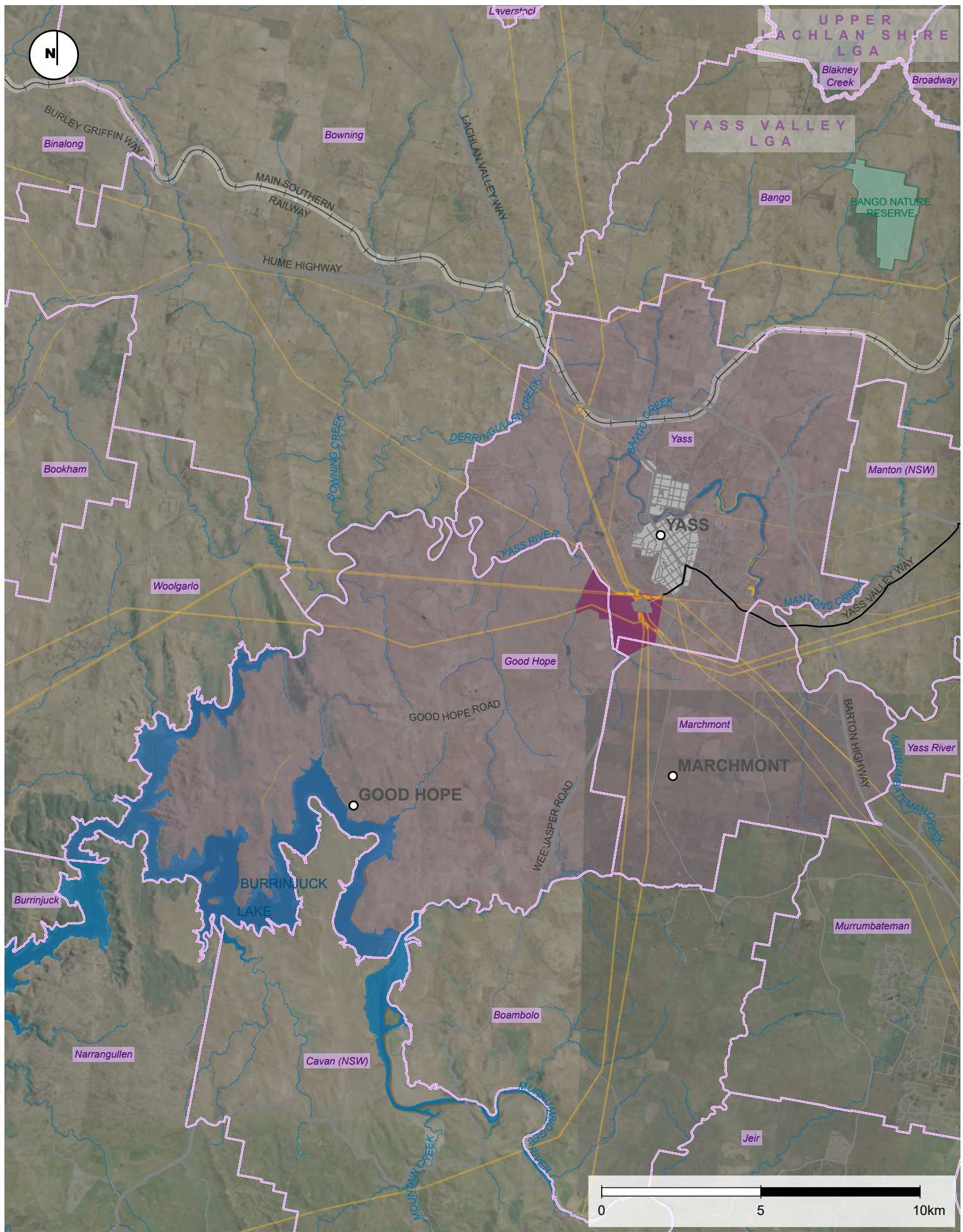
Key community values within the locality include (Yass Valley Council, n.d. b):

- rich Aboriginal, colonial, and agricultural heritage
- well renowned food and wine scene
- country villages and towns where the community knows their neighbours and love the wide-open spaces and fresh country air
- stunning scenery and landscapes
- arts and culture scene following in the tradition of two of Australia's best-known poets, A.B. 'Banjo' Paterson and John O'Brien, and author Miles Franklin.

Yass Valley has traditionally been inhabited by the Ngunnawal and Wiradjuri tribes and maintains a high indigenous population rate today (Australian Bureau of Statistics, 2022c).

Key population statistics of the Yass locality and Yass Valley LGA are provided in **Table 8-14** with a comparison to NSW (Australian Bureau of Statistics, 2022c).





RAMBOLL AUSTRALIA - GIS MAP file : 318001526\_GIS\_P001\_ScopingReport | F019\_SocialLocality\_V06  
Aerial photography from NSW Government Spatial Services

#### KEY

- |  |                                      |                 |                             |
|--|--------------------------------------|-----------------|-----------------------------|
| Yass Solar Farm                        | Social locality                      | Transport route | National Parks and Reserves |
| Electricity transmission line easement | Suburb and locality areas (ABS 2021) | Railway         |                             |
|  | LGA boundary                         | Waterway        |                             |

Figure 8-13 | Social - Social Locality



Table 8-14: Key population statistics

Attribute	Units	Yass (UCL114037)	Yass Valley (LGA18710)	NSW
<b>Population and people</b>				
Population	No.	5,837	17,281	3,984,166
Median age	No.	41	43	39
People per household	No.	2.4	2.7	2.6
Indigenous status	%	5.4	3.2	3.4
Dwellings	No.	2,523	6,811	2,900,468
<b>Labour and employment</b>				
Unemployment rate	%	3.3	2.7	4.9
In the labour force	%	59.7	66.8	58.7
Not in the labour force	%	34.9	28.4	35.5
<b>Income</b>				
Median household weekly income	\$	1,640	2,289	1,829
Median weekly rent	\$	340	350	420
Average monthly household mortgage	\$	1,733	2,167	2,167
<b>Occupations (top)</b>				
Professionals	%	18.7	21.7	25.8
Technicians and trades workers	%	16.3	14.3	11.9
Community and personal service workers	%	15.3	10.9	10.6
Clerical and administrative workers	%	12.8	13.3	13.0
Managers	%	11.8	20.5	14.6
Labourers	%	9.6	7.4	8.2
Sales workers	%	7.9	5.9	8.0
Machinery operators and drivers	%	5.6	4.0	6.0

The key characteristics, strengths and challenges of the social locality identified in the preliminary social impact assessment include:

- notable economic growth and steady reliance on rural based industries
- strong sense of community and social ties with higher-than-average volunteer rates
- a mix of urban and rural communities with a strong labour force and fairly high levels of affluence
- strong transport links to Canberra, Sydney and Melbourne

- strong labour participation rates, incomes and professional status (i.e. Managerial level)
- managing land use conflicts, particularly in agricultural production areas
- conservation of heritage and environment.

#### Vulnerabilities

Vulnerable groups have been identified for the project. These include:

- low-income earners
- the elderly
- First Nations, Aboriginal and Torres Strait Islanders
- those with a disability, or of ill-health, requiring medical attention.

#### Future populations and residential development

The Yass Valley LGA and locality are expected to experience strong residential growth over the next ten to fifteen years as shown in **Table 8-15** (Yass Valley Council, 2019).

**Table 8-15: Population forecast 2011 to 2036**

Area	Forecast year						Total change from 2011 to 2036
	2011	2016	2021	2026	2031	2036	
Yass Valley LGA	15,603	16,964	18,436	20,268	22,166	27,726	+12,123
Yass & District	7,049	7,719	8,422	9,254	10,009	10,848	+3,799

Within Yass, the opportunities for residential growth occur on the outskirts of the existing township (refer to Error! Reference source not found.). This includes part of lot 5 DP1165198 located south of the golf course, which is to the north of the project land.

Potential rezoning areas from R5 Large Lot Residential to R1 General Residential have also been identified south of the township as shown on **Figure 3-1**. If this rezoning is progressed, the density of residential development to the east of Wee Jasper Road may increase in these areas.

#### **Potential impacts**

The scoping of likely social impacts resulting from the project has been guided by the social impact assessment guideline and with reference to the social impact categories presented in **Table 8-16**.

**Table 8-16: Social impact categories**

Categories	Definition
Way of life	How people live, how they get around, how they work, how they play, and how they interact each day.
Community	Community composition, cohesion, character, how the community functions, and people's sense of place.
Accessibility	How people access and use infrastructure, services and facilities, whether provided by a public, private or not-for-profit organisation.
Culture	Aboriginal and non-Aboriginal, including shared beliefs, customs, values and stories, and connections to Country, land, waterways, places and buildings.

Categories	Definition
Health and wellbeing	Physical and mental health especially for people vulnerable to social exclusion or substantial change, psychological stress resulting from financial or other pressures, access to open space and effects on public health.
Surroundings	Ecosystem services such as shade, pollution control, and erosion control, public safety and security, access to and use of the natural and built environment, and aesthetic value and amenity.
Livelihoods	People's capacity to sustain themselves through employment or business.
Decision-making systems	Including the extent to which people can have a say in decisions that affect their lives, and have access to complaint, remedy and grievance mechanisms.

The level of assessment required for the scoped likely social impacts is defined as follows:

- **Detailed:** the project may result in significant social impacts, including cumulative impacts
- **Standard:** the project is unlikely to result in significant social impacts, including cumulative impacts
- **Minor:** the project may result in minor social impacts
- **Not relevant:** The project would have no social impact, or the social impacts of the project would be negligible.

The scoping phase determined several social impacts that required further investigation during the EIS phase. **Table 8-17** provides a summary of these impacts and demonstrates the interrelationships that exist between scoped impacts and the social impact categories.

Table 8-17: Scoped likely social impacts

Impact to people	Social impact category	Affected people	Impact type	Level of assessment
<b>Project activity: Project scoping and site justification</b>				
The use of the land for the production and storage of solar energy limiting future residential developments in the locality	Surroundings	Council Property developers Potential home / land buyers	Negative	Standard
Commentary about changes to land use affecting the value of surrounding properties	Livelihoods	Nearby property owners	Negative	Standard
Stress and uncertainty arising from the proposed changes in land use and potential land use conflicts	Health and wellbeing Livelihoods	Community within the social locality	Negative	Minor
The validity of solar as an economic and efficient resource to meet the needs of the Australian energy market	Decision making systems	Community within the social locality	Negative / Positive	Minor
<b>Project activity: Construction</b>				
Changes to the land use resulting in potential loss of flora and fauna, changing how people experience their environment and damaging the rural landscape	Surroundings	Community within the social locality	Negative	Standard
Likelihood of project to cause intangible harm through cultural and physical loss and tangible harm to items of heritage and cultural significance	Culture	Aboriginal and Torres Strait Islanders Community within the social locality	Negative	Standard



Impact to people	Social impact category	Affected people	Impact type	Level of assessment
Changes to amenity resulting from construction, affecting how people live (i.e., because of construction dust, noise, lighting and headlight glare)	Way of life	Community within the social locality including those living along the access roads and haulage routes (i.e. Perry Street residents)	Negative	Detailed
Increased traffic and temporary disruptions to traffic movements on the local road network causing day to day disruption for people in the locality due to increased travel times or changes to access, and potentially discouraging visitors to the area	Access Livelihoods	Community within the social locality including those living along the access roads and haulage routes (i.e. Perry Street residents) Visitors to the area	Negative	Standard
Economic stimulus to local business owners resulting from the proposal procurement opportunities and increased patronage	Livelihoods	Local business	Positive	Standard
<b>Project activity: Operation</b>				
Changes to the visual landscape, something that people value, including potential impacts from glint and glare	Way of life Surroundings	Nearby neighbours Those in visual catchment (including Shearsby Crescent)	Negative	Detailed
Community investment initiatives leading to improved sustainability and enhancing resilience	Community	Community within the social locality	Positive	Minor
Changes to land use affecting the availability of land for agricultural purposes. Fear that the presence of the project will devalue properties	Livelihoods	Council Broader community Nearby neighbours	Negative	Minor
Benefits of intergenerational equity due to solar farms being used as an alternate energy source	Way of life	Community within the social locality	Positive	Minor

Impact to people	Social impact category	Affected people	Impact type	Level of assessment
The potential for a decline in safety for those living near the project due to fire risks and other health related impacts (dust/ road safety etc.)	Health and wellbeing	Community within the social locality Road users	Negative	Standard
<b>Project activity: Employment of workforce</b>				
Enhanced wellbeing from job opportunities and training, including increased opportunities for vulnerable groups  Opportunities for small local businesses to increase services and flow on economic benefits during construction and operation	Livelihoods	Community within the social locality Aboriginal and Torres Strait Islanders Businesses	Positive	Minor
Changes to local population causing a decline in the composition and character of the community	Community	Community within the social locality	Negative	Minor

A summary of the potential social impacts from the project is provided in **Table 8-18**.

**Table 8-18: Potential impacts – social**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Impacts to items of heritage value and cultural significance	High / Long term	Direct	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Avoid – siting of infrastructure would be designed to avoid known sites and sensitive landforms</li> <li>Minimise – consultation with Aboriginal representatives to define and understand social and cultural values of the site</li> </ul>
Construction	Changes to traffic conditions and public safety risks	Moderate / Short term	Direct Cumulative	Sensitive (social value) Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Minimise – implementation of traffic controls</li> </ul>
Construction and operation	Reduced community cohesion	Moderate / Short term	Perceived	Sensitive (social value) Vulnerable to change	Y	<ul style="list-style-type: none"> <li>Minimise – strong community engagement throughout the duration of the project</li> </ul>
Construction and operation	Increase in anxiety and stress	Moderate / Short term	Perceived	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Minimise – strong community engagement throughout the duration of the project</li> </ul>
Construction and operation	Changes to community composition	Moderate / Short term	Indirect	Sensitive (social value) Vulnerable to change	Y	<ul style="list-style-type: none"> <li>Minimise – adopt workplace strategies that encourage the integration of incoming populations with local communities</li> </ul>
Construction and operation	Changes to existing land uses	Moderate / Short term	Direct	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Minimise – minimise the disturbance footprint of the project</li> </ul>
Construction and operation	Changes to the amenity (visual, noise, dust, traffic)	Moderate / Long term	Direct	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Avoid – locate project infrastructure away from sensitive receptors where possible</li> <li>Minimise – use best available technologies to reduce air, noise and vibration emissions</li> </ul>

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction and operation	Distributive equity in land agreements	Low / Short term	Direct	Sensitive (social value) Sensitive (economic value)	N	<ul style="list-style-type: none"> <li>Avoid – adopt neighbouring property benefit sharing scheme</li> </ul>
Construction and operation	Decline in access to affordable housing, accommodation and community services	Moderate / Long term	Indirect	Sensitive (social value) Vulnerable to change	Y	<ul style="list-style-type: none"> <li>Minimise – provide temporary accommodation onsite for construction workforce</li> </ul>
Construction and operation	Economic stimulus in the locality	Low / Short term	Indirect	Sensitive (economic value)	Y	<ul style="list-style-type: none"> <li>n/a</li> </ul>
Construction and operation	Community investment initiatives	Low / Short term	Indirect	Sensitive (social value) Sensitive (economic value)	N	<ul style="list-style-type: none"> <li>n/a</li> </ul>



### Assessment level and approach

The social impact assessment would be undertaken in accordance with the *Social Impact Assessment Guideline for State Significant Projects* (Department of Planning, Industry and Environment, 2021b).

The social impact assessment will include:

- a detailed update of the baseline social profile to ensure that any further baseline data relevant to the impacts identified is obtained
- further validation of the area of social influence and identification of affected communities and vulnerable groups
- collection of primary research data through participatory engagement methodologies to understand the perceptions of the identified stakeholders within the social locality and those indirectly affected by the project
- a comprehensive assessment and evaluation of social impacts against existing baseline conditions.

The social impact assessment will seek broader involvement across the stakeholder groupings identified, over the subsequent phases of the EIS.

The scoped issues will be further explored and validated during the EIS preparation phase using several research methodologies, including a participatory and impartial engagement approach to inform the social impact assessment.

## 8.4 Other issues

### 8.4.1 Land

#### Existing environment

##### Land zoning

Under the *Yass Valley Council Local Environmental Plan (2013)* the project land is zoned as (refer to **Figure 8-14**) C4 Environmental Living (as per Standard Instrument (Local Environmental Plans) Amendment (Land Use Zones) Order 2021) and SP2 Infrastructure for the Transgrid Substation connection.

The objectives of the C4 Environmental Living land zone include:

- To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values.
- To ensure that residential development does not have an adverse effect on those values.
- To ensure that development is provided with an adequate water supply and the disposal of effluent.

The objectives of the SP2 Infrastructure land zone include:

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

Although the project does not meet the objectives of the C4 land zone, the project is permissible with consent under Clause 4.38(3) of the *Environmental Planning and Assessment Act 1979* as discussed in **Table 5-1**.

As shown on **Figure 8-14**, land immediately surrounding the project land is zoned:

- R5 Large Lot Residential
- RU1 Primary Production.

The objective of land zones immediately surrounding the site are listed in **Table 8-19**.

**Table 8-19: Objectives of the land zones that surround the project**

Land zone	Objectives
R5 Large Lot Residential	<ul style="list-style-type: none"> <li>• To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality.</li> <li>• To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future.</li> <li>• To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.</li> <li>• To minimise conflict between land uses within this zone and land uses within adjoining zones.</li> <li>• To ensure that development is provided with an adequate water supply and the disposal of sewage.</li> </ul>
RU1 Primary Production	<ul style="list-style-type: none"> <li>• To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.</li> <li>• To encourage diversity in primary industry enterprises and systems appropriate for the area.</li> <li>• To minimise the fragmentation and alienation of resource lands.</li> <li>• To minimise conflict between land uses within this zone and land uses within adjoining zones.</li> <li>• To protect and enhance the biodiversity of Yass Valley.</li> <li>• To protect the geologically significant areas of Yass Valley.</li> <li>• To maintain the rural character of Yass Valley.</li> <li>• To encourage the use of rural land for agriculture and other forms of development that are associated with rural industry or that require an isolated or rural location.</li> <li>• To ensure that the location, type and intensity of development is appropriate, having regard to the characteristics of the land, the rural environment and the need to protect significant natural resources, including prime crop and pasture land.</li> <li>• To prevent the subdivision of land on the fringe of urban areas into small lots that may prejudice the proper layout of future urban areas.</li> </ul>

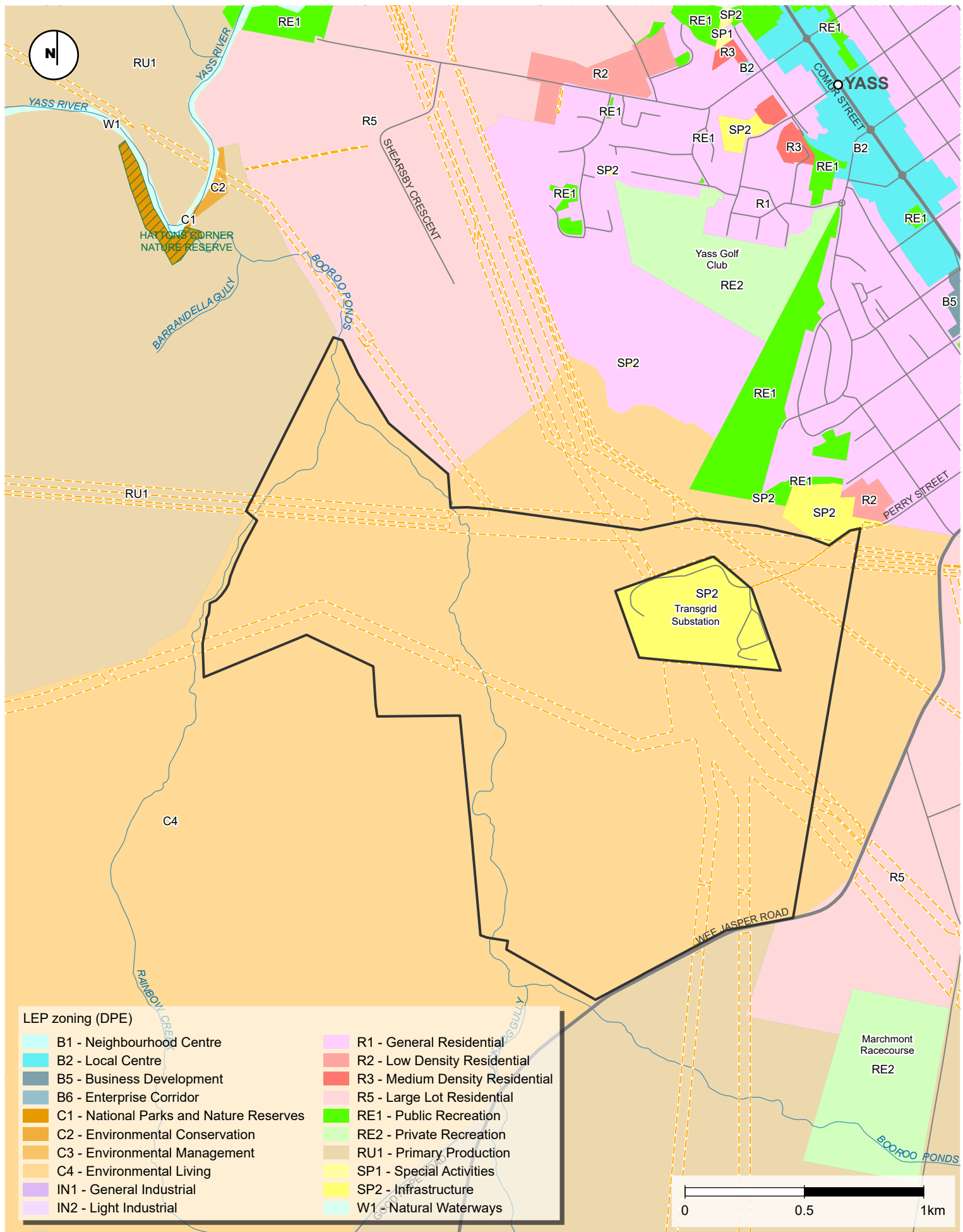


Figure 8-14 | Land - Land zoning

### Land use

Land within the project land is generally characterised as rural, predominantly utilised for agricultural purposes, mostly sheep and cattle grazing. Land immediately surrounding the project is largely characterised by general and low density residential and special purpose zones such as infrastructure.

The key land uses and economic activities within the region are centred around agriculture, with livestock and wool generating local employment and international exports (Yass Valley Council, 2022). Other land uses in the region include protected areas, national parks and nature reserves (Australian Bureau of Statistics, 2022d).

As identified in **Table 3-1** a preliminary analysis was undertaken on key sites identified within the Yass Settlement Strategy for rezoning in the future. As shown in **Figure 3-1**, the project land does not impede on areas identified within the Strategy.

### Land ownership

Details of the lots within the project land are provided in **Section 1.2**. The project land is comprised of five lots and two part lots. Properties that would be directly affected are privately owned by three landholders. ENGIE has entered into land agreements with associated property owners for the construction, operation and decommissioning of the project.

### Built features

The project is situated near six 275 kilovolt transmission lines and seven 330 kilovolt transmission lines connected to the Transgrid Substation.

### Crown land

As identified in **Section 2.4** and shown on **Figure 4-1**, one crown land parcel lies within the project land which separates Lot 7141 DP 1095199 and Lot 7142 DP 1095199. Preliminary searches indicate there are no parcels travelling stock reserves within the project land. Further investigations will be undertaken during the EIS to confirm this.

### Native title

No native title claims were identified in the region of the project land. It is also unlikely that there are any land claims under the *Aboriginal Land Rights Act 1983* as the project land is freehold land.

### Mining and exploration licences

There are no mining or exploration titles currently held over the project land.

### Land and soil capability

The land and soil capability classes outlined in the Land and Soil Assessment Capability Scheme (Office of Environment and Heritage, 2021) range from class 1 (extremely high capability land which has no limitations and requires no special land management practices), to class 8 (extremely low capability land with limitations that are so severe that the land is incapable of sustaining any land use aside from natural conservation).

Land and soil capability within the project land and immediate surrounds is class 4 (moderate to severe limitations) and class 6 (very severe limitations) land (refer to **Figure 8-15**).



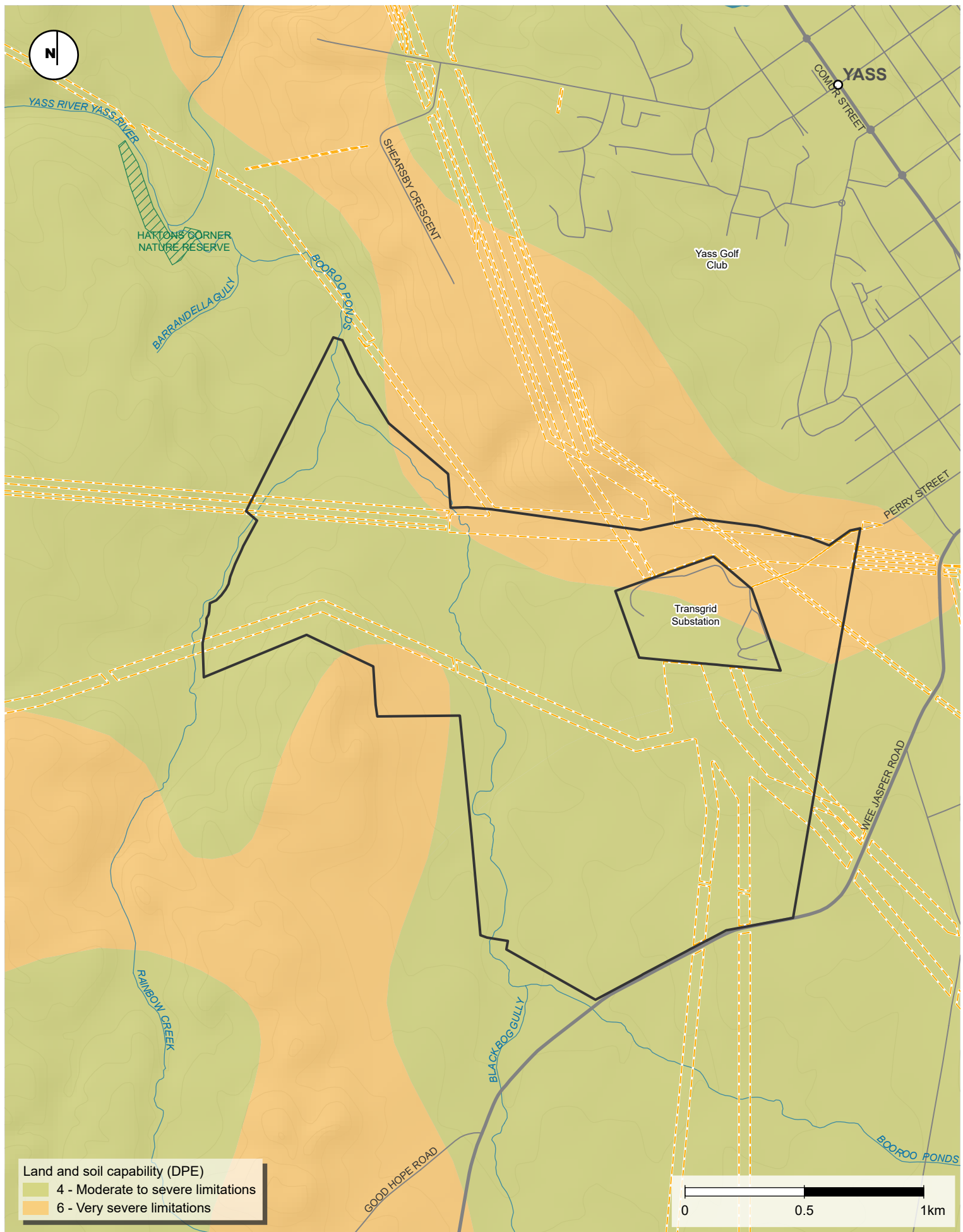


Figure 8-15 | Land - Land capability

A level 2 (reduced) soils assessment is required for a solar farm located on rural zoned land verified as land and soil capability class 4 in accordance with the *Large-Scale Solar Energy Guideline* (Department of Planning and Environment, 2022a).

#### Biophysical strategic agricultural land

Biophysical strategic agricultural land (BSAL) is defined as land that has high quality soil and water resources that is capable of sustaining high levels of productivity. A total of 2.8 million hectares of BSAL have been mapped across the state (NSW Department of Planning, Industry and Environment, 2019). A review of NSW Government's SEED Portal (2022) revealed the project land does not contain any BSAL.

#### Biosecurity

If not adequately managed, the project has the potential to introduce and transport weeds due to increased vehicle movements to and from the project land footprint during construction. This could lead to the further invasion of weeds to the local area, thereby resulting in changes to vegetation communities over time and associated loss of habitat for native species.

The project may also encourage pest animals to the local area as a result of potential increase in food sources associated with the construction activities and ground disturbance.

Yass Valley Council have developed a Local Strategic Weeds Plan to identify the priority weeds within the LGA in which Council maintains an active management and compliance program (Yass Valley Council, 2022). The *South East Regional Strategic Weed Management Plan 2017-2022* (Local Land Services South East, 2017) also applies to the project to guide weed management at the regional level. The plans identify a large number of priority high risk weeds that may apply to the project land. These would be considered in the EIS.

#### Geology

The project land is underlain by Early Paleozoic-Late Paleozoic geological formations comprising fossiliferous shale, mudstone, siltstone, black shale, limestone and quartz-lithic sandstone as identified on the Geoscience Australia Portal (2022).

#### Mitchell landscapes

Mitchell landscapes identified in the project land are Burrinjuck Ridges (Bjr) and Doura Volcanics (Dov) (refer to **Figure 8-16**). A description of the Mitchell Landscapes is provided in **Table 8-20**.

**Table 8-20: Characterisation of the Mitchell Landscapes within in project land**

Landscape	Description (Mitchell, 2002)
<b>Burrinjuck Ridges</b>	
Geology	Ridges and low ranges on strongly folded Devonian rhyolite, dacite, sandstone, tuff and some limestones, streams aligned with strike directions on the eastern side then cut across the strike through the Burrinjuck Gorge, general elevation 400 to 970 metres, local relief 50 to 150 metres.
Soils	Thin stony brown and red-brown sandy loam with limited development of red texture-contrast soils on some rock types.

Landscape	Description (Mitchell, 2002)
Vegetation	Black cypress pine ( <i>Callitris endlicheri</i> ), Blakely's red gum ( <i>Eucalyptus blakelyi</i> ), in the rocks with red stringybark ( <i>Eucalyptus macrorhyncha</i> ), broad-leaved peppermint ( <i>Eucalyptus dives</i> ), manna gum ( <i>Eucalyptus viminalis</i> ) and red box ( <i>Eucalyptus polyanthemos</i> ).
<b>Doura Volcanics</b>	
Geology	Rolling and undulating hills with occasional peaks on Silurian dacite, crystal tuff, sandstone and minor limestone, dendritic drainage pattern of ephemeral streams, general elevation 600 to 800 metres, local relief <100 metres.
Soils	Red to red-yellow and yellow harsh gritty texture-contrast soils, gritty loams in alluvium with small areas of dark clays. Some evidence of salinity on lower slopes.
Vegetation	Open woodland of Blakely's red gum ( <i>Eucalyptus blakelyi</i> ), yellow box ( <i>Eucalyptus melliodora</i> ), red stringybark ( <i>Eucalyptus macrorhyncha</i> ) with kangaroo grass ( <i>Themeda triandra</i> ), mixed river red gum ( <i>Eucalyptus camaldulensis</i> ) and river oak ( <i>Casuarina cunninghamiana</i> ) along permanent streams.

#### Soil classification

A review of DPE's eSPADE (2023) mapping was undertaken to determine the soil classification present within the project land. The Australian Soil Classification identifies the project land as Kandosols. Kandosols have a sandy to loamy-surface soil, grading to porous sandy-clay subsoils with low fertility and poor water-holding capacity.

#### Acid sulfate soils and soil salinity

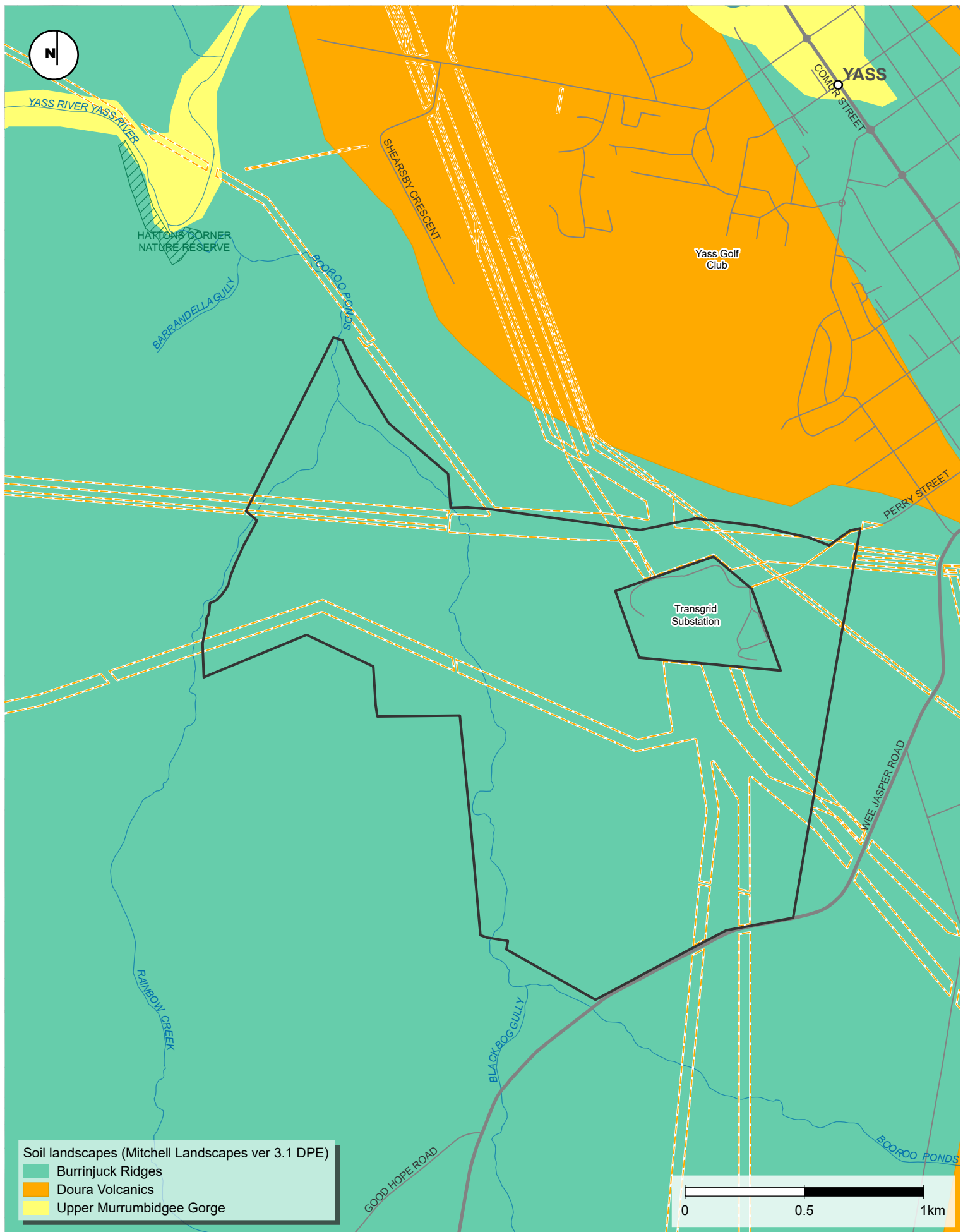
Based on a review of the Australian Soil Resource Information System (ASRIS) mapping tool, there is no applicable risk within or surrounding the project land for acid sulfate soils.

Modelled soil properties in DPE's eSPADE (2023) mapping indicate the project land is not associated with soil salinity issues. It is therefore not expected that salinity would occur within the project land.

#### Land contamination

Two EPA registered contaminated sites within the Yass Valley Council LGA include the former Gasworks in Dutton Street, Yass and the former Mobil Depot Yass and adjacent land in 54-58 Laidlaw Street, Yass (Environment Protection Authority, 2023). No contaminated sites are located within the project land.

Historic rural activities throughout the area may mean that there are former cattle dips, unregistered land fill sites or other such potential contaminated land. The primary chemicals of concern associated with these historic land uses include organochlorine pesticides and arsenic.



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Figure 8-16 | Land - Mitchell soil landscapes



## Potential impacts

A summary of the potential land impacts from the project is provided in **Table 8-21**.

**Table 8-21: Potential impacts – land**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction and operation	Change in land use to electricity generation	Moderate / Short term	Direct	Sensitive (social value) Sensitive (economic value)	Y	<ul style="list-style-type: none"> <li>Minimise – minimise the disturbance footprint of the project</li> </ul>
Construction	Disturbance of soils / sediments	Low / Short term	Direct	Sensitive (environmental value)	N	<ul style="list-style-type: none"> <li>Avoid – avoid ground disturbance where possible</li> <li>Minimise – install sediment and erosion controls in accordance with <i>Managing Urban Stormwater: Soils and Construction</i> (Landcom 2004)</li> </ul>
Construction	Compaction of soils	Low / Short term	Direct	Sensitive (environmental value)	N	<ul style="list-style-type: none"> <li>Avoid – use dedicated access tracks where possible</li> </ul>
Construction	Introduction of weeds as a result of the increase in vehicle movements to and from the project land	Low / Short term	Indirect	Sensitive (environmental value)	N	<ul style="list-style-type: none"> <li>Minimise – implement site hygiene protocols such as washing down vehicles before entering or leaving the site</li> </ul>
Construction	Disturbance of unknown contaminated areas	Low / Long term	Direct	Sensitive (environmental value)	N	<ul style="list-style-type: none"> <li>Avoid – avoid ground disturbing activities where possible</li> <li>Minimise – implement an unexpected finds protocol for the management of contamination if encountered</li> </ul>

### Assessment level and approach

A land and soils impact assessment would be prepared as part of the EIS and would assess potential erosion risks associated with the development footprint. The assessment would include ways to minimise land use conflict risks during construction and operation of the project and would be in accordance with *Large-Scale Solar Energy Guideline* (Department of Planning, Industry and Environment, 2022).

The land and soils impact assessment would include the following methodology:

- soil sampling and survey to determine the soil characteristics and to verify the agricultural capability and land and soil capability class of the land in accordance with *Large-Scale Solar Energy Guideline* (Department of Planning, Industry and Environment, 2022) and the *Land and Soil Capability Assessment Scheme* (Office of Environment and Heritage, 2012). A Level 2 (reduced) soils assessment would be undertaken should the project be confirmed to be located on rural zone land mapped as land and soil capability class 4 in accordance with Appendix A of the *Large-Scale Solar Energy Guideline* (Department of Planning and Environment, 2022a)
- assessment of agricultural impact according to the *Large-Scale Solar Energy Guideline* (Department of Planning and Environment, 2022a) as a level 2 (reduced) assessment for a solar farm located on rural zoned land mapped as LSC class 4
- a Land Use Conflict Risk Assessment (LUCRA) in accordance with the LUCRA Guidelines (Department of Planning, Industry and Environment, 2011)
- outline strategies to minimise and mitigate potential impacts on agricultural land and minimise land use conflict.

### 8.4.2 Water

#### Preliminary assessment

A desktop water review of publicly available data was conducted to identify hydrological features that may be relevant to the project land.

#### Existing environment

##### Hydrology

The project is in the Murrumbidgee catchment, in the southern part of the Murray-Darling Basin. The Murrumbidgee catchment is 84,000 square kilometres and contains the Murrumbidgee River which is a major tributary of the Murray-Darling River system. The Murrumbidgee River rises in the Monaro Plains flowing westward towards its junction with the Murray River near Balranald. The Yass River is a key tributary of the Murrumbidgee River and at its closest point is located 780 metres to the north west of the project land, running approximately east – west (Department of Planning and Environment, n.d.).

Watercourses that cross the development footprint include Rainbow Creek, and Booroo Ponds including its associated tributaries, which are first and third order streams respectively (refer to **Figure 8-17**). The Booroo Ponds flow through the project land in a north-west direction and Rainbow Creek in a south-west direction. Multiple creeks and gullies are visible in the surrounding area.

The *Murrumbidgee Unregulated River Water Sources 2012* water sharing plan applies to the Yass Valley and subsequent project land. The project land is contained within the Yass Lower Water Source (Department of Agriculture, Water and the Environment, 2012).

### Groundwater

Groundwater within the project land is part of the Yass Catchment Groundwater Source (Department of Planning and Environment, 2020) regulated under the *NSW Murray Darling Basin Fractured Rock Groundwater Sources 2020*.

One water supply bore is located within the development footprint, with approximately 140 bores within approximately two kilometres of the development footprint, with the majority for water supply (Bureau of Meteorology, 2023a).

### Groundwater dependent ecosystems

As per the Groundwater Dependent Ecosystems Atlas (Bureau of Meteorology, 2023b), there is high and moderate potential for aquatic groundwater dependent ecosystems (GDE) to occur within the watercourses passing through the development footprint, being Booroo Ponds and Rainbow Creek respectively.

There is also a high and low potential for Terrestrial GDE to occur in proximity to the development footprint, being approximately 1.4 kilometres and two kilometres respectively (Bureau of Meteorology, 2023b).

### Water Supply

Water required for the project would likely be sourced from:

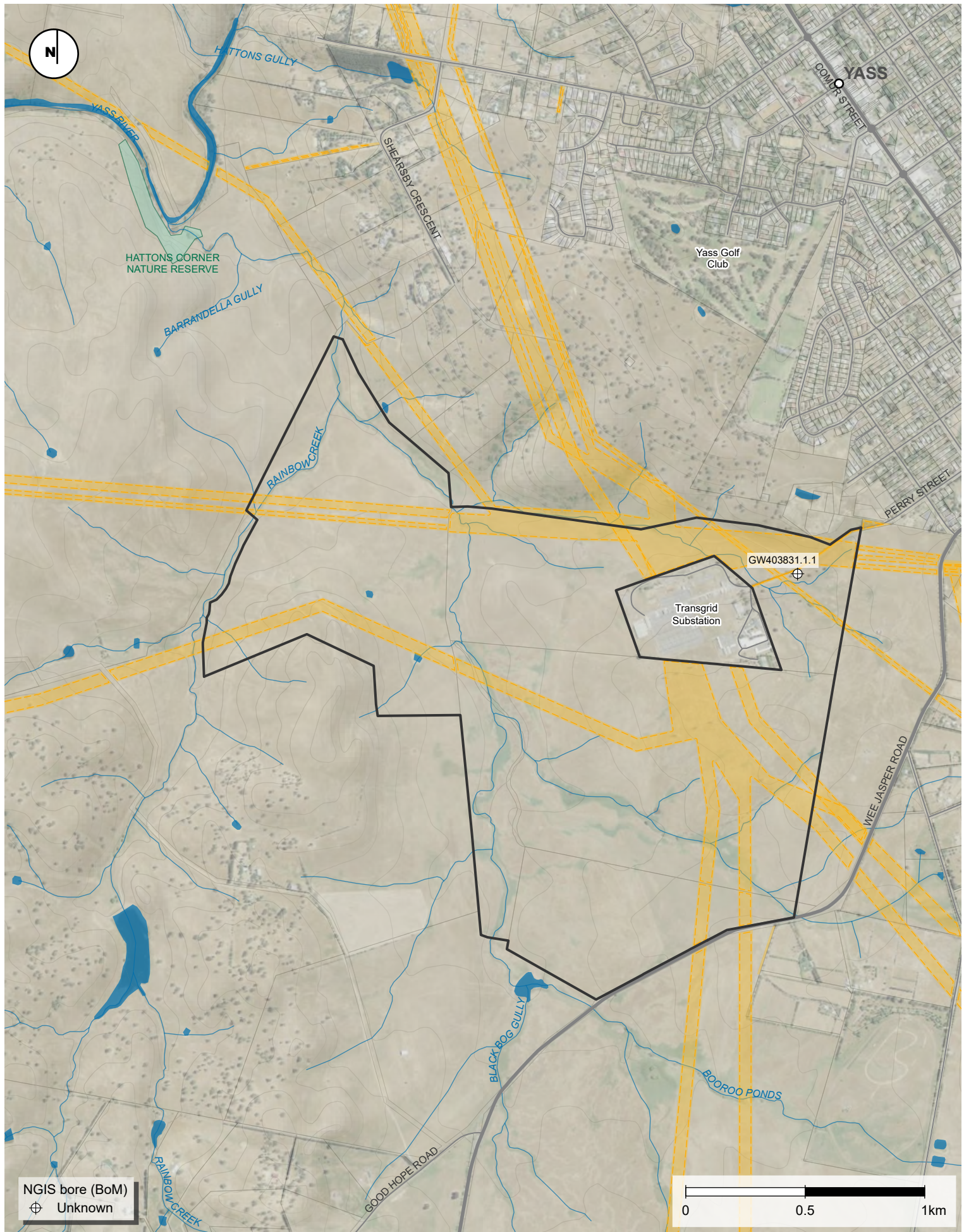
- commercial suppliers of treated wastewater in the nearby region
- opportunistically sourced from farm dams located within the development site
- sourced from town water
- an alternate source location being Burrinjuck Dam.

The main water supply for Yass is sourced from Yass Dam, located approximately three kilometres from the development footprint, which has a capacity of 2,460 megalitres (Yass Valley Council, 2023).

### **Potential impacts**

A summary of the potential water impacts from the project is provided in **Table 8-22**.





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Aerial photography from NSW Government Spatial Services

Figure 8-17 | Water - Watercourses and groundwater bores

Table 8-22: Potential impacts – water

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction and operation	Increase to impervious fraction of the development footprint	Low / Long term	Direct	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Minimise – keep paved areas to a minimum to maximise site drainage potential</li> </ul>
Construction	Mobilisation of sediments from ground disturbing activities which could enter waterways via runoff	Low / Short term	Direct	Sensitive (environmental value)	N	<ul style="list-style-type: none"> <li>Avoid – avoid ground disturbance where possible</li> <li>Minimise – install sediment and erosion controls in accordance with Managing Urban Stormwater: Soils and Construction (Landcom 2004)</li> </ul>
Construction and operation	Water pollution risks (e.g. hydrocarbon spills, concrete spills, chemical use and storage)	Low / Short term	Direct	Sensitive (environmental value)	N	<ul style="list-style-type: none"> <li>Avoid – avoid hydrocarbon and chemical use and storage within 40 metres of any watercourses</li> <li>Minimise – use spill protection</li> </ul>
Construction	Interception of groundwater and impacts to the quality, quantity or recharge	Low / Short term	Direct	Sensitive (environmental value)	N	<ul style="list-style-type: none"> <li>Avoid – minimise depth of excavations where possible</li> </ul>



### Assessment level and approach

The methodology for the water assessment would include:

- desktop review to define the existing environmental conditions of the development footprint including:
  - review of rainfall and evaporation data relevant to the development footprint
  - identification of catchments, watercourses and water sources (surface and groundwater)
  - review of existing water quality data
- quantification of water demand and water supply arrangements
- identification of any likely impacts to:
  - water quality and quantity of surface and groundwater resources
  - other water users
- identification of water management measures required for the project.

### 8.4.3 Heritage – historic

#### Preliminary Assessment

A desktop review was completed to identify historic heritage items and potential associated impacts which included reviewing:

- Australian Heritage Database
- State Heritage Inventory Register
- National and Commonwealth Heritage Listings
- Yass Valley Council LEP.

#### Existing environment

European settlement of the Yass Valley began as early as the 1820's, and settlement occurred early due to its ideal location on the road to Port Phillip (Melbourne), as well as the quality of land. Early agriculture included the fine wool industry, while development of the Main Southern Railway and the Hume Highway also occurred in the local area.

The township of Yass was established on Port Phillip Road in the early 1830s with many services established servicing travellers between Sydney and Melbourne. The township was gazetted in 1837, early settlers preferred land to the south mainly for its accessibility (Bayley, 1973) and some land was set aside for religious and education on the higher ground located on the north side of the Yass River.

Flooding of the Yass River pushed the township further to the south. In 1852 floods washed away some of the original settlement, and as a result development was relocated to higher ground. A permanent bridge was constructed in 1854. The Yass Valley region saw later growth due to the gold mining boom.

Between the 1920s to 1940s further subdivision occurred within the township, opening up new residential areas in the south-west. A Yass Heritage Precincts Study (J Armes & Associates, 1998) identified four main precincts including the Golf Links, Comur Street, Pollux/Castor and Walker Park.

#### Local heritage

There are 154 historic heritage items/places listed within the Yass Valley Council LEP (refer to **Appendix 6**) that are within a six kilometre radius of the development footprint. 93 of those sites

are contained within the Yass Urban Conservation Area, which is located approximately 1.3 kilometres north of the project land.

The Register of the National Estate (RNE) contains several items listed in the local area. This register was closed in 2007 because of amendments to the *Australian Heritage Council Act 2003*. There are 32 Yass items/groups listed in the Australian Heritage Database, in addition to the Yass Urban Conservation Area.

The closest items of local heritage significance within the Yass Valley LGA (refer to **Figure 8-18**) are:

- Aberlour and stables
- Allwood Cottage
- Cooma Cottage
- Hamilton Hume's Grave
- Johnny Gilbert's Grave
- Yass Courthouse
- Wee Jasper Bridge over Goodradigbee River
- Yass and District Historical Museum
- Yass Archives
- Yass Railway Museum.

#### State Heritage

State listed heritage items/places within six kilometres of the project land are as follows:

- Yass Town Railway Station and yard group – located approximately 1.7 kilometres to the north
- Yass Post office – located approximately two kilometres to the north
- Cooma Cottage – approximately 2.8 kilometres east
- Yass Town rail bridge over the Yass River – located approximately two kilometres to the north
- Yass Junction Railway Station Group – located approximately 5.6 kilometres to the north.

#### Commonwealth, National and World heritage

No World heritage sites are located within the vicinity of the project. One Commonwealth heritage site is located within the Yass Valley LGA, being the Yass Post Office, 101 Comur Street, Yass.

#### Section 170 Register

There is one heritage listed site within the Section 170 Register within the vicinity of the project, being the Yass Junction Railway Precinct.

#### **Potential impacts**

The project would involve ground disturbance works associated with vegetation clearance, grading of the site, and construction of project infrastructure. The operational stage of the project is unlikely to involve significant ground disturbance.

There may be indirect impacts to items outside the project land, for example associated with views to and from listed heritage items, although these are considered unlikely and views to the project will be assessed as part of the landscape character and visual impact assessment (refer to **Section 8.3.2**). There may be potential for vibration and/or dust impacts to listed heritage items along the haulage route for components of the project.

A summary of the potential historic heritage impacts from the project is provided in **Table 8-23**.

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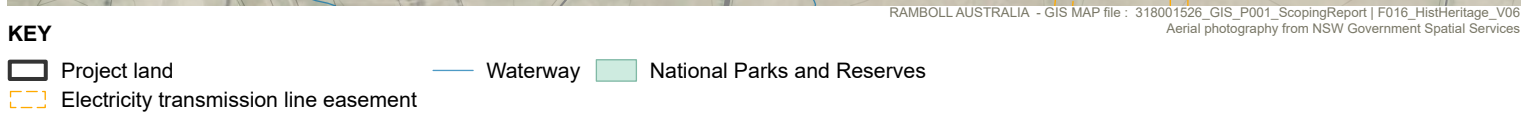


Figure 8-18 | Historic Heritage - Heritage sites

**Table 8-23: Potential impacts – historic heritage**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Ground disturbance works associated with vegetation clearance, grading of the site and construction of project infrastructure.	Low - Moderate / Short term	Direct	Sensitive (social value) community value, heritage value, landscape Sensitive (economic value) Sensitive (environmental value) natural habitat	N	<ul style="list-style-type: none"> <li>• Avoid –identified areas of historical significance</li> <li>• Minimise – implement stop works procedure and historic investigation protocol</li> </ul>
Decommissioning	Ground disturbance works associated with vegetation clearance and the removal of project infrastructure.	Low - Moderate / Short term	Direct	Sensitive (social value) community value, heritage value, landscape Sensitive (economic value) Sensitive (environmental value) natural habitat	N	<ul style="list-style-type: none"> <li>• Avoid –identified areas of historical significance</li> <li>• Minimise – implement stop works procedure and historic investigation protocol</li> </ul>



### Assessment level and approach

Historic heritage is considered unlikely to pose a risk to the project. However, a Statement of Heritage Impact (SoHI) would be completed including the following activities:

- desktop analysis of state and federal databases
- conduct historic research of any listed or potentially significant items and use this as a basis for predictive modelling for potential archaeology and identification of built, archaeological and landscape items
- plot desktop search/research results and produce a constraints map
- field assessment of the development footprint would be undertaken by an experienced and qualified archaeologist. The assessment would be undertaken in accordance with the Heritage Council's *Historical Archaeology Code of Practice* (Heritage Council, 2006)
- undertake test excavation if warranted.

The SoHI would be conducted in accordance with the following guidelines:

- Burra Charter 2013 (Australia ICOMOS International Council on Monuments and Sites, 2013)
- Part 4 of the EP&A Act 1979
- The EPBC Act by way of the National Heritage List and Commonwealth Heritage List established under the Act
- NSW *Heritage Act 1977*.

### 8.4.4 Economic

#### Existing environment

The Yass Valley economy is primarily by agriculture, tourism and the incomes earned by residents working in Canberra (Yass Valley Council, n.d. a). The Yass Valley's Gross Regional Product is estimated at \$620 million, which represents 0.09% of NSW's Gross State Product (.id, 2022).

The top businesses within the Yass Valley LGA include (Australian Bureau of Statistics, 2022c):

- agriculture, forestry and fishing (608 businesses)
- construction (428 businesses)
- professional, scientific and technical services (240 businesses)
- rental, hiring and real estate services (132 businesses)
- wholesale trade (91 businesses).

At the last census the total gross value of agricultural production was \$89.7 million dollars. Of this \$49.6 million was from livestock and \$17.1 million was from crops (Australian Bureau of Statistics, 2022d).

The key social demographics of the Yass locality and Yass Valley LGA are included in

**Section 8.3.7.** Within the Yass locality, the median household weekly income is \$1,640 which is below the NSW average of \$1,829 (Australian Bureau of Statistics, 2022c). However, the median weekly rent (\$340) and average monthly household mortgage (\$1,733) are also below the NSW average (\$420 and \$2,167 respectively) which would likely offset the lower weekly income.

The top industries of employment within the Yass locality are (Australian Bureau of Statistics, 2022c):

- professionals (18.7%)
- technicians and trades workers (16.3%)
- community and personal service workers (15.3%)
- clerical and administrative workers (12.8%)

- managers (11.8%)
- labourers (9.6%)
- sales workers (7.9%)
- machinery operators and drivers (5.6%).

The project would contribute to economic activity and diversity to the regional economy during both the construction and operation phase through direct and indirect employment and local business and service provider opportunities.

### Potential impacts

A summary of the potential economic impacts from the project is provided in **Table 8-24**.

**Table 8-24: Potential impacts – economic**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction and operation	Loss of economic activity from foregone potential agricultural activity	Moderate / Short term	Direct	Sensitive (economic value)	Y	<ul style="list-style-type: none"> <li>Minimise – continue agricultural activities around solar panels</li> <li>Offset – investment back into the local economy</li> </ul>
Construction	Competition for skilled local labour force with other projects in the region	Moderate / Short term	Cumulative	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Offset – support traineeship programs to bring new skilled personnel into the workforce</li> </ul>
Construction and operation	Decline to value of neighbouring private land	Moderate / Short term	Indirect	Sensitive (economic value)	Y	<ul style="list-style-type: none"> <li>Minimise – minimise amenity impacts with potential to reduce property values</li> <li>Offset – neighbour agreement to directly affected landholders</li> </ul>

### Assessment level and approach

The following would be undertaken for the economic assessment:

- characterisation of the regional economy based on published data and statistics
- input-output analysis of the construction and operation of the project on the regional and State economy
- input-output analysis of the reduction in agricultural activity on the regional and State economy as a result of the project
- qualitative analysis of other economic issues, such as potential impact on land values, based on application of economic principles and review of the literature.

### 8.4.5 Air

#### Existing environment

##### Climate

The project is located in climate zone six which is a mild temperate zone. The nearest meteorological station that provides long-term climate statistics is the Bureau of Meteorology's (BOM) Burrinjuck Dam, located approximately 29.2 kilometres south-west from the site.

Data recorded from the BOM meteorological station indicates that temperatures are highest in January, with a mean maximum temperature of 29.8 degrees Celsius. Temperatures are lowest in July, with a mean minimum temperature of 3 degrees Celsius.

Data recorded from the BOM meteorological station indicates that the average annual rainfall is 929.9 millimetres, with the highest mean monthly rainfall occurring in July (100.5 mm) and the lowest mean monthly rainfall occurring in February (56.6 mm).

Annual wind speed is a calm (19%) north easterly at 9am and is included in **Figure 8-19**.

Sensitive receivers near the development footprint have previously been identified in **Table 8-11**.

##### Greenhouse gas emissions

There are numerous State and Commonwealth initiatives aimed at increasing renewable energy production within the Australian electricity market. Solar energy generation has been supported by the NSW Government to increase the production of renewable energy and reduce greenhouse gas emissions (Department of Planning and Environment, 2022a). Solar farms generate most emissions in construction and decommissioning.



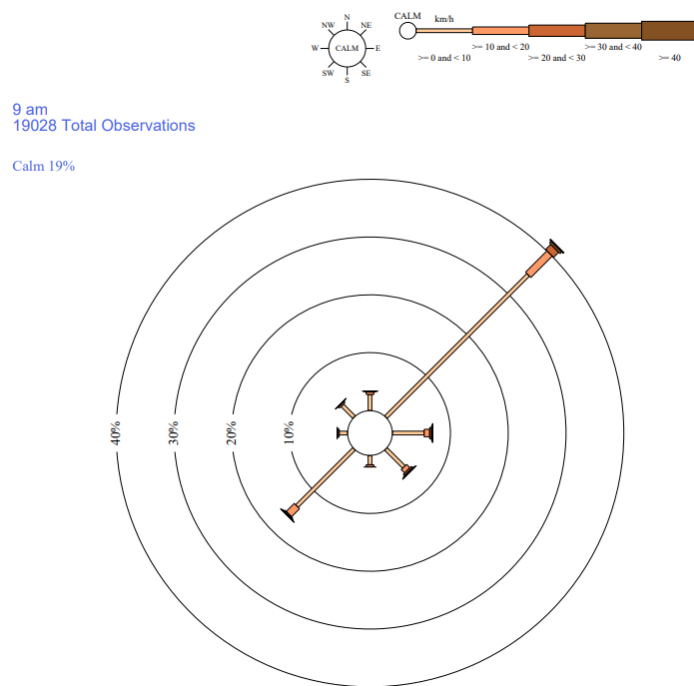


Figure 8-19: Air – annual 9am wind rose

### Potential impacts

A summary of the potential air impacts from the project is provided in **Table 8-25**.

**Table 8-25: Potential impacts – air**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Generation of dust from construction activities	Moderate / Short term	Direct	Sensitive (environmental value) Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Avoid – cease construction activities during high wind periods</li> <li>Minimise – implement best practice controls and management to minimise dust generation</li> </ul>
Construction and operation	Release of emissions from use of construction vehicles and machinery	Low / Long term	Indirect	Sensitive (environmental value) Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Avoid – turn equipment and machinery off when not in use</li> <li>Minimise – use low emission technology where possible</li> </ul>
Operation	Wind erosion of exposed areas	Low / Short term	Indirect	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Avoid – cover exposed surfaces to minimise exposure to wind</li> </ul>

### Assessment level and approach

Air quality and dust management will generally be assessed in the EIS, including qualitatively considering potential impacts and proposing appropriate management and mitigation measures for the construction and operational phases of the project. The assessment would be carried out in accordance with relevant guidelines and policies including:

- National Greenhouse Accounts Factors (Department of Climate Change, Energy, the Environment and Water, 2022)
- NSW Climate Change Policy Framework (Office of Environment and Heritage, 2016).

### 8.4.6 Waste and resources

#### Existing environment

##### Waste

The project would produce several waste streams during construction and decommissioning, with minor quantities of waste generated throughout operation and maintenance of the project.

The principal waste sources expected to be generated during construction are:

- paper and cardboard
- wood
- plastic
- green waste
- soil
- electrical
- metals
- liquid waste
- sewage
- general domestic
- commercial waste.

Most wastes generated would be classified as general solid waste. Hazardous waste, such as lithium-ion cell and batteries, would be required to be transported, in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail, for disposal or recycling.

Lithium-ion cell and batteries would be classified as a hazardous waste and would be required to be transported for disposal or recycling in accordance with the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2018).

##### Resources

The project would use the majority of required resources during the construction phase. The resources expected to be required are:

- glass for photovoltaic panels
- metal for mounting systems, containers and fencing
- sand for cable bedding
- concrete for foundations and general construction
- gravel for internal access roads and carparking
- wood for general building construction
- water for dust suppression and maintenance.

### Potential impacts

A summary of the potential waste and resource impacts from the project is provided in **Table 8-26**.

**Table 8-26: Potential impacts – waste and resources**

Phase	Potential impact	Scale of impact	Nature of impact	Sensitivity of receiving environment	Cumulative impacts (Y/N)	Potential mitigation measures
Construction	Pollution of land and water resulting from poor management of wastes	Moderate / Long term	Indirect	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Minimise – management of wastes in accordance with a waste management plan</li> </ul>
Construction	Decreased availability of local resources including water, gravel and sand etc	Low / Short term	Direct	Sensitive (economic value)	Y	<ul style="list-style-type: none"> <li>Minimise – consultation with Yass Valley Council to determine appropriate sources of resources</li> </ul>
Construction and operation	Decreased amenity resulting from poor management of wastes	Low / Short term	Direct	Sensitive (social value)	Y	<ul style="list-style-type: none"> <li>Minimise – management of wastes in accordance with a waste management plan</li> </ul>
Construction and operation	Disposal of wastes contributing to landfill	Low / Long term	Direct	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Minimise – wastes would be recycled where possible</li> </ul>
Decommissioning	Disposal of solar photovoltaic panel components	Moderate / Long term	Direct	Sensitive (environmental value)	Y	<ul style="list-style-type: none"> <li>Minimise – consider reasonable and feasible alternative disposal methods for the components based on the industry standards at the time of decommissioning</li> </ul>

### Assessment level and approach

Assessment of waste and resourcing impacts would be undertaken to understand the likely and potential waste and resourcing impacts for the project. This includes:

- identifying the key resources required throughout the construction, operation and decommissioning phases of the project and their availability
- understanding the statutory context for waste management
- identifying the waste streams that would be produced over the project lifecycle and their waste classification in accordance with relevant legislation
- identifying the existing waste management facilities in the vicinity and their capacity to accept different waste streams
- estimating quantities for key waste streams that would be produced.

The waste and resource assessment would be conducted in accordance with relevant policies, legislation and guidelines, including:

- *Protection of the Environment Operations (Waste) Regulation 2014* (Waste Regulation)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *Waste Avoidance and Resource Recovery Act 2001* (WARR Act).

## 8.5 Cumulative impacts

### Existing environment

There are a number of proposed, approved or operational renewable energy projects located in proximity to the study area which are shown in **Figure 8-20**.

The cumulative impact assessment levels are defined in **Table 8-27**. Relevant cumulative impact assessment matters have been categorised in **Table 8-28** for each identified project, which is based on the cumulative impact assessment scoping summary table in Appendix B of the *Cumulative Impact Assessment Guidelines for State Significant Project* (Department of Planning, Industry and Environment, 2021b). Projects located within a 100 kilometres radius from the project were considered in the cumulative impact screening.

**Table 8-27: Cumulative impact assessment level definitions**

Assessment level	Description
Detailed assessment (D)	<p>The project may result in significant impacts on the matter, including cumulative impacts. Detailed assessment is characterised by:</p> <ul style="list-style-type: none"> <li>• potential overlap in impacts between a future project (e.g. Project A) and the proposed project</li> <li>• potential for significant cumulative impacts as a result of the overlap, requiring detailed technical studies to assess the impacts</li> <li>• sufficient data is available on the future project to allow a detailed assessment of cumulative impacts with the proposed project for the relevant matter</li> <li>• uncertainties exist with respect to data, mitigation, assessment methods and criteria.</li> </ul>



Assessment level	Description
Standard assessment (S)	<p>The project is unlikely to result in significant impacts on the matter, including cumulative impacts. Standard assessments are characterised by:</p> <ul style="list-style-type: none"> <li>• impacts are well understood</li> <li>• impacts are relatively easy to predict using standard methods</li> <li>• impacts are capable of being mitigated to comply with relevant standards or performance measures</li> <li>• the assessment is unlikely to involve any significant uncertainties or require any detailed cumulative impact assessment.</li> </ul>
N/A	No potential overlap in impacts between a future project (e.g. Project A) and the proposed project that would warrant any consideration in the cumulative impact assessment.



Table 8-28: Major projects in the locality and cumulative considerations

Project	Approx. distance to the project	Status	Indicative timing / potential overlap	Relevant cumulative impact assessment matters										
				Access	Air	Amenity	Biodiversity	Built environment	Economic	Hazards and risks	Heritage	Land	Social	Water
Existing projects														
Bogo Quarry	17 km northwest	Operational	<ul style="list-style-type: none"><li>Operations overlap</li></ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Burrinjuck Hydro Power Station	32 km west	Operational	<ul style="list-style-type: none"><li>Operational overlap</li></ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bango Wind Farm	36 km northwest	Approved	<ul style="list-style-type: none"><li>Operations overlap</li></ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Collector Wind Farm	38 km east	Operational	<ul style="list-style-type: none"><li>Operations overlap</li></ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Gunning Wind Farm	43 km east	Operational	<ul style="list-style-type: none"><li>Operations overlap</li></ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Cullerin Wind Farm	44 km east	Operational	<ul style="list-style-type: none"><li>Commenced operations in 2009</li><li>Operations overlap</li></ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Boorowa Solar Project	46 km northwest	Approved	<ul style="list-style-type: none"><li>Operations overlap</li></ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Biala Wind Farm	47 km northeast	Operational	<ul style="list-style-type: none"><li>Operations overlap</li></ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A

Project	Approx. distance to the project	Status	Indicative timing / potential overlap	Relevant cumulative impact assessment matters										
				Access	Air	Amenity	Biodiversity	Built environment	Economic	Hazards and risks	Heritage	Land	Social	Water
Bungendore Sand Quarry	49 km east	Operational	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Gullen Range Wind Farm	55 km east	Operational	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Gullen Solar Farm	58 km east	Operational	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Woodlawn Bioreactor Facility	63 km east	Operational	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Woodlawn mine	63 km east	Operational	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Cooma Road Quarry	64 km south	Operational	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Capital Wind Farm	66 km southeast	Approved	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Woodlawn Wind Farm	66 km southeast	Approved	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Crookwell 2 Wind Farm	66 km northeast	Operational	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Capital Solar Farm	67 km southeast	Approved	• Operations overlap	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A

Project	Approx. distance to the project	Status	Indicative timing / potential overlap	Relevant cumulative impact assessment matters										
				Access	Air	Amenity	Biodiversity	Built environment	Economic	Hazards and risks	Heritage	Land	Social	Water
Crookwell Wind Farm	71 km northeast	Operational	<ul style="list-style-type: none"> <li>Operations overlap</li> </ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tumut Pulp and Paper Mill	82 km southwest	Operational	<ul style="list-style-type: none"> <li>Operations overlap</li> </ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Taralga Wind Farm	97 km northeast	Operational	<ul style="list-style-type: none"> <li>Operations overlap</li> </ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gunlake Quarry	98 km east	Operational (extension of project under assessment)	<ul style="list-style-type: none"> <li>Operations overlap</li> </ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Approved projects (yet to commence operations)</b>														
Rye Park Wind Farm	24 km north	Approved (under construction)	<ul style="list-style-type: none"> <li>Operations overlap (expected to commence operations in 2024)</li> </ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Coppabella Wind Farm	35 km northwest	Approved	<ul style="list-style-type: none"> <li>Construction was anticipated to commence in 2021</li> <li>Potential construction overlap</li> <li>Operations overlap</li> </ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A



Project	Approx. distance to the project	Status	Indicative timing / potential overlap	Relevant cumulative impact assessment matters										
				Access	Air	Amenity	Biodiversity	Built environment	Economic	Hazards and risks	Heritage	Land	Social	Water
Springdale Solar Farm	35 km southeast	Approved	<ul style="list-style-type: none"> <li>Construction was anticipated to commence in 2020</li> <li>Potential construction overlap</li> <li>Operations overlap</li> </ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Cootamundra Solar Farm	82 km west	Approved	<ul style="list-style-type: none"> <li>Operations overlap</li> </ul>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blind Creek Solar Farm	59 km southeast	Approved	<ul style="list-style-type: none"> <li>Potential construction overlap</li> <li>Operations overlap</li> </ul>	S	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Marulan Solar Farm	93 km northeast	Approved	<ul style="list-style-type: none"> <li>Potential construction overlap</li> <li>Operations overlap</li> </ul>	S	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
<b>Projects under assessment</b>														
Gunning Solar Farm	20 km northeast	Exhibition	<ul style="list-style-type: none"> <li>Potential construction overlap</li> <li>Operations overlap</li> </ul>	S	N/A	N/A	S	N/A	N/A	N/A	N/A	N/A	S	N/A
Jeremiah Wind Farm	36 km west	Prepare EIS	<ul style="list-style-type: none"> <li>Potential construction overlap</li> <li>Operations overlap</li> </ul>	S	N/A	N/A	S	N/A	N/A	N/A	N/A	N/A	S	N/A

Project	Approx. distance to the project	Status	Indicative timing / potential overlap	Relevant cumulative impact assessment matters										
				Access	Air	Amenity	Biodiversity	Built environment	Economic	Hazards and risks	Heritage	Land	Social	Water
Western Range Solar Farm	38 km east	Prepare EIS	<ul style="list-style-type: none"><li>Potential construction overlap</li><li>Operations overlap</li></ul>	S	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Wallaroo Solar Farm	36 km southeast	Assessment	<ul style="list-style-type: none"><li>Potential construction overlap</li><li>Operations overlap</li></ul>	S	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Gundry Solar Farm	77 km east	Prepare EIS	<ul style="list-style-type: none"><li>Potential construction overlap</li><li>Operations overlap</li></ul>	S	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Marulan Quarry	90 km east	Prepare EIS	<ul style="list-style-type: none"><li>Potential Construction overlap</li><li>Operation overlap</li></ul>	S	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	S	N/A
Related development to the project														
Transgrid Substation	0 km	Operational	<ul style="list-style-type: none"><li>Operations overlap</li></ul>	N/A	N/A	N/A	N/A	S	N/A	N/A	N/A	N/A	N/A	N/A

## Potential impacts

A summary of the potential cumulative impacts from the project is provided in **Table 8-29**.

**Table 8-29: Potential impacts – cumulative**

Phase	Potential impact	Scale of impact	Sensitivity of receiving environment	Potential mitigation measures
<b>Noise and vibration</b>				
Construction	Noise and vibration emissions from concurrently construction activities	Moderate / Short term	Sensitive (social value) Sensitive (environmental value)	<ul style="list-style-type: none"> <li>Minimise – coordinate with neighbouring developments to reduce operations occurring concurrently within the same locality</li> </ul>
Construction	Increased traffic on local roads	Moderate / Short term	Sensitive (social value) Sensitive (environmental value)	<ul style="list-style-type: none"> <li>Avoid – avoid using the same local roads as other projects in the locality where possible</li> </ul>
<b>Air</b>				
Construction	Dust emissions from concurrently construction activities	Moderate / Short term	Sensitive (social value) Sensitive (environmental value)	<ul style="list-style-type: none"> <li>Minimise – coordinate with neighbouring developments to reduce operations occurring concurrently within the same locality</li> </ul>
<b>Biodiversity</b>				
Construction and operation	Removal of vegetation and impacts to flora and fauna	Moderate / Short term	Sensitive (environmental value)	<ul style="list-style-type: none"> <li>Minimise – minimise vegetation clearing where possible</li> </ul>

Phase	Potential impact	Scale of impact	Sensitivity of receiving environment	Potential mitigation measures
<b>Social</b>				
Operation	Social impacts of cumulative renewable projects in the region	High / Long term	Vulnerable to change	<ul style="list-style-type: none"> <li>Minimise – ongoing consultation with the local community</li> </ul>
<b>Waste and resources</b>				
Construction and operation	Availability of resources and waste disposal facilities with capacity to accept wastes	Moderate / Short term	Sensitive (environmental value)	<ul style="list-style-type: none"> <li>Minimise – reuse or recycle materials where possible</li> <li>Minimise – outsource resources that may be in short supply in the locality</li> </ul>

### Assessment level and approach

Cumulative impacts will be assessed in accordance with the *Cumulative Impact Assessment Guidelines for State Significant Project* (Department of Planning, Industry and Environment, 2021a). This process starts at the scoping phase.

The project-level cumulative impact assessment considers the following assessment approaches:

- **Incremental assessment:** this involves adding the incremental impacts of the project to the baseline condition of each relevant matter
- **Combined incremental assessment:** this is the combined effect of the different impacts of the project, normally on a sensitive area or receiver
- **Issue-specific CIA:** the cumulative impacts of the project on key matters with other relevant future projects
- **Combined CIA:** the combined effect of the different cumulative impacts of the project on key matters, sensitive receptors or important features with other relevant future projects.

The key questions to answer in scoping the cumulative impact assessment from the *Cumulative Impact Assessment Guidelines for State Significant Project* (Department of Planning, Industry and Environment, 2021a) are listed in **Table 8-30** along with a response on the proposed scope of the assessment to be undertaken for the EIS.

**Table 8-30: Key questions to answer in scoping the cumulative impact assessment**

Question	Response
What to assess?	Key matters that would be considered in the CIA would include: <ul style="list-style-type: none"> <li>• landscape character and visual amenity</li> <li>• noise and vibration</li> <li>• traffic and access</li> <li>• biodiversity</li> <li>• land use</li> <li>• air quality</li> <li>• social</li> <li>• economic.</li> </ul>
What study area?	The study area will vary depending on the specific characteristics of the assessment matter and the scale and nature of the potential impacts on the matter resulting from the project with other relevant future projects. Each CIA will be undertaken in accordance with the relevant guidelines, where applicable, and broad enough to capture all relevant cumulative impacts.
Over what time period?	The CIA would consider the life of the project including construction, operation and decommissioning. The relevant projects to consider as part of the CIA will be those within the relevant study area that have concurrent project timelines with the project through all phases of development.
What projects to include?	The CIA would consider the projects identified in <b>Table 8-28</b> and other proposed developments advertised in the public arena at the time of preparing the EIS. This would include changes to existing projects, approved projects or projects under assessment



Question	Response
What is the approach to assessment?	The CIA would be undertaken in accordance with the <i>Cumulative Impact Assessment Guidelines for State Significant Project</i> (Department of Planning, Industry and Environment, 2021a) and with the approved assessment methods for relevant matters
What are the key uncertainties?	Key uncertainties to undertaking the CIAs will include availability and quality of data on proposed future projects at the time of preparation of assessments

## 8.6 Matters requiring no further assessment in the EIS

Matters that have been identified as requiring no further assessment in the EIS in accordance with Scoping Report Guideline are presented in **Table 8-31**.

**Table 8-31: Matters requiring no further assessment in the EIS**

Matter	Justification
Access – rail, port and airport facilities	The project does not involve the development of, or affect access to rail, port or airport facilities.
Amenity – odour	The project would not produce odorous emissions.
Biodiversity – conservation areas	There are no conservation areas within or within proximity to the site.
Hazard and risks - coastal hazards	The site is not located near the coast, so coastal hazards are not relevant to the project.
Hazard and risks - environmental hazards	Environmental risks associated with the project will be assessed in other relevant environmental assessments.
Hazard and risks - land movement	The site is generally flat, resulting in a low risk of landslide. Erosion risks will be addressed in an assessment of soils and land capability to be undertaken for the EIS.
Land – stability	The site is generally flat, resulting in a low risk of landslide. Erosion risks will be addressed in an assessment of soils and land capability to be undertaken for the EIS.
Land – soil chemistry	The project would not involve activities that alter the soil chemistry of the site. Contamination would be assessed as part of the land assessment.
Land - topography	Given the site is already generally flat, the project would not alter the typical topography of the site.

## 9. CONCLUSION

This scoping report has outlined the proposed Yass Solar Farm project that would be assessed under Part 4 of the EP&A Act and the Planning Systems SEPP. The project forms an important part of Australia's transition to renewable energy generation and would positively contribute to meeting Commonwealth and State targets. The project would enhance the reliability and security of electricity supply by helping to fill the anticipated capacity gaps in the electricity market following the closure of major coal-fired power generators within NSW.

This scoping report has been prepared to assist the development of the SEARs for the project, which would guide the preparation of the EIS. The key environmental matters identified that would be considered in the EIS include:

- biodiversity
- landscape character and visual
- Aboriginal heritage
- traffic and access
- hazards and risks
- noise and vibration
- social.

Other matters that would be considered include:

- land
- water
- historic heritage
- economic
- air
- waste and resources.

Cumulative impacts with other projects (both existing and proposed) would also be considered and assessed.

The EIS would be prepared in accordance with the SEARs to be issued by DPE in response to this scoping report. All assessments (including specialist assessments) would cover the full development footprint, including the connection/ transmission work and any road upgrade works, be completed by taking into consideration consultation with stakeholders, industry best practice guidelines, and the experiences from other solar farm projects.

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## **APPENDIX 1**

### **COUNCIL CORRESPONDENCE**

22 June 2023

Lin Hwong  
Level 23, Freshwater Place  
2 Southbank Boulevard  
Melbourne VIC 3006

Dear Lin,

Thank you for giving Council an opportunity to provide comments on your proposed Solar Farm Development.

The proposed Solar Farm is aimed at generating about 140 MW with a Battery Energy Storage System (BESS) capacity of 350 MWh over approximately 370 hectares of land.

The Hatton Park/ Golf Club Precinct, part of Lot 5 DP1165198 was identified in the Yass Valley Settlement Strategy 2036 to develop primarily residential, single storey and split-level houses enjoying scenic views of surrounding rural areas. These views will remain to be an amenity for the existing and future residents occupying the precinct.

**Observations based on information provided to date:**

- Proposed development will impact 'scenic views' currently enjoyed by the Hatton Park/ Golf Club Residential Precinct.
- Proposed development will affect Biodiversity along the Booroo Ponds Watercourse identified on the Biodiversity Values Map NSW.
- Proposed development will not meet the objectives of the C4 Zone of the Yass Valley Local Environmental Plan 2013.
- Existing Council Infrastructure (water tank) is located on Lot 1 DP 775902 (within the subject land).
- Council's local roads will be impacted by additional traffic.

**Recommendations, including but not limited to:**

- The impact on biodiversity needs to be studied further.
- Community consultation will need to address the impact on views and how proponent proposes to mitigate them to allow residential development in the lands identified for future settlement in the Yass Town's south-west.
- Detailed EIS and Scoping Report will be required to inform the community, the consenting and referring authorities of the merits of the proposed development.
- Road Impact and Traffic Assessment to be carried out.
- Adequate housing/ accommodation arrangements for construction workers will need to be demonstrated i.e., preparation of a management plan.

- A commitment to implement the provisions of Council's [Community Enhancement Fund Policy DA POL 20](#) and engage in a dialogue with Council and the Community to deliver benefits to the community, which may include but not limited to:
  - Initial and ongoing monetary contributions towards the community.
  - Local energy discounts scheme for the Yass Township.

If you have any further questions, please contact Mr Shrey Chanchad of Council's Planning and Environment Division at [council@yass.nsw.gov.au](mailto:council@yass.nsw.gov.au) or 02 6226 1477.

Yours faithfully



Julie Rogers  
**Director Planning and Environment**

## **APPENDIX 2**

### **SCOPING SUMMARY TABLE**



Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
<b>Access</b>					
Access to property	Detailed	N	Specific	<ul style="list-style-type: none"> <li>• <i>Guide to Road Design Part 3: Geometric Design</i> (Austroads, 2016)</li> <li>• <i>Guide to Road Design Part 4: Intersections and Crossings: General</i> (Austroads, 2017)</li> </ul>	<b>Section 8.3.4</b>
Traffic and parking	Detailed	N	Specific	<ul style="list-style-type: none"> <li>• <i>Guide to Traffic Generating Developments version 2.2</i> (Roads and Traffic Authority, 2002)</li> <li>• <i>Guide to Road Design Part 3: Geometric Design</i> (Austroads, 2016)</li> <li>• <i>Guide to Road Design Part 4: Intersections and Crossings: General</i> (Austroads, 2017)</li> <li>• <i>Guide to Traffic Management Part 3: Transport Study and Analysis Methods</i> (Austroads, 2020)</li> <li>• <i>Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings</i> (Austroads, 2020)</li> <li>• <i>Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments</i> (Austroads, 2020)</li> </ul>	<b>Section 8.3.4</b>
Port and airport facilities	No further assessment	n/a	n/a	n/a	n/a
Road and rail facilities	No further assessment	n/a	n/a	n/a	n/a
<b>Air</b>					
Atmospheric emissions	Standard	N	General	<ul style="list-style-type: none"> <li>• <i>NSW Climate Change Policy Framework</i> (Office of Environment and Heritage, 2016)</li> <li>• <i>National Greenhouse Accounts Factors</i> (Australian Government, 2021)</li> </ul>	<b>Section 8.4.5</b>
Gases	Standard	N	General	<ul style="list-style-type: none"> <li>• <i>Protection of the Environment Operations Act 1997</i></li> </ul>	<b>Section 8.4.5</b>

Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
Particulate matter	Standard	Y	General	<ul style="list-style-type: none"> <li><i>Protection of the Environment Operations Act 1997</i></li> </ul>	<b>Section 8.4.5</b>
<b>Amenity</b>					
Visual	Detailed	N	Specific	<ul style="list-style-type: none"> <li><i>Technical Supplement - Landscape and Visual Impact Assessment, Large-Scale Solar Energy Guideline August 2022</i></li> </ul>	<b>Section 8.3.2</b>
Noise	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change, 2009)</li> <li><i>NSW Road Noise Policy</i> (Department of Environment, Climate Change and Water, 2011)</li> <li><i>Noise Policy for Industry</i> (NPfI) <b>Invalid source specified.</b></li> </ul>	<b>Section 8.3.6</b>
Vibration	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Assessing Vibration: A Technical Guideline</i> (Department of Environment and Conservation, 2006)</li> <li><i>British Standard BS7385.2 - 1993 Evaluation and Measurement for Vibration in Buildings, Part 2 - Guide to damage levels from ground borne vibration</i></li> <li><i>DIN 4150: Part 3-1999 Structural vibration – Effects of vibration on structures 1999</i></li> </ul>	<b>Section 8.3.6</b>
Odour	No further assessment	n/a	n/a	n/a	n/a
<b>Biodiversity</b>					
Conservation areas	Detailed	N	General	<ul style="list-style-type: none"> <li><i>Environment Protection and Biodiversity Conservation Act 1999</i></li> <li><i>Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance</i> (Commonwealth of Australia, 2013)</li> </ul>	<b>Section 8.3.1</b>

Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
Terrestrial flora and fauna	Detailed	Y	General	<ul style="list-style-type: none"> <li>• <i>Biodiversity Conservation Act 2016</i></li> <li>• <i>Environment Protection and Biodiversity Conservation Act 1999</i></li> <li>• <i>Biodiversity Conservation Regulation 2017</i></li> <li>• Biodiversity Offset Scheme</li> <li>• Biodiversity Assessment Methodology (Department of Planning, Industry and Environment, 2020)</li> <li>• Commonwealth <i>EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance</i> (Commonwealth of Australia, 2013)</li> </ul>	<b>Section 8.3.1</b>
Aquatic flora and fauna	Detailed	N	General	<ul style="list-style-type: none"> <li>• <i>Fisheries Management Act 1991</i></li> <li>• <i>Biodiversity Conservation Act 2016</i></li> <li>• <i>Environment Protection and Biodiversity Conservation Act 1999</i></li> </ul>	<b>Section 8.3.1</b>
<b>Built environment</b>					
Public infrastructure	No further assessment	n/a	n/a	n/a	n/a
Design quality	No further assessment	n/a	n/a	n/a	n/a
Private property	Standard	N	Specific	n/a	<b>Section 8.4.1</b>
Public land	Standard	N	General	n/a	<b>Section 8.4.1</b>
<b>Economic</b>					
Natural resource use	Standard	N	Specific	n/a	<b>Section 8.4.4</b>
Livelihood	Standard	N	Specific	n/a	<b>Section 8.4.4</b>

Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
Opportunity cost	No further assessment	n/a	n/a	n/a	n/a
<b>Hazards and Risks</b>					
Battery storage	Detailed	N	General	<ul style="list-style-type: none"> <li><i>Hazardous Industry Advisory Paper No. 4 – 'Risk Criteria for Land Use Safety Planning</i> (Department of Planning, 2011)</li> <li><i>Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis</i> (Department of Planning, 2011)</li> <li><i>Assessment Guideline - Multi-Level Risk Assessment</i> (Department of Planning and Industry, 2011)</li> <li><i>Hazardous and Offensive Development Application Guidelines Applying SEPP 33</i> (Department of Planning, 2011)</li> </ul>	<b>Section 8.3.5</b>
Electromagnetic fields	Detailed	N	Specific	<ul style="list-style-type: none"> <li><i>Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields</i> (International Commission on Non-Ionizing Radiation Protection, 2020)</li> </ul>	<b>Section 8.3.5</b>
Electromagnetic interference	Detailed	N	Specific	<ul style="list-style-type: none"> <li><i>Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields</i> (International Commission on Non-Ionizing Radiation Protection, 2020)</li> <li><i>Australian Radio and Communications Act 1992</i></li> </ul>	<b>Section 8.3.5</b>
Bushfire risk	Detailed	N	Specific	<ul style="list-style-type: none"> <li><i>NSW Rural Fire Service Planning for Bushfire Protection 2019</i> (NSW Rural Fire Service, 2019)</li> </ul>	<b>Section 8.3.5</b>
Flood risk	Detailed	N	General	<ul style="list-style-type: none"> <li><i>State Environmental Planning Policy (Resilience and Hazards) 2021</i></li> </ul>	<b>Section 8.3.5</b>

Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
Coastal hazards	No further assessment	n/a	n/a	n/a	n/a
Dams safety	No further assessment	n/a	n/a	n/a	n/a
Groundwater contamination	No further assessment	n/a	n/a	n/a	n/a
Land movement	No further assessment	n/a	n/a	n/a	n/a
Environmental hazards	No further assessment	n/a	n/a	n/a	n/a
Dangerous goods	Detailed	N	General	<ul style="list-style-type: none"> <li>• <i>Dangerous Goods Act 1985</i></li> <li>• <i>Dangerous Goods (Road and Rail Transport) Act 2008</i></li> <li>• <i>Dangerous Goods (Road and Rail Transport) Regulation 2014</i></li> <li>• <i>Australian Code for the Transport of Dangerous Goods by Road and Rail</i> (Commonwealth of Australia, 2018)</li> </ul>	<b>Section 8.3.5</b>
Hazardous and offensive development	Detailed	N	Specific	<ul style="list-style-type: none"> <li>• <i>Hazardous Industry Advisory Paper No. 4 – 'Risk Criteria for Land Use Safety Planning</i> (Department of Planning, 2011)</li> <li>• <i>Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis</i> (Department of Planning, 2011)</li> <li>• <i>Assessment Guideline - Multi-Level Risk Assessment</i> (Department of Planning and Industry, 2011)</li> <li>• <i>Hazardous and Offensive Development Application Guidelines Applying SEPP 33</i> (Department of Planning, 2011)</li> </ul>	<b>Section 8.3.5</b>



Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
<b>Heritage</b>					
Aboriginal heritage	Detailed	N	Specific	<ul style="list-style-type: none"> <li>• <i>Code of Practice for the Investigation of Aboriginal Objects in New South Wales</i> (Department of Environment, Climate Change and Water NSW, 2010)</li> <li>• <i>Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW</i> (Office of Environment and Heritage, Department of Premier and Cabinet, 2011)</li> <li>• <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010</i> (Department of Environment, Climate Change and Water, 2010)</li> </ul>	<b>Section 8.3.3</b>
Historic heritage	Standard	N	General	<ul style="list-style-type: none"> <li>• <i>Burra Charter 2013</i> (Australia International Council on Monuments and Sites, 2013)</li> <li>• <i>Part 4 of the EP&amp;A Act 1979</i></li> <li>• <i>NSW Heritage Act 1977</i></li> </ul>	<b>Section 8.4.3</b>
Natural	No further assessment	n/a	n/a	n/a	n/a
<b>Land</b>					
Stability	Standard	N	General	<ul style="list-style-type: none"> <li>• <i>Managing Urban Stormwater: Soils and Construction 4<sup>th</sup> Edition</i> (Landcom, 2004)</li> </ul>	<b>Section 8.4.1</b>
Land capability	Detailed	N	General	<ul style="list-style-type: none"> <li>• <i>Land Use Conflict Risk Assessment Guide</i> (Department of Primary Industry, 2011)</li> <li>• <i>Agricultural Land Use Mapping Resources in NSW - User's guide</i> (Department of Primary Industries, February 2017)</li> <li>• <i>The land and soil capability assessment scheme</i> (Office of Environment and Heritage, October 2012)</li> </ul>	<b>Section 8.4.1</b>

Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
Topography	Standard	N	General	<ul style="list-style-type: none"> <li><i>The land and soil capability assessment scheme</i> (Office of Environment and Heritage, October 2012)</li> </ul>	<b>Section 8.4.1</b>
Land use	Standard	N	General	<ul style="list-style-type: none"> <li><i>Land Use Conflict Risk Assessment Guide</i> (Department of Primary Industry, 2011)</li> <li><i>Agricultural Land Use Mapping Resources in NSW - User's guide</i> (Department of Primary Industries, February 2017)</li> </ul>	<b>Section 8.4.1</b>
Biosecurity	Standard	N	General	<ul style="list-style-type: none"> <li><i>Biosecurity Act 2015</i></li> <li><i>Biosecurity Regulation 2016</i></li> </ul>	<b>Section 8.4.1</b>
Land contamination	Standard	N	General	<ul style="list-style-type: none"> <li><i>Contaminated Land Management Act 1997</i></li> <li><i>State Environmental Planning Policy (Resilience and Hazards) 2021</i></li> <li><i>Guidelines on the Duty to Report Land Contamination</i> (Environment Protection Authority, 2015)</li> </ul>	<b>Section 8.4.1</b>
Soil chemistry	No further assessment	n/a	n/a	n/a	n/a
Private property	Detailed	N	General	n/a	<b>Section 8.4.1</b>
Public land	Standard	N	General	n/a	<b>Section 8.4.1</b>
Public infrastructure	No further assessment	n/a	n/a	n/a	n/a
Design quality	No further assessment	n/a	n/a	n/a	n/a
<b>Social</b>					
Way of life	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Social Impact Assessment Guideline for State Significant Projects</i> (Department of Planning, Industry and Environment, 2021b)</li> </ul>	<b>Section 8.3.7</b>

Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
Community	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Social Impact Assessment Guideline for State Significant Projects</i> (Department of Planning, Industry and Environment, 2021b)</li> </ul>	<b>Section 8.3.7</b>
Accessibility	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Social Impact Assessment Guideline for State Significant Projects</i> (Department of Planning, Industry and Environment, 2021b)</li> </ul>	<b>Section 8.3.7</b>
Culture	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Social Impact Assessment Guideline for State Significant Projects</i> (Department of Planning, Industry and Environment, 2021b)</li> </ul>	<b>Section 8.3.7</b>
Health and wellbeing	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Social Impact Assessment Guideline for State Significant Projects</i> (Department of Planning, Industry and Environment, 2021b)</li> </ul>	<b>Section 8.3.7</b>
Surroundings	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Social Impact Assessment Guideline for State Significant Projects</i> (Department of Planning, Industry and Environment, 2021b)</li> </ul>	<b>Section 8.3.7</b>
Livelihoods	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Social Impact Assessment Guideline for State Significant Projects</i> (Department of Planning, Industry and Environment, 2021b)</li> </ul>	<b>Section 8.3.7</b>
Decision-making systems	Detailed	Y	Specific	<ul style="list-style-type: none"> <li><i>Social Impact Assessment Guideline for State Significant Projects</i> (Department of Planning, Industry and Environment, 2021b)</li> </ul>	<b>Section 8.3.7</b>
<b>Waste and Resources</b>					
Waste and resources	Standard	Y	General	<ul style="list-style-type: none"> <li><i>Waste Classification Guidelines</i> (Environment Protection Authority, 2014)</li> <li><i>Protection of the Environment Operations (Waste) Regulation 2014</i></li> <li><i>Waste Avoidance and Resource Recovery Act 2001</i></li> </ul>	<b>Section 8.4.6</b>

Matter	Level of assessment	Cumulative impact (Y/N)	Level of Engagement	Relevant government plans, policies, and guidelines	Scoping report Section
<b>Water</b>					
Hydrology	Detailed	N	General	<ul style="list-style-type: none"> <li>• <i>Water Management Act 2000</i></li> <li>• <i>Protection of the Environment Operations Act 1997</i></li> <li>• <i>Managing urban stormwater: soils and construction</i> (Landcom, 2004)</li> </ul>	<b>Section 8.4.2</b>
Water quality	Standard	N	General	<ul style="list-style-type: none"> <li>• <i>Water Management Act 2000</i></li> <li>• <i>Protection of the Environment Operations Act 1997</i></li> <li>• <i>Australian &amp; New Zealand Guidelines for fresh &amp; Marine Water quality</i></li> </ul>	<b>Section 8.4.2</b>
Water availability	Standard	N	General	<ul style="list-style-type: none"> <li>• <i>Water Management Act 2000</i></li> </ul>	<b>Section 8.4.2</b>

**APPENDIX 3**  
**PRELIMINARY BIODIVERSITY ASSESSMENT PREPARED BY**  
**CUMBERLAND ECOLOGY**



23 November 2023

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**Ecological assessment for the proposed Yass Valley Solar Farm**

Dear Shaun,

The purpose of this letter is to provide an ecological assessment that identifies the ecological constraints to future development for the proposed Yass Valley Solar Farm (the 'Project') located within the Yass Valley Local Government Area (LGA) in the Southern Tablelands region of NSW. The ecological assessment provided within this letter has been developed based on the results of a desktop assessment as well as initial reconnaissance surveys undertaken by Cumberland Ecology in September 2022.

**Appendix A** of this letter includes a summary of the methodology implemented as well as our results and an assessment of the ecological constraints to development present in the study area. Supporting figures are provided at the end of this letter.

If you have any questions or wish to discuss the contents of this letter further, please do not hesitate to contact either me via email or at our Sydney office on (02) 9868 1933.

Yours sincerely,



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# APPENDIX A :

## Yass Valley Solar Farm - Ecological Assessment

## A.1. Purpose

Cumberland Ecology has been requested by Ramboll, on behalf of International Power (Australia) Holdings Pty Ltd, trading as ENGIE Australia and New Zealand (Engie), to provide an ecological assessment for the proposed Yass Valley Solar Farm Project (the Project). The capital investment value of the Project is valued at over \$30 million and the project is considered State Significant Development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *State Environmental Planning Policy (Planning Systems 2021)* (Planning Systems SEPP). Therefore, the Project will require the issue of the Planning Secretary's Environmental Assessment Requirements (SEARs) by the Department of Planning and Environment (DPE).

The purpose of this ecological assessment is to provide preliminary biodiversity information to inform the scoping report currently being prepared by Ramboll to support the Request for SEARs for the Project. This document also provides discussion of the legislative requirements for the future development of the Project and identification of the likely assessment pathways under both Commonwealth and NSW legislation.

## A.2. Background

The Project is located on Ngunnawal land within the Yass Valley Local Government Area (LGA) in the Southern Tablelands region of NSW. The land currently being assessed for the Project is comprised of Lot 5 DP1165198, Lot 7 DP15756, Lot 7141 DP1095199, Lot 7142 DP1095199, and the northern parts of Lot 2 DP844272 (hereafter referred to collectively as the 'study area' – see **Figure 1**). The study area covers a total area of approximately 600 ha and is largely zoned as C4 – Environmental living with some areas zoned as R1 – General Residential or R5 – Large Lot Residential under the *Yass Local Environmental Plan 2013*. The study area occurs within the South-Eastern Highlands Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion and the Murrumbateman IBRA subregion.

The study area is bounded by Wades Road to the south-west, Wee Jasper Road to the south-east and rural properties to the north, west and east. The study area and surrounding lands have been extensively cleared previously and are largely characterised by grasslands. However, some areas still contain small patches of woodland and scattered trees. Several watercourses, as per available hydroline data, and small farm dams are also mapped within the study area. The current land use of the study area is primarily as grazing land.

The Project would include the construction, operation and decommissioning of an approximately 100 megawatts solar farm, including up to 220,000 photovoltaic panels, a battery energy storage system (BESS), and ancillary associated infrastructure. The project would supply electricity to the national electricity market (NEM) via the existing transmission infrastructure within the local area.

Key infrastructure for the project would include:

- up to approximately 220,000 single axis tracking photovoltaic modules (solar panels);
- electrical infrastructure including:
  - approximately 30 power conversion units (PCUs) which include inverters for converting direct current (DC) power to alternating current (AC);

- onsite substation containing two main transformers and associated switchgear;
- overhead and underground electrical reticulation connecting the solar farm elements;
- onsite connection from the substation to the existing 330 kilovolt transmission lines operated by TransGrid;
- BESS;
- other permanent onsite ancillary infrastructure including:
  - operational and maintenance facility;
  - a temperature-controlled spare parts storage facility;
  - SCADA facilities;
  - a workshop and associated infrastructure;
  - access roads, both to the project and internal access roads;
  - carparking area;
  - security fencing and landscaping;
- temporary construction ancillary infrastructure including:
  - construction compounds;
  - laydown areas;
  - parking areas;
  - access tracks and associated infrastructure, including gates and fencing; and
  - potential construction workforce accommodation.

The project is expected to require up to 150 full-time equivalent employees during peak construction, and approximately 2 full-time equivalents would be required during operation and ongoing maintenance of the solar energy park.

The proposed development footprint for the solar farm is shown in **Figure 1**.

## A.3. Methodology

### A.3.1. Desktop Assessments

Mapping layers from the NSW State Vegetation Type Map (SVTM) (DPIE, 2022) which covers the study area were reviewed to determine the potential vegetation communities within the study area and development footprint, including those that align to Threatened Ecological Communities (TECs).

Database analysis was conducted for the locality using the Environment and Heritage Group (EHG) BioNet Atlas (EHG, 2023a) and the Commonwealth Protected Matters Search Tool (PMST) (DCCEEW, 2023). The locality is defined as the area within a 10 km radius around the centre of the study area. The BioNet Atlas and PMST outputs were examined for records of any threatened flora and fauna species listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) within the locality.

The following databases and datasets were also interrogated:

- BioNet Vegetation Classification database (EHG, 2023b);
- Threatened Biodiversity Data Collection (TBDC) (EHG, 2023c);
- DPE Biodiversity Values Map (DPE, 2023a);
- ePlanning Spatial Viewer – Land Zoning Maps (DPE, 2023b);
- SixMaps hydrological datasets (NSW Government Spatial Services, 2021); and
- Fisheries NSW Spatial Data Portal (DPI, 2023).

### **A.3.2. Reconnaissance Surveys**

Cumberland Ecology conducted preliminary reconnaissance surveys of the study area between 19 – 21 September 2022. The vegetation within the study area was ground-truthed to examine and verify the mapping of the condition and extent of the different plant communities with particular reference to Threatened Ecological Communities (TECs). TECs considered during the vegetation mapping, particularly grassland areas, included White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland (referred to as Box Gum Woodland) (listed as Critically Endangered under the BC Act and EPBC Act) and Natural Temperate Grasslands of the South Eastern Highlands (referred to as Natural Temperate Grasslands) (listed as Critically Endangered under the EPBC Act).

Mapping of plant communities within the study area was undertaken by random meander surveys through patches of vegetation, noting key characteristics of areas in similar broad condition states such as similar tree cover, shrub cover, ground cover, weediness or combinations of these. Records of plant community boundaries were made using a hand-held Global Positioning System and mark-up of aerial photographs. The resultant information was synthesised using GIS to create a spatial database that was used to interpret and interpolate the data to produce a vegetation map of the study area.

The vegetation mapping was supported by conduction of Vegetation Integrity assessments in accordance with the Biodiversity Assessment Method (BAM) (hereafter referred to as BAM plots). BAM plots surveys included establishment of 20 x 50 m plots, with an internal 20 x 20 m floristic plot. A total of 10 BAM plots were conducted and the following data was collected within each of the plots:

- Composition for each growth form group by counting the number of native plant species recorded for each growth form group within the 20 m x 20 m floristic plot;



- Structure of each growth form group as the sum of all the individual projected foliage cover estimates of all native plant species recorded within each growth form group within the 20 m x 20 m floristic plot;
- Cover of 'High Threat Exotic' weed species within the 20 m x 20 m floristic plot;
- Assessment of function attributes within the 20 m x 50 m plot, including:
  - Count of number of large trees;
  - Tree stem size classes, measured as 'diameter at breast height over bark' (DBH);
  - Regeneration based on the presence of living trees with stems <5 cm DBH;
  - The total length in metres of fallen logs over 10 cm in diameter;
- Assessment of litter cover within five 1 m x 1 m plots evenly spread within each 20 m x 50 m plot; and
- Number of trees with hollows that are visible from the ground within each 20 m x 50 m plot.

### **A.3.3. Preliminary BAM Calculations**

Preliminary calculations of the collected BAM plot data were conducted within the BAM calculator (BAM-C) to gain a preliminary appreciation of Vegetation Integrity scores and generate lists of threatened species that are likely to require survey.

The following site context scores were utilised for the calculations:

- IBRA region: South Eastern Highlands;
- IBRA sub-region: Murrumbateman;
- NSW (Mitchell Landscape: Burrinjuck Ridges;
- Percent native vegetation cover: assumed at 31% to fit into >30 – 70% cover class;
- Patch size: assumed at 101 ha to fit maximum patch size category; and
- PCT: 3376

As the purpose of the preliminary calculations was to gain an initial estimate of Vegetation Integrity scores, areas of the vegetation zones were not specifically calculated but areas were 'created' based on numbers of plots available for the vegetation zone and the minimum number of plots required as outlined in Table 4 of the BAM (e.g. a vegetation zone for which only one plot was available was assumed to have an area of <2ha, whereas a vegetation zone for which three plots were available was assumed to have an area between 5 – 20 ha).

It should be noted that as the reconnaissance surveys mapped the grasslands as a derived native grassland (DNG) form of PCT 3376, preliminary calculations were conducted only for Box-Gum Woodland as PCT 3376. However, it is acknowledged that some grassland areas could potentially comprise Natural Temperate

Grasslands rather than Box Gum DNG. The potential occurrence of Natural Temperate Grasslands will be assessed in more detail in the ecological assessments conducted to support the EIS.

## A.4. Results

### A.4.1. Desktop Assessment

#### A.4.1.1. Biodiversity Values Map

Review of the Biodiversity Values Map (BV Map) confirmed that parts of the study area are mapped on the BV Map. The BV mapping within the study area largely follows the mapped hydrolines of Rainbow Creek and Booroo Ponds (**Figure 2**) and therefore is based on presence of riparian lands.

#### A.4.1.2. Vegetation Communities

Historically the study area would have been covered by forest or woodland. However, the land has historically been cleared and is currently largely characterised by grassland areas with scattered occurrences of woodland/forest and scattered trees. The woodland/forest areas mainly occur in the north and southwest parts of the study area and are likely to contain important native trees.

The most recent SVTM indicates that patches of four native vegetation communities are present within the study area: Southwest Riverflat Red Gum Forest, Southern Tableland Grassy Box Woodland, Southwest Foothills Stringybark-Box Grassy Forest and Southwest Ranges Stringybark Exposed Forest (**Figure 3**).

In NSW, vegetation communities are referred to as PCTs in planning and assessment tools and vegetation mapping programs.

Southwest Riverflat Red Gum Forest conforms to the description of PCT 4088. This community is described as being a mid-high to tall open riverine forest with a sparse mid-stratum and a grassy ground layer found along river banks and lake margins on the alluvial floodplains of the Southwest Slopes. The canopy almost always includes *Eucalyptus camaldulensis*, occasionally with *Casuarina cunninghamiana* subsp. *cunninghamiana*. The mid-stratum is sparse and commonly includes scattered acacias and the mid-dense ground layer is mainly comprised of grasses and forbs very frequently including *Cynodon dactylon* and *Rumex brownii*, commonly *Microlaena stipoides*. This PCT is not associated with any TECs.

Southern Tableland Grassy Box Woodland conforms to the description of PCT 3376. This community is described as a tall sclerophyll woodland with a dry shrub layer that is patchy to absent and a mid dense, grassy groundcover. The canopy almost always includes box eucalypts (*Eucalyptus melliodora* or *Eucalyptus bridgesiana*), occasionally associated with *Eucalyptus blakelyi*. The shrub layer is sparse to absent with occasional, scattered *Melichrus urceolatus*, *Lissanthe strigosa* or various *Acacia* species. The mid-dense ground layer typically includes grasses, forbs, graminoids and some twiners. This PCT is associated with a TEC: *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*, a Critically Endangered Ecological Community (CEEC) listed under the BC Act, and *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native*

*Grassland*, a CEEC listed under the EPBC Act. This CEEC is generally referred to as 'Box Gum Woodland and Derived Native Grassland (DNG)'.

Southwest Foothills Stringybark-Box Grassy Forest conforms to the description of PCT 3540. This community is described as a tall grassy sclerophyll open forest of foothills of the south-west slopes between Albury and Yass. The canopy very frequently includes *Eucalyptus macrorhyncha* and or *Eucalyptus polyanthemos*, with *Eucalyptus albens* common and *Eucalyptus blakelyi* occurring occasionally. A very sparse to sparse low shrub stratum includes occasional scattered *Hibbertia obtusifolia* or *Melichrus urceolatus*. The ground layer is predominantly grassy with a diverse assemblage of tufted grasses that commonly includes *Poa sieberiana*, *Elymus scaber* and *Microlaena stipoides*, and small forbs commonly including *Hydrocotyle laxiflora*, *Lomandra filiformis*, *Oxalis perennans*, *Geranium solanderi*, *Gonocarpus tetragynus* and *Daucus glochidiatus*. This PCT is not associated with any TEC.

Southwest Ranges Stringybark Exposed Forest conforms to the description of PCT 3541. This community is described as a tall shrub/grass sclerophyll open forest of dry rocky ranges on the south-west slopes between Albury and Yass, with northern outliers near Tuena. The mid-dense tree canopy almost always contains *Eucalyptus macrorhyncha*, commonly *Eucalyptus polyanthemos* and occasionally *Eucalyptus goniocalyx* and *Eucalyptus nortonii*. A sparse layer of low to tall shrubs commonly includes *Hibbertia obtusifolia* and *Brachyloma daphnoides*. The sparse to patchy ground layer commonly includes fine tussocks of *Poa sieberiana* and low *Gonocarpus tetragynus*, *Lomandra filiformis*, *Daucus glochidiatus* and *Wahlenbergia stricta*. This PCT is not associated with any TEC.

The occurrence of mapped PCTs, as per the SVTM within the study area is summarised in **Table 1** below. The distribution of PCTs as per the SVTM is shown in **Figure 3**.

**Table 1 SVTM PCTs within the study area**

Vegetation Formation	PCT Name	PCT	EPBC Act	BC Act
Forested Wetlands	Southwest Riverflat Red Gum Forest	4088	-	-
Grassy Woodlands	Southern Tableland Grassy Box Woodland	3376	CE	CE
Dry Sclerophyll Forests (Shrub/grass sub-formation)	Southwest Foothills Stringybark-Box Grassy Forest	3540	-	-
Dry Sclerophyll Forests (Shrub/grass sub-formation)	Southwest Ranges Stringybark Exposed Forest	3541	-	-

Key: CE = Critically Endangered

#### A.4.1.3. Threatened Flora and Fauna Species

No threatened flora species have been recorded from the locality as per the database searches. The database searches determined that a total of 20 threatened fauna species have been recorded from the locality and may have some potential to occur within the study area.

Threatened fauna records from the locality include highly mobile avifauna and bats such as the White-bellied Sea-Eagle (*Haliaeetus leucogaster*), Gang-gang Cockatoo (*Callocephalon fimbriatum*), Grey-headed Flying-fox (*Pteropus poliocephalus*) and Southern Myotis (*Myotis macropus*) as well as less mobile reptiles and invertebrates such as the Striped Legless Lizard (*Delma impar*), and Golden Sun Moth (*Synemon plana*).

Threatened species records within the study area are limited to recent records (2022-2023) for the Golden Sun Moth (**Figure 4**). Although no threatened vertebrate species have been recorded within the study area to date, records in the immediate vicinity of the study area include highly mobile avifauna such as Little Eagle (*Hieraaetus morphnoides*), Scarlet Robin (*Petroica boodang*) and Superb Parrot (*Polytelis swainsonii*) (**Figure 4**).

A complete list of the threatened species recorded from the locality and an assessment of their potential to occur within the study area is presented in **Appendix B**.

#### **A.4.1.4. Fauna Habitat**

The majority of the study area is comprised of cleared land, dominated by grassland vegetation which is likely to have limited value for native fauna. The small, isolated patches of woodland may provide habitat for native fauna species however, including microchiropteran bats, the Grey-headed Flying fox and avifauna. These small patches are likely to contain nectar-producing trees and shrubs and may also contain some hollow-bearing trees that provide roosting habitat for several species.

Due to the general lack of habitat in the study area and the lack of nearby large patches of bushland, the study area is not considered to comprise part of a biodiversity corridor. Although the isolated patches of vegetation may provide some highly limited “stepping stone” corridor function, this is likely to be minor. While the mapped watercourses may provide some connectivity to the wider locality, this is likely to be limited due to the lack of riparian vegetation along the banks of the watercourses.

Aerial imagery indicates the presence of small dams scattered across the study area that are likely to provide some aquatic habitat value. These may contain potential habitat for aquatic and terrestrial fauna species including fish, amphibians, reptiles (especially freshwater turtles), and water-birds. Furthermore, terrestrial fauna species would likely utilise these dams as a water source.

The study area also contains 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> order watercourses as per the Strahler system (**Figure 5**). These watercourses, particularly the higher order watercourses, have been mapped as Key Fish Habitat (**Figure 5**) and therefore are likely to provide habitat for aquatic and semi-aquatic species. Threatened freshwater aquatic species listed under the *Fisheries Management Act 1994* (FM Act) and their distribution maps have been reviewed, and none are recognised as occurring within the study area or locality.

### **A.4.2. Reconnaissance Surveys**

#### **A.4.2.1. Vegetation Communities**

The reconnaissance surveys resulted in some preliminary remapping of SVTM PCTs within the study area. The following vegetation map units/vegetation zones were mapped within the study area:

- PCT 3376: Condition 1 Box Gum Grassy Woodland – This community is characterised by an open woodland with a sparse canopy of eucalypts. The canopy species commonly includes *Eucalyptus melliodora* (Yellow

Box), *Eucalyptus blakelyi* (Blakely's Red Gum) and *Eucalyptus bridgesiana* (Apple Box). Other species infrequently observed includes *Eucalyptus dives* (Broad-leaved Peppermint). The understorey includes mainly exotic grasses. The native understorey species include *Austrostipa scabra* ssp. *Falcata* (Rough Speargrass), *Austrostipa bigeniculata*, *Microlaena stipoides* var. *stipoides* (Weeping Grass) and *Elymus scaber* (Common Wheatgrass). It is found mainly in the north and in the southwest of the study area and lies outside of the proposed development footprint. The onsite occurrence of this condition class conforms to the CEEC Box Gum Woodland and Derived Native Grassland.

- PCT 3376: Condition 2 Derived Native Grassland – This community is dominated by *Austrostipa scabra* ssp. *Falcata* (Rough Speargrass) and *Austrostipa bigeniculata*. The other native species present include *Crassula sieberiana* (Australian Stonecrop) and *Elymus scaber* (Common Wheatgrass). It is found mostly at higher elevations in the study area where the soils are shallow and rock is exposed. As a precautionary measure, the onsite occurrence of this condition class is considered to conform to the CEEC Box Gum Woodland and Derived Native Grassland, pending further detailed investigation.
- PCT 3376: Condition 3 Exotic Dominated Natives Present – This vegetation type is dominated by exotic pasture species such as include *Lolium perenne* (Perennial Ryegrass), *Trifolium repens* (Clover) and *Acetosella vulgaris* (Sorrel) although varying coverage of native grasses and forbs do occur, namely *Austrostipa scabra* ssp. *falcata* (Rough Speargrass), *Austrostipa bigeniculata* and *Elymus scaber* (Common Wheatgrass). It is found throughout the study area at low and high elevations. As a precautionary measure, the onsite occurrence of this condition class is considered to conform to a degraded form of the CEEC Box Gum Woodland and Derived Native Grassland, pending further detailed investigation.
- PCT 3376: Condition 4 Phalaris Grassland – This vegetation type is dominated by *Phalaris aquatica* (Phalaris). The other exotic species present include *Lolium perenne* (Perennial Ryegrass), *Trifolium repens* (Clover) and *Onopordum acanthium* (Scotch Thistle). The native species infrequently observed include *Rumex brownii* (Swamp Dock) and *Asperula conferta* (Common Woodruff). It is found in the lower areas throughout the study area where the soils are poorly drained. As a precautionary measure, the onsite occurrence of this condition class is considered to conform to a highly degraded form of the CEEC Box Gum Woodland and Derived Native Grassland, pending further detailed investigation
- Rush – This vegetation type is dominated by *Juncus subsecundus* (Rush). The other species present include *Phalaris aquatica* (Phalaris) and *Austrostipa bigeniculata*. It is found at the source of soaks usually in close proximity to exposed rock areas throughout the study area.
- Willow – This vegetation type is dominated by *Salix babylonica* (Weeping Willow). Other species present include *Rumex crispus* (Curly Dock) and *Callitriche stagnalis* (Common Starwort). It occurs along a single creekline in the southern areas of the study area.
- Planted Exotic Trees – This vegetation type includes *Pinus* (Pine) and *Cupressus* (Cypress) species planted in a windrow in the southwest of the study area. Also, the occasional tree is found in the southwest within wooded areas.
- Planted Native Trees – This vegetation type includes the natives *Eucalyptus polyanthemos* (Red Box), *Eucalyptus melliodora* (Yellow Box) and *Acacia dealbata* (Silver Wattle). Exotic Cherry Blossom are also



planted among this vegetation type namely *Prunus serrulata* (Japanese Cherry) and *Prunus speciosa* (Ohshima Cherry). The vegetation is found along an embankment above a drainage line in the southeast of the study area.

The indicative distribution of the ground-truthed vegetation communities within the study area is shown in **Figure 6**. As previously stated, it is acknowledged that some grassland areas could potentially comprise Natural Temperate Grasslands rather than Box Gum DNG. The potential occurrence of Natural Temperate Grasslands will be assessed in more detail in the ecological assessments conducted to support the EIS.

#### **A.4.2.2. Fauna Habitat**

While the woodland areas contain scattered hollow bearing trees, due to the prevalence of grasslands, predominantly PCT 3376 Condition 3 (Exotic dominated – natives present) and PCT 3376 Condition 4 (Phalaris Grassland), fauna habitats are limited within the study area. The existing watercourses largely lack riparian vegetation with grasslands extending up to the banks of the watercourses. Habitats within the grassland areas are largely limited to scattered occurrences of surface rock which provide some habitat for ground-dwelling reptiles.

Photographs of conditions/habitats within the study area are provided in **Appendix C**.

#### **A.4.3. BAM-C**

BAM-C calculations were limited to the four condition classes of PCT 3376 as BAM plots were limited to this PCT. Two scenarios were assessed:

- Scenario 1: Condition 3 (Exotic dominated, natives present) and Condition 4 (Phalaris grassland) were calculated as separate vegetation zones; and
- Scenario 2: Condition 3 and Condition 4 were combined into a single vegetation zone dominated by exotics but with natives present.

The preliminary BAM-C calculations produced the following Vegetation Integrity scores:

- Scenario 1:
  - Condition 1 (Box Gum Woodland): VI = 33.6
  - Condition 2 (DNG): VI = 4.7
  - Condition 3 (Exotic dominated, natives present): VI = 1.4
  - Condition 4 (Phalaris dominated): VI = 0.9
- Scenario 2:
  - Condition 1 (Box Gum Woodland): VI = 33.6
  - Condition 2 (DNG): VI = 4.7
  - Condition 3 (Exotic/Phalaris dominated, natives present): VI = 1.9

The preliminary calculations also produced a list of the following species credit species:

- *Ammobium craspedioides* (Yass Daisy);
- *Anthochaera phrygia* (Regent Honeyeater) (Breeding);
- *Aprasia parapulchella* (Pink-tailed Legless Lizard);
- *Callocephalon fimbriatum* (Gang-gang Cockatoo) (Breeding);
- *Calyptorhynchus lathami* (Glossy Black-Cockatoo) (Breeding);
- *Cercartetus nanus* (Eastern Pygmy-possum);
- *Delma impar* (Striped Legless Lizard);
- *Eucalyptus aggregate* (Black Gum);
- *Haliaeetus leucogaster* (White-bellied Sea-Eagle) (Breeding);
- *Hieraetus morphnoides* (Little Eagle) (Breeding);
- *Keyacris scurra* (Key's Matchstick Grasshopper);
- *Lathamus discolor* (Swift Parrot) (Breeding);
- *Leucochrysum albicans subsp. tricolor* (Hoary Sunray);
- *Litoria aurea* (Green and Golden Bell Frog);
- *Litoria booroolongensis* (Booroolong Frog);
- *Litoria castanea* (Yellow-spotted Tree Frog);
- *Lophoictinia isura* (Square-tailed Kite) (Breeding);
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat) (Breeding);
- *Ninox strenua* (Powerful Owl) (Breeding);
- *Petauroides Volans* (Southern Greater Glider);
- *Petaurus norfolcensis* (Squirrel Glider);
- *Phascogale tapoatafa* (Brush-tailed Phascogale);
- *Phascolarctos cinereus* (Koala);
- *Pomaderris pallida* (Pale Pomaderris);
- *Prasophyllum petilum* (Tarengo Leek Orchid);

- *Pteropus poliocephalus* (Grey-headed Flying-fox) (Breeding);
- *Senecio macrocarpus*;
- *Swainsona recta* (Small Purple-pea);
- *Swainsona sericea* (Silky Swainson-pea); and
- *Synemon plana* (Golden Sun Moth).

It should be noted that this list is only indicative as the number of species associated with PCTs for the Natural Temperate Grasslands (if determined to be present onsite) is likely to differ.

## A.5. Ecological Constraints

This section provides a summary of the potential impacts associated with future development of the study area as well as a discussion of the regulatory requirements and ecological constraints to future development present within the study area. Although an indicative development footprint has been provided, for the purpose of this analysis, the entire study area has been assessed for potential impacts of future development. Key ecological constraints identified within the study area include:

- Presence of native vegetation, including one TEC (Southern Tableland Grassy Box Woodland – PCT 3376) and one potential TEC (Temperate Native Grasslands);
- Potential habitat for threatened species;
- Land within riparian corridors; and
- Key Fish Habitat.

Each of these components is discussed further below.

### A.5.1. Threatened Ecological Communities

One TEC - Southern Tableland Grassy Box Woodland (STGBW) has been identified as occurring within the study area (**Figure 3** and **Figure 6**). This community is associated with the Box Gum Woodland TEC which is listed as a CEEC under the BC Act and EPBC Act. Although the findings of the reconnaissance surveys indicate that the grasslands are highly degraded, it is possible that some of the grassland areas may conform to the description of STGBW DNG which is also included in the Box Gum Woodland CEEC listing under the BC Act and EPBC Act (noting that the EPBC Act listing is subject to specific condition thresholds).

It is understood that the project will be assessed as a SSD, hence it will automatically trigger entry into the NSW Biodiversity Offset Scheme under the BC Act. Thus, clearing of any native vegetation will therefore likely require offsetting in the form of biodiversity offset credits. However, as a higher level of conservation significance is attributed to TECs, clearing of any areas of Box Gum Woodland, including the DNG forms, is highly likely to present higher offsetting obligations. Any proposed development that impacts upon Box Gum Woodland and DNG would also need to consider whether the impacts result in a Serious and Irreversible Impact (SII) as this CEEC has been identified as a candidate SII entity.

Should the Commonwealth listed form of the Box Gum Woodland and DNG be determined to be present in the areas to be impacted, an EPBC Referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) would also be required.

As previously stated, it is acknowledged that some grassland areas could potentially comprise Natural Temperate Grasslands rather than Box Gum DNG and will be assessed in more detail in the ecological assessments conducted to support the EIS. As Natural Temperate Grasslands are listed as a CEEC under the EPBC Act, should this community be determined to be present in the areas to be impacted, this would also require a referral to DCCEEW.

Considering the information above, impacts to potential areas of Box Gum Woodland and DNG, as well as Natural Temperate Grasslands, both direct and indirect, should be avoided and mitigated where possible.

### **A.5.2. Threatened Species**

As outlined previously and as presented in **Appendix B**, several threatened fauna species have been recorded from the locality and there may be potential for these to occur in the study area due to the presence of potential habitat. The main areas of potential habitat for these species in the study area occurs in the patches of native vegetation and riparian corridors, as well as in the dams. Any future assessment would need to consider the significance of impacts to any threatened species considered to have the potential to utilise the study area.

Based on the long history of clearing and grazing, habitats are relatively unsuitable to support most threatened flora and fauna species. However, there is some possibility of a limited number of threatened species that can occur in disturbed habitats being present and these will need to be fully investigated via future surveys or use of an expert report in accordance with the BAM. However, based upon lack of records of threatened species in the databases, the probability that any threatened species would present as a substantial constraint to future development is low.

### **A.5.3. Riparian Corridors**

The study area contains riparian corridors that drain into Rainbow Creek and Booroo Ponds. The watercourses within the study area comprise 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> orders streams under the Strahler ranking.

Under the NSW *Water Management Act 2000* (WM Act) approval is required for carrying out a 'controlled activity' that takes place on 'waterfront land' to ensure that the activity to ensure negative impacts upon waterfront land and other water users are avoided or minimised. In this instance, the relevant definition of waterfront land per the WM Act is: *"the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river...where the prescribed distance is 40m or (if the regulations prescribe a lesser distance...) that lesser distance"*.

As the project comprises a SSD, it is exempt from the requirement for a controlled activity approval. Nonetheless, consideration should be given to avoidance/minimisation of work within areas that would comprise a vegetated riparian zone (VRZ) buffer for the watercourse.

The NSW Office of Water's guidelines state that the following VRZ buffers apply as 'prescribed distances' based on the watercourse order as classified under the Strahler System of ordering watercourses:

- 1<sup>st</sup> order watercourse: 10 m each side of watercourse (20 m + channel width);
- 2<sup>nd</sup> order watercourse: 20 m each side of watercourse (40 m + channel width);
- 3<sup>rd</sup> order watercourse: 30 m each side of watercourse (60 m + channel width); and
- 4<sup>th</sup> order watercourse and greater (including estuaries, wetlands, and any parts of rivers influenced by tidal waters): 40 m (80 m + channel width).

#### **A.5.4. Key Fish Habitat**

Under the FM Act, Key Fish Habitats are considered to include all marine and estuarine habitats up to highest astronomical tide level (i.e. reached by 'king' tides) and most permanent and semi-permanent freshwater habitats including rivers, creeks, lakes, lagoons, billabongs, weir pools and impoundments up to the top of the bank. Based on the presence of watercourses, parts of the study area have been mapped as Key Fish Habitat (**Figure 5**).

Therefore, crossings across watercourses should be avoided/minimised where feasible to limit impacts on Key Fish Habitat.

#### **A.5.5. Assessment Requirements**

This section provides an overview of the likely assessment requirements for any future development of the study area, including both NSW and Commonwealth requirements.

##### **A.5.5.1. NSW Assessment Requirements**

###### **A.i. Biodiversity Conservation Act 2016**

Assessment of ecological impacts for future development applications within the study area are required to be in accordance with the BC Act. As the Project comprises a SSD, it automatically triggers entry into the Biodiversity Offsets Scheme and will require preparation of a Biodiversity Development Assessment Report (BDAR), unless a waiver is granted.

Given the presence of native vegetation, including potential TECs, riparian areas and potential habitat for threatened species, the Project is unlikely to qualify for a BDAR waiver. Therefore, future ecological assessments will require preparation of a BDAR in accordance with the BAM.

###### **A.ii. Fisheries Management Act 1994**

The Department of Primary Industries (DPI) has created a fish habitat sensitivity ranking which is used within policy and guideline statements to differentiate between permissible and prohibited activities or developments related to the importance of the type of key fish habitat (Fairfull, 2013). These types are defined as follows:

- Type 1 – Highly sensitive key fish habitat;
- Type 2 – Moderately sensitive key fish habitat; and
- Type 3 – Minimally sensitive key fish habitat.



Key fish habitat is also defined in terms of “waterway class” for the purposes of impact assessment by DPI. The waterway class scheme is also used to make management recommendations to minimise impacts on different fish habitats. The waterway classification system identified by DPI is presented in **Table 2** below.

**Table 2 Classification of waterways for fish passage**

Classification	Characteristics of waterway class
CLASS 1 Major key fish habitat	Marine or estuarine waterway or permanently flowing or flooded freshwater waterway (e.g. river or major creek), habitat of a threatened or protected fish species or ‘critical habitat’.
CLASS 2 Moderate key fish habitat	Non-permanently flowing (intermittent) stream, creek or waterway (generally named) with clearly defined bed and banks with semi-permanent to permanent waters in pools or in connected wetland areas. Freshwater aquatic vegetation is present. TYPE 1 and 2 habitats present.
CLASS 3 Minimal key fish habitat	Named or unnamed waterway with intermittent flow and sporadic refuge, breeding or feeding areas for aquatic fauna (e.g. fish, yabbies). Semi-permanent pools form within the waterway or adjacent wetlands after a rain event. Otherwise, any minor waterway that interconnects with wetlands or other CLASS 1-3 fish habitats.
CLASS 4 Unlikely key fish habitat	Waterway (generally unnamed) with intermittent flow following rain events only, little or no defined drainage channel, little or no flow or free standing water or pools post rain events (e.g. dry gullies or shallow floodplain depressions with no aquatic flora present).

Surveys of the mapped watercourses will need to be conducted to determine the sensitivity and classification of Key Fish Habitat that may be present within the study area. While assessments of aquatic habitats, such as Key Fish Habitat do not form part of a BDAR, the aquatic assessments can be included as a separate section within any BDAR prepared to support the Project.

### A.5.6. Commonwealth Assessment Requirements

Threatened species, populations and communities listed under the EPBC Act that are considered to be directly or indirectly impacted by future development should be assessed in accordance with the *Matters of National Environmental Significance (MNES) Significant Impact Guidelines 1.1* (DoE, 2013). If a development is considered to significantly impact any MNES, then a referral would be required to be submitted to the Commonwealth Minister for the DCCEEW. Should the Minister determine the project to be a controlled action, then approval under the EPBC Act would be required.

In February 2015, a bilateral agreement was made under Section 45 of the EPBC Act between the Commonwealth of Australia and the State of New South Wales relating to environmental assessment. This bilateral agreement was amended (Amending Agreement No.1) effective 24 March 2020 to reflect changes to the EP&A Act, in particular the repeal of the *Threatened Species Conservation Act 1995* (TSC Act) and replacement with the BC Act. Under Amending Agreement No.1, the BAM and Biodiversity Offsets Scheme, as introduced under the BC Act, are Accredited processes. Therefore, in the event that the Project is considered a

controlled action, it is assumed that any EPBC Act assessments will be via the assessment bilateral agreement with New South Wales.

The proposed development area avoids woodland areas that form part of the Box Gum Woodland TEC. Although the findings of the reconnaissance surveys indicate that the grasslands are highly degraded, areas of Box Gum Woodland DNG as listed under the EPBC Act may be present within the proposed development footprint and wider study area. Under the EPBC Act, these areas must meet condition thresholds in order to be considered part of the listed CEEC. Further surveys are required in order to confirm if the areas mapped as STGBW meet the condition thresholds for Box Gum Woodland and DNG under the EPBC Act or if any areas comprise the Natural Temperate Grasslands CEEC. As such, if any clearing of these EPBC Act listed CEEC for future development were unavoidable, then a referral to the Commonwealth would likely be required.

## A.6. Conclusion

This ecological assessment of the study area has relied upon findings of a desktop assessment as well as preliminary reconnaissance surveys to determine the ecological constraints to the proposed development. The key ecological constraints identified are summarised below:

- Presence of native vegetation, including potential presence of the TEC Box Gum Woodland and DNG, listed as a CEEC under both the BC Act and the EPBC Act as well as potential presence of Natural Temperate Grasslands, listed as a CEEC under the EPBC Act. As the Project is a SSD, it automatically triggers entry into the BOS and will require preparation of a BDAR in accordance with the BAM. Clearing of any native vegetation will require the provision of offsets (i.e. ecosystem credits) under the Biodiversity Offsets Scheme, noting that clearing of TECs generate higher offset liabilities. The offset liability required will need to be determined utilising the BAM-C;
- Potential habitat for threatened species – clearing of such habitat may require the provision of offsets (i.e. species credits) to compensate for the loss of habitat. The offset liability required will need to be determined utilising the BAM-C;
- Land within riparian corridors – although, as a SSD, the development does not require controlled activity approvals, future development may still be required to consider minimum setbacks from riparian corridors; and
- Key Fish Habitat – as watercourses within the site are mapped as Key Fish Habitat, future development will need to consider permissible and prohibited activities or developments related to the importance of the type of key fish habitat.

In order to minimise impacts on the ecological constraints identified above it is recommended that any areas identified as Box Gum Woodland and DNG, or Natural Temperate Grasslands, that may potentially be recorded during future surveys, be avoided as any impacts on this community may result in an SAI and/or require referral to the Commonwealth, and both of these pathways increase the risk of securing development approvals. Although all clearance of native vegetation will need to be offset under the BOS, avoidance of Box Gum Woodland and DNG will likely reduce offsetting costs.

## A.7. References

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# APPENDIX B :

## Threatened Species Lists – BioNet Atlas Records

**Table 3 Threatened fauna species previously recorded in the locality**

Family	Scientific Name	Common Name	EPBC Act Status	BC Act Status	Habitat Requirements	Likelihood of Occurrence within study area
Pygopodidae	<i>Delma impar</i>	Striped Legless Lizard	V	V	<p>Found mainly in Natural Temperate Grassland but has also been captured in grasslands that have a high exotic component. Also found in secondary grassland near Natural Temperate Grassland and occasionally in open Box-Gum Woodland.</p> <p>Habitat is where grassland is dominated by perennial, tussock-forming grasses such as Kangaroo Grass (<i>Themeda australis</i>), spear-grasses (<i>Austrostipa</i> spp.), poa tussocks (<i>Poa</i> spp.), and occasionally wallaby grasses (<i>Austrodanthonia</i> spp.). Sometimes present in modified grasslands with a significant content of exotic grasses.</p> <p>Sometimes found in grasslands with significant amounts of surface rocks, which are used for shelter. Sometimes utilises dried cowpats for shelter. Goes below ground or under rocks or logs over winter.</p>	Possible. Associated habitat features are present, the site is within the known distribution range of the species and there are several records for the species in the locality.
Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle		V	<p>Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves;</p>	Possible. Associated habitat features are present, the species is highly mobile, and there are several records for



Family	Scientific Name	Common Name	EPBC Act Status	BC Act Status	Habitat Requirements	Likelihood of Occurrence within study area
					and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest).	the species in the locality.
Accipitridae	<i>Hieraaetus morphnoides</i>	Little Eagle		V	Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	Possible. Associated habitat features are present, the species is highly mobile, and there are several records for the species in the locality, including records in close proximity to the site.
Accipitridae	<i>Lophoictinia isura</i>	Square-tailed Kite		V	Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. In arid north-western NSW, has been observed in stony country with a ground cover of chenopods and grasses, open acacia scrub and patches of low open eucalypt woodland. Appears to occupy large hunting ranges of more than 100 square km.	Unlikely. Preferred habitat features are absent/limited. While the species is highly mobile, records for the species in the locality are limited to a single record from 2016.
Falconidae	<i>Falco subniger</i>	Black Falcon		V	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. Limited information is available on habitat requirements but this species is generally	Unlikely. Preferred habitat features are absent/limited. While the species is highly mobile, records for the

Family	Scientific Name	Common Name	EPBC Act Status	BC Act Status	Habitat Requirements	Likelihood of Occurrence within study area
					associated with a wide variety of woodland and forest communities.	species in the locality are limited to a single record from 2015.
Cacatuidae	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	E	V	Generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. May also occur in sub-alpine <i>Eucalyptus pauciflora</i> (Snow Gum) woodland and occasionally in temperate rainforests. Favours old growth forest and woodland attributes for nesting and roosting.	Low. Preferred habitat features are absent/limited. While the species is highly mobile, there are very limited records for the species in the locality.
Cacatuidae	<i>Calyptrorhynchus lathamii</i>	Glossy Black-Cockatoo		V	Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. <i>Allocasuarina littoralis</i> (Black Sheoak) and Forest Sheoak ( <i>A. torulosa</i> ) are important foods. Inland populations feed on a wide range of sheoaks, including <i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Allocasuarina diminuta</i> , and <i>A. gymnanthera</i> . Belah is also utilised and may be a critical food source for some populations. In the Riverina, birds are associated with hills and rocky rises supporting Drooping Sheoak, but also	Low. Preferred habitat features are absent/limited. While the species is highly mobile, there are very limited records for the species in the locality.

Family	Scientific Name	Common Name	EPBC Act Status	BC Act Status	Habitat Requirements	Likelihood of Occurrence within study area
					recorded in open woodlands dominated by <i>Casuarina cristata</i> (Belah). Dependent on large hollow-bearing eucalypts for nest sites.	
Psittacidae	<i>Polytelis swainsonii</i>	Superb Parrot	V	V	Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum Forest or Woodland. On the South West Slopes nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box. May forage up to 10 km from nesting sites, primarily in grassy box woodland.	Likely. Associated habitat features are present, the species is highly mobile, and there are several records for the species in the locality, including records in close proximity to the site.
Climacteridae	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)		V	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum ( <i>Eucalyptus camaldulensis</i> ) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded,	Low. Preferred habitat features are absent/limited. While the species is highly mobile, there are very limited records for the species in the locality.

Family	Scientific Name	Common Name	EPBC Act Status	BC Act Status	Habitat Requirements	Likelihood of Occurrence within study area
					though less commonly, in similar woodland habitats on the coastal ranges and plains. Hollows in standing dead or live trees and tree stumps are essential for nesting.	
Acanthizidae	<i>Chthonicola sagittata</i>	Speckled Warbler		V	The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area.	Low. Preferred habitat features are absent/limited. While the species is highly mobile, there are very limited records for the species in the locality.
Artamidae	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow		V	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.	Possible. Associated habitat features are present, the species is highly mobile, and there are several records for the species in the locality.
Petroicidae	<i>Petroica boodang</i>	Scarlet Robin		V,P	The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It	Possible. Associated habitat features are present, the species is highly mobile, and there are some records for the

Family	Scientific Name	Common Name	EPBC Act Status	BC Act Status	Habitat Requirements	Likelihood of Occurrence within study area
					occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. In autumn and winter many Scarlet Robins live in open grassy woodlands, and grasslands or grazed paddocks with scattered trees.	species in the locality, including records in close proximity to the site.
Petroicidae	<i>Petroica phoenicea</i>	Flame Robin		V	Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. In winter lives in dry forests, open woodlands and in pastures and native grasslands, with or without scattered trees.	Possible. Associated habitat features are present, the species is highly mobile, and there are some records for the species in the locality.
Estrildidae	<i>Stagonopleura guttata</i>	Diamond Firetail		V	Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum ( <i>Eucalyptus pauciflora</i> ) Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Has been recorded in some towns and near farm houses.	Low. While associated habitat features are present and the species is highly mobile, records for this species locality are highly limited and was last recorded in 2012.
Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	E	V	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites. Use	Unlikely. Preferred habitat features are absent/limited. While the species is mobile, records for the species in the locality are limited



Family	Scientific Name	Common Name	EPBC Act Status	BC Act Status	Habitat Requirements	Likelihood of Occurrence within study area
					communal 'latrine sites', often on flat rocks among boulder fields, rocky cliff-faces or along rocky stream beds or banks.	to a single record from 2004.
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	Possible. Associated habitat features are present, the species is highly mobile, and there are some records for the species in the locality.
Vespertilionidae	<i>Myotis macropus</i>	Southern Myotis		V	Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface.	Low. While associated habitat features are present and the species is highly mobile, records for this species in the locality are highly limited.
Vespertilionidae	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat		V	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Open woodland habitat and dry open forest suits the direct flight of this species.	Low. While associated habitat features are present and the species is highly mobile, records for this species in the locality are highly limited.
Miniopteridae	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat		V	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures.	Unlikely. Preferred habitat features are absent/limited. While the species is highly

Family	Scientific Name	Common Name	EPBC Act Status	BC Act Status	Habitat Requirements	Likelihood of Occurrence within study area
						mobile, there are very limited records for the species in the locality.
Castniidae	<i>Synemon plana</i>	Golden Sun Moth	V	V	Occurs in Natural Temperate Grasslands and grassy Box-Gum Woodlands in which ground layer is dominated by wallaby grasses <i>Austrodanthonia</i> spp. Grasslands dominated by wallaby grasses are typically low and open - the bare ground between the tussocks is thought to be an important microhabitat feature for the Golden Sun Moth.	Likely. Associated habitat features are present and there are several records for the species in the locality.

Key: V = Vulnerable; E = Endangered.

# APPENDIX C :

## Reconnaissance                      Survey

## Photographs





**Photograph 1 Example of exotic dominated grasslands (natives present) within the study area**



**Photograph 2 Example of DNG (low diversity) within the study area**





**Photograph 3 Scattered surface rock in parts of the study area**



**Photograph 4 Watercourse lacking riparian vegetation within study area**












# FIGURES





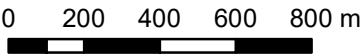
**Legend**

- |  |  |
|--|--|
|  Study Area                             | <b>Supporting Infrastructure</b>   |
|  Project Land                           |  BESS                           |
|  Development Footprint                  |  Operation and Maintenance Yard |
|  Electricity Transmission line Easement |  Substation                     |

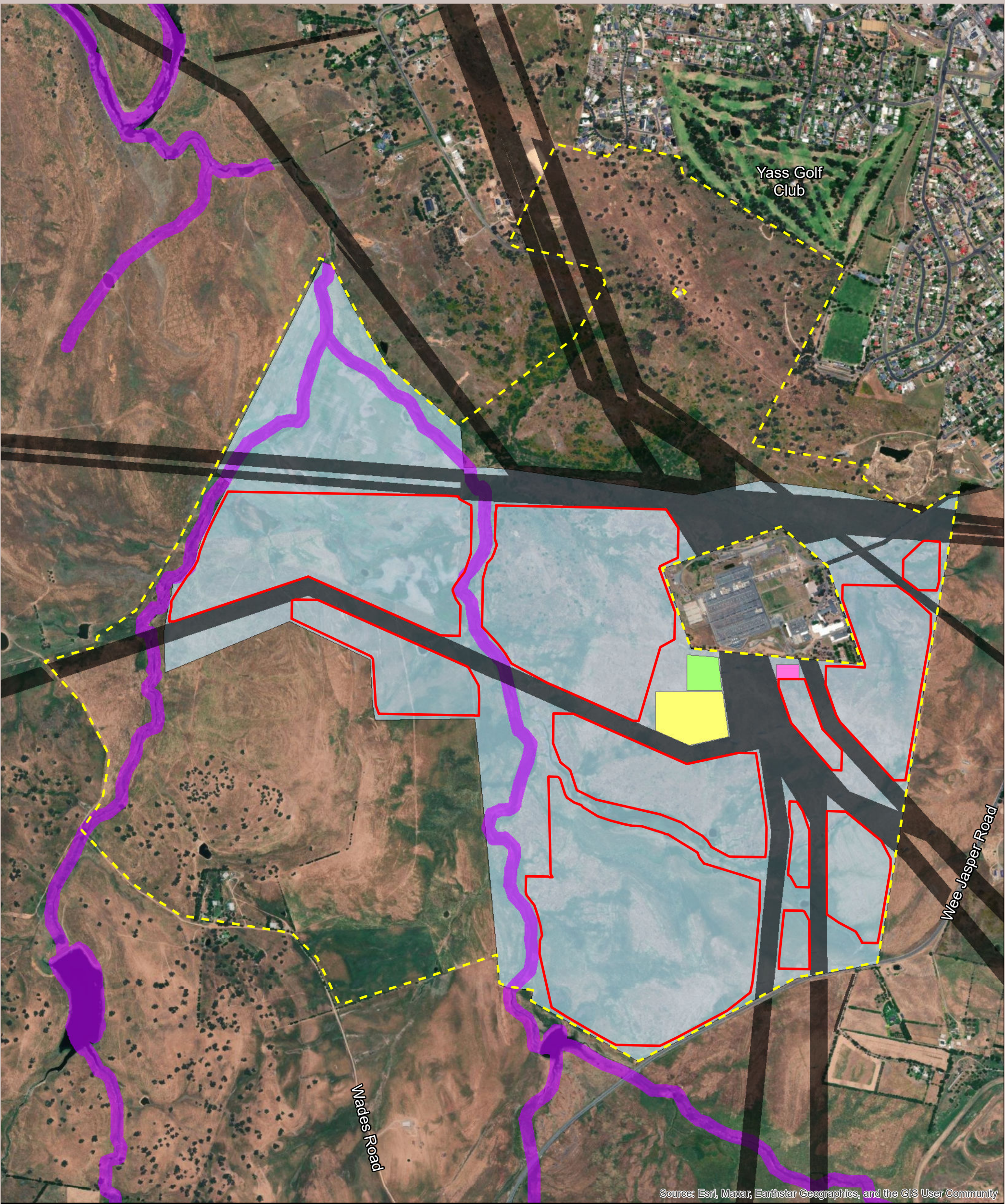
Coordinate System: MGA Zone 55 (GDA 94)



**Figure 1. Location of the Project/Study area**







Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Legend**

- Study Area

Project Land

Development Footprint

Electricity Transmission line Easement
- BESS

Operation and Maintenance Yard

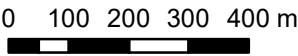
Substation
- Biodiversity Values Map

Coordinate System: MGA Zone 55 (GDA 94)

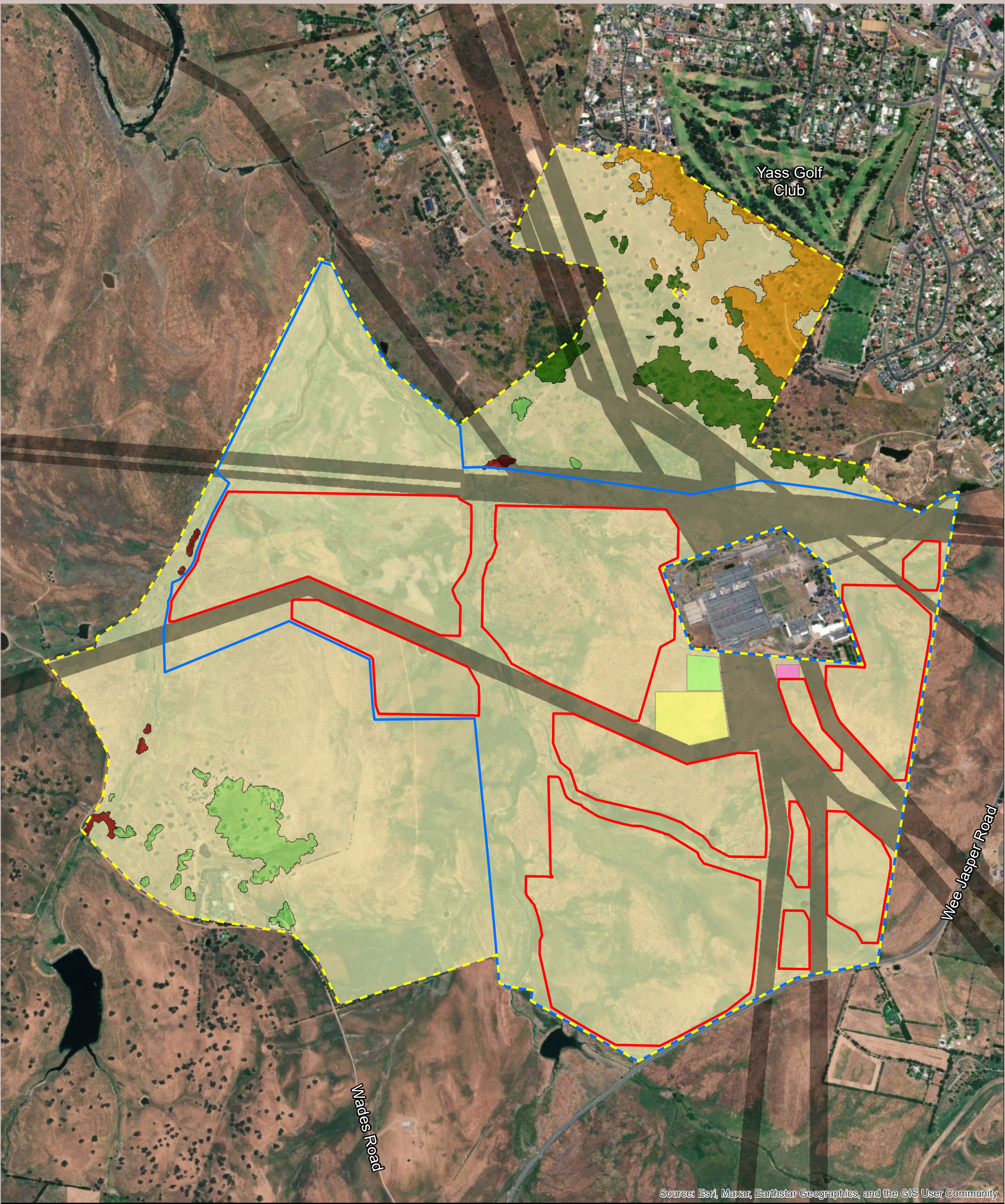
Data Source:  
Biodiversity Values Map  
Dated: 27/01/2023  
© State Government of NSW and  
Department of Planning and Environment 2018



Figure 2. Biodiversity Values Mapping within the Study Area







**Legend**

- Study Area
- Project Land
- Development Footprint
- Electricity Transmission line Easement

- Supporting Infrastructure**
- BESS
  - Operation and Maintenance Yard
  - Substation

- Plant Community Type**
- Not native vegetation
  - PCT 3376: Southern Tableland Grassy Box Woodland
  - PCT 3540: Southwest Foothills Stringybark-Box Grassy Forest
  - PCT 3541: Southwest Ranges Stringybark Exposed Forest
  - PCT 4088: Southwest Riverflat Red Gum Forest

Coordinate System: MGA Zone 55 (GDA 94)

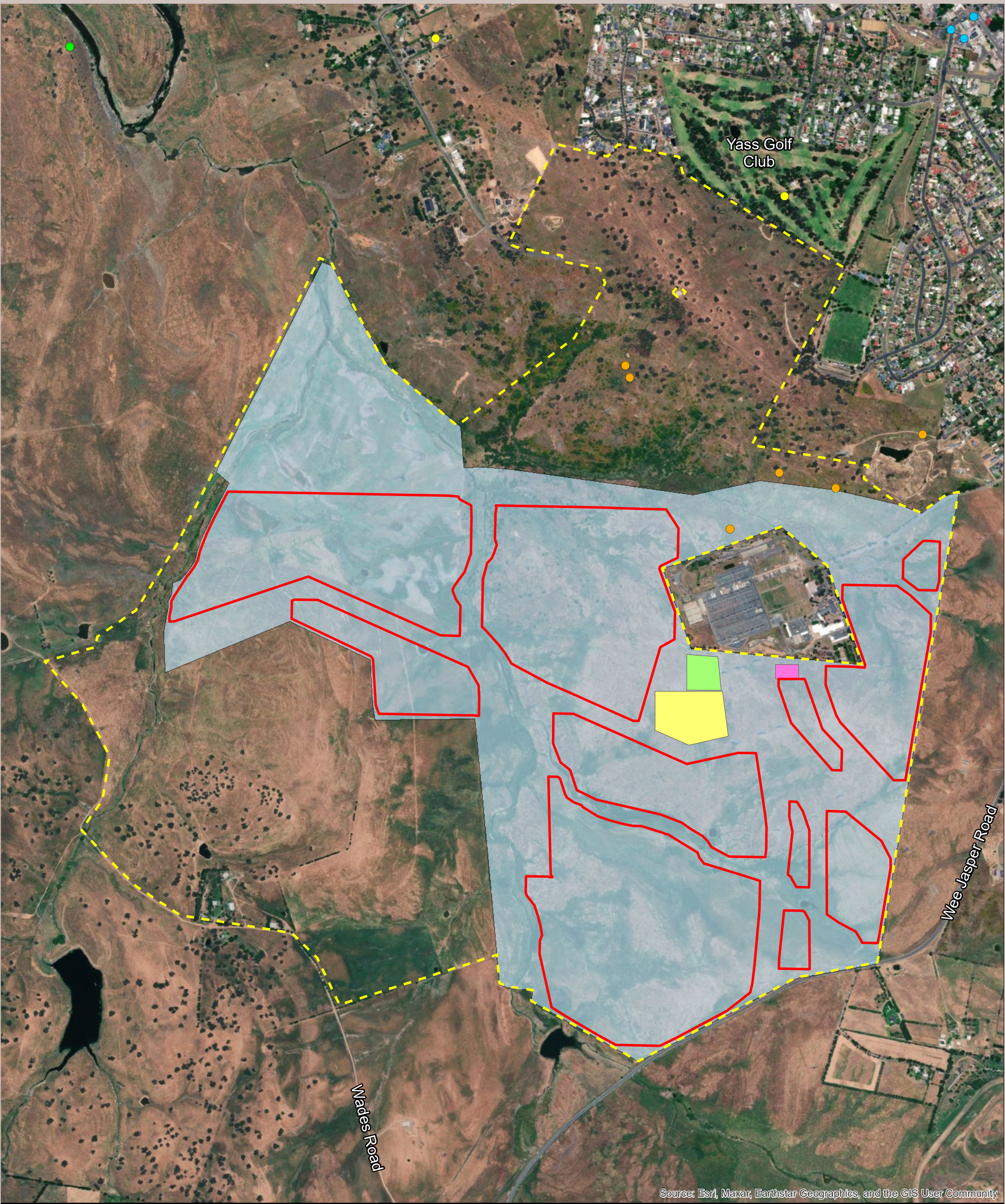
Data Source:  
NSW State Vegetation Type Map  
© State Government of NSW and  
Department of Planning and Environment 2018



**Figure 3. Eastern NSW (SVTM) Vegetation Mapping of the Study Area**

0 100 200 300 400 m





**Legend**

Study Area

Project Land

Development Footprint

**Supporting Infrastructure**

BESS

Operation and Maintenance Yard

Substation

**Threatened Fauna**

Golden Sun Moth

Little Eagle

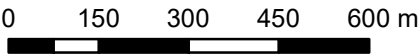
Scarlet Robin

Superb Parrot

Coordinate System: MGA Zone 55 (GDA 94)

Data Source:  
NSW State Vegetation Type Map  
© State Government of NSW and  
Department of Planning and Environment 2018

Figure 4. Threatened Species Records within the Study Area





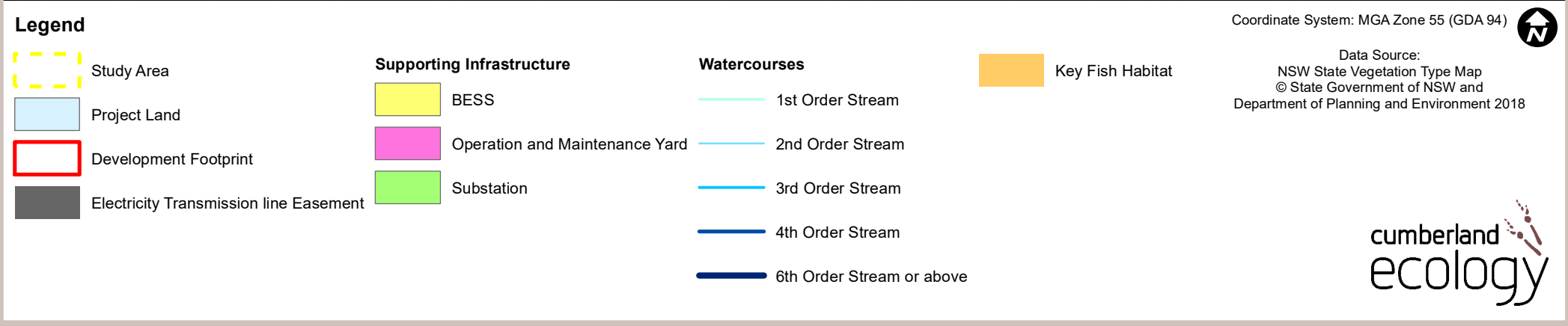
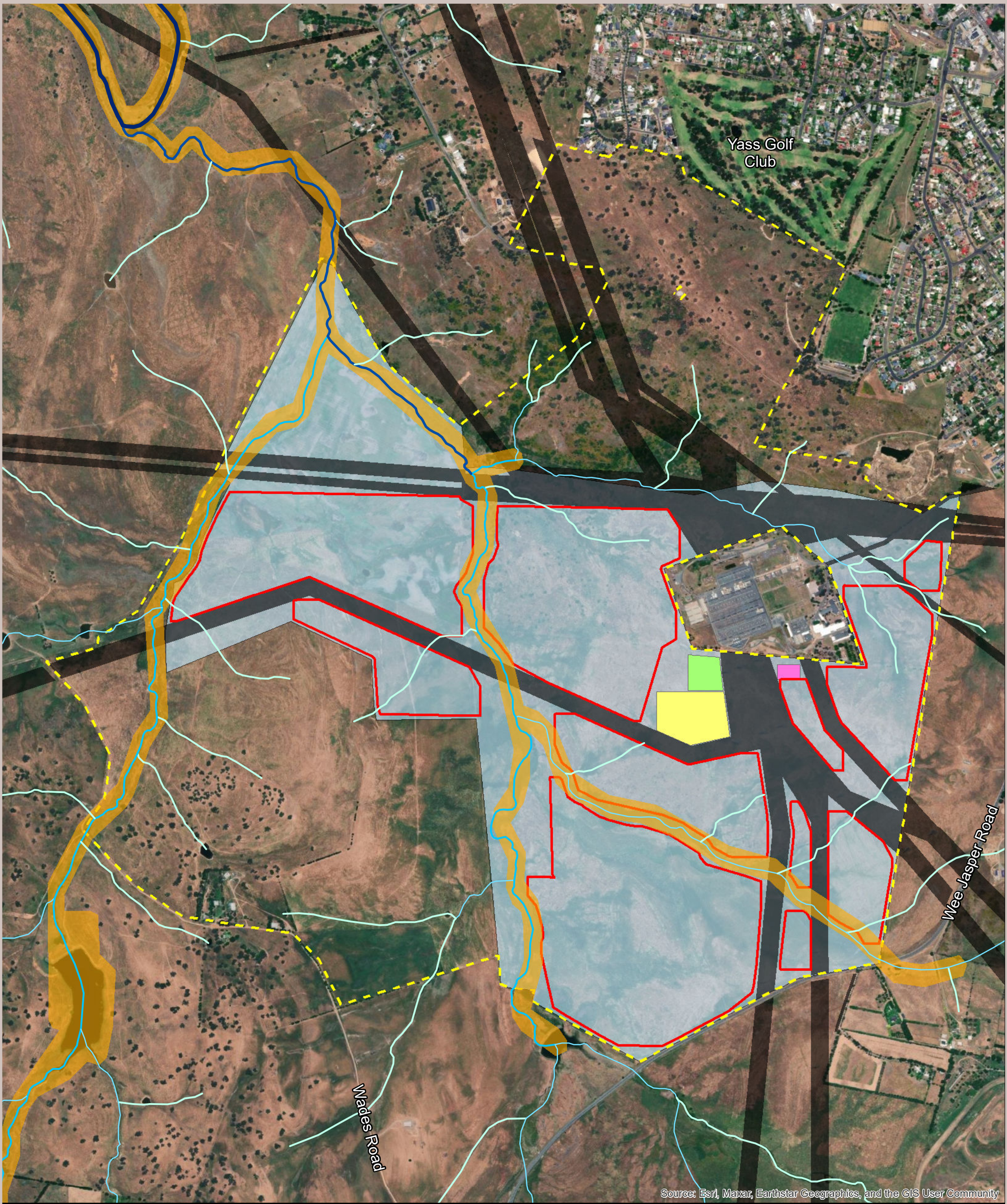
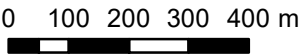
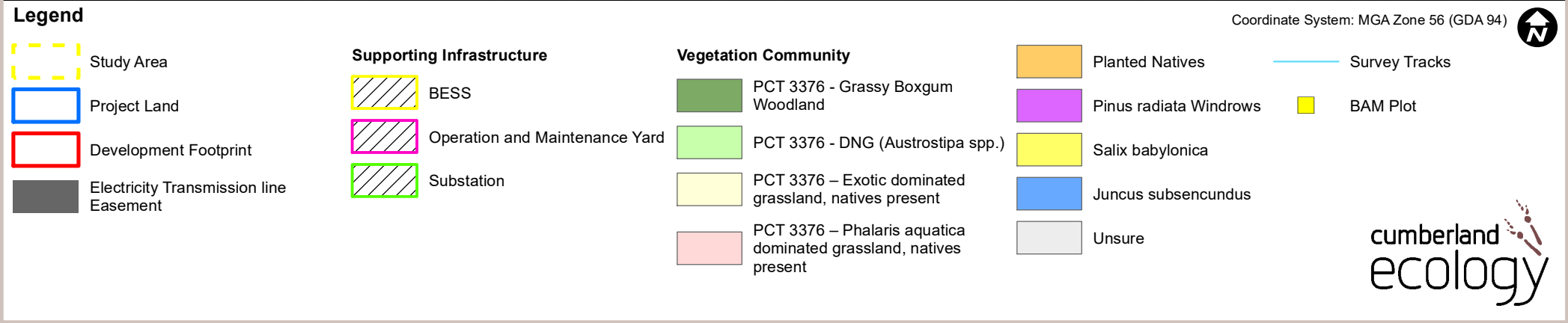
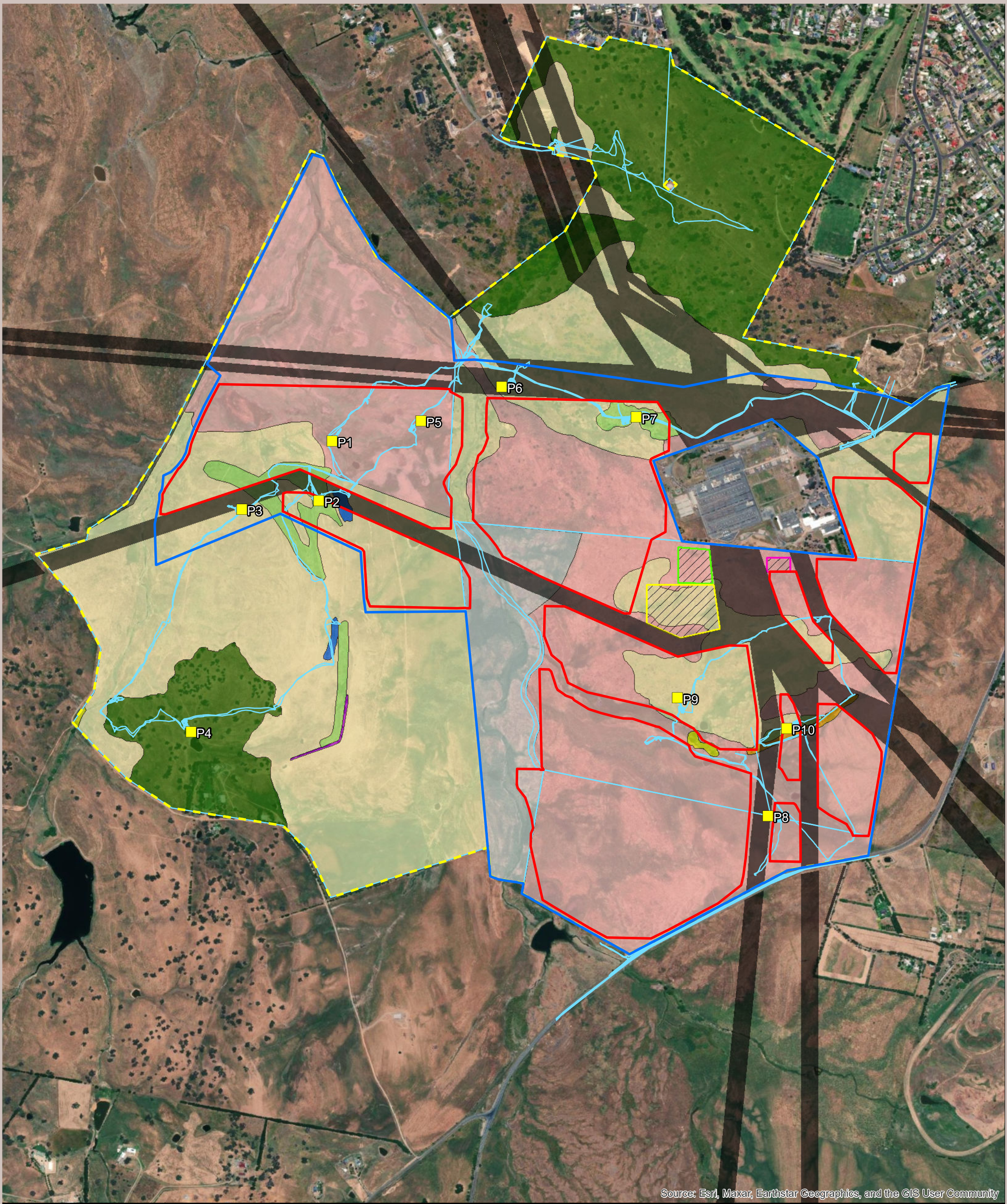


Figure 5. Aquatic habitat values within the Study Area







**Figure 6. Survey Locations and Preliminary Ground-truthed Vegetation Map of the Study Area**

0 100 200 300 400 m



**APPENDIX 4**  
**PRELIMINARY LANDSCAPE CHARACTER AND VISUAL ASSESSMENT**  
**PREPARED BY MOIR**





Yass Solar Farm

Preliminary Visual Impact Assessment



# Yass Solar Farm

## Preliminary Visual Impact Assessment

### Prepared for

Ramboll Australia Pty Ltd

### Issue

06

### Date

27.11.2023

### Project Number

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02	27.04.23	SW	MED/DM	For Review
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# 1.0 Introduction

## 1.1 Introduction

International Power (Australia) Holdings Pty Ltd, trading as ENGIE Australia and New Zealand (ENGIE) (the Proponent) proposes to develop the Yass Solar Farm. The solar farm is inclusive of the Battery Energy Storage System (BESS). Moir Landscape Architecture (Moir LA) has been commissioned by Ramboll Australia Pty Ltd on behalf of the Proponent to prepare a Preliminary Visual Impact Assessment (PVIA) for the proposed Yass Solar Farm. The purpose of this PVIA is to provide a preliminary assessment of the potential visual impacts associated with the Yass Solar Farm which is referred to hereafter as ‘the Project’.

The PVIA for the Project has been prepared in accordance with the following documents:

- *Large-Scale Solar Energy Guideline August 2022* (referred to hereafter as ‘the Guideline’)
- *Technical Supplement - Landscape and Visual Impact Assessment, Large-Scale Solar Energy Guideline August 2022* (referred to hereafter as ‘the Technical Supplement’).
- *State Significant Development Guidelines - Preparing a Scoping Report (Appendix A)* (referred to hereafter as ‘the SSD Guidelines’)

This PVIA will form part of the Scoping Report seeking the Secretary’s Environmental Assessment Requirements (SEARs) in order to prepare an Environmental Impact Statement (EIS).

## 1.2 Relevant Experience

The Technical Supplement states: “*The applicant is expected to engage relevant professionals (for example, landscape architects, architects, environmental planners, geographers, or other visual assessment specialists) with demonstrated experience and capabilities. Experts should follow the guidance in this document to perform an effective and consistent assessment for large-scale solar energy development.*” (DPE, 2022b).

Moir LA is a professional design practice and consultancy specialising in the areas of Landscape Architecture, Urban Design and Landscape and Visual Impact Assessment. Our team has extensive experience in undertaking Landscape and Visual Impact Assessments for large-scale infrastructure and renewable energy projects. In the context of our experience and with guidance from the Guideline and the Technical Supplement we have developed methodologies to ensure a comprehensive and qualitative assessment of the Project.

Recent experience includes the preparation of Landscape and Visual Impact Assessments for the following Solar Energy Projects:

- *Blind Creek Solar Farm LVIA (Bungendore, NSW)*
- *Glenellen Solar Farm LVIA (Glenellen, NSW)*
- *Oxley Solar Farm LVIA (Castledoyle, NSW)*
- *Stubbo Solar Farm LVIA (Stubbo, NSW)*
- *Tilbuster Solar Farm LVIA (Tamworth, NSW)*
- *Dunedoo Solar Farm LVIA (Dunedoo, NSW)*

### 1.3 Overview of Preliminary Visual Impact Assessment for Solar Farms

The Technical Supplement states: “A *preliminary visual assessment must be included in an applicant’s scoping report as part of their request for the Secretary’s environmental assessment requirements (SEARs).*” (DPE, 2022b). It also states that the visual assessment process is broken into two key stages:

- **Stage 1** - Preliminary assessment
- **Stage 2** - Detailed assessment

This PVIA forms part of *Stage 1 - Preliminary Assessment* and will be submitted to DPE together with the Scoping Report for the request for SEARs. This stage is used to identify viewpoints or receptor locations that would require detailed assessment in *Stage 2* as a part of the EIS phase.

*Stage 1 - Preliminary Assessment* comprises of the application of the Preliminary Assessment Tools. The Preliminary Assessment Tools assist in the identification of viewpoint locations where a solar farm may have impacts and warrant further consideration. This also provides the opportunity to identify potential impacts to inform and refine the proposed development footprint layout. The tools assist in identifying locations and viewpoints that are likely to experience little to no impacts which is useful in early consultation and ensures that field work and assessments are targeted only in areas with potential visual impacts.

The Guideline states that effective and early stakeholder engagement is critical for large-scale solar energy projects (DPE, 2022a). Along with the application of Preliminary Assessment Tools in *Stage 1 - Preliminary Assessment*, the Guideline recommends proponents engage with the local community in the Project’s preliminary stages. Findings from preliminary stakeholder engagement helps identify existing community values related to specific viewpoints or key landscape features, and assists in identifying opportunities and constraints related to the design, management, visual impact and mitigation measures.



# 2.0 Study Method

## 2.1 Study Method

The Guideline and Technical Supplement state that assessments for large-scale solar farms should include a Landscape Character Assessment and Visual Impact Assessment. It defines these two components as the following:

- Landscape Character Assessment: *“This is the process for determining the overall impact of a project on an area’s character and sense of place including what people think and feel about it and how society values it.”* (DPE, 2022b).
- Visual Impact Assessment: *“This is the process for determining the day-to-day visual effects of a project on people’s views (what people see at a place, when they are there) from the private and public domain.”* (DPE, 2022b).

The following has been undertaken to develop the PVIA in accordance with the Guideline and the Technical Supplement:

### Preliminary Landscape Character Assessment:

This PVIA includes a preliminary landscape character assessment in order to assist with the determination of preliminary landscape character zones and the level of detail that may be required to develop a baseline analysis in the EIS phase. The findings of this assessment will help in understanding sensitivities associated with the current landscape.

### Preliminary Visual Impact Assessment:

Preliminary Assessment Tools have been applied to identify locations or viewpoints with potential views to the solar array. The results of preliminary visual impact assessment identify viewpoint locations that require further detailed assessment. The findings of the preliminary assessment have been included in this PVIA and will form the basis for discussion with the community in the EIS phase of the Project.

### Community Consultation:

Community consultation has been undertaken through the scoping phase of the Project. Results of community consultation have been utilised to gain perspective on the landscape values held by the community to inform the PVIA. Community consultation will be continued through the EIS phase of the Project.

## 2.2 Report Structure

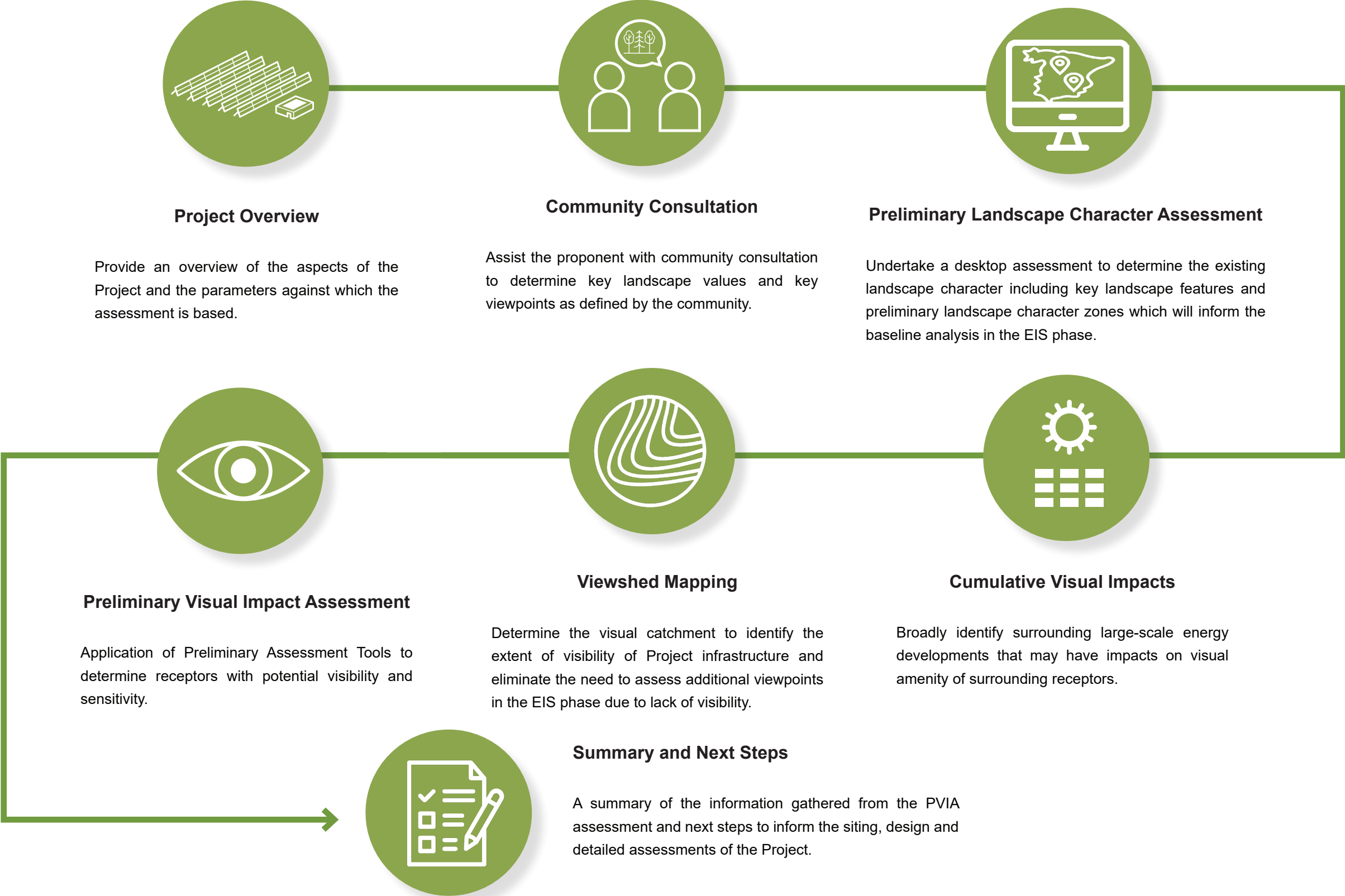
The following table provides an overview of the requirements of the Guideline and the Technical Supplement, and where these have been addressed in the PVIA:

Preliminary Visual Impact Assessment Report Structure:	
PVIA Report:	Guideline and Technical Supplement Requirements:
Refer to Section 3.0: Project Overview	The assessment must include a full description of the proposed solar energy project design and use maps to show the location of the project in relation to viewpoints and surrounding landscapes identified for analysis.
Refer to Section 4.0: Preliminary Landscape Character Assessment	The applicant is encouraged to consult with the department in scoping its project to determine the level of detail that may be required in the landscape character assessment.
Section 5.0 : Preliminary Visual Impact Assessment and Viewshed Mapping	A preliminary visual assessment must be included in an applicant’s scoping report as part of their request for the Secretary’s environmental assessment requirements (SEARs). The applicant can use viewshed mapping to further eliminate the need to assess viewpoints that fall below the lines in the Preliminary Assessment Tool if the analysis shows there is intervening terrain that would block line of sight to a particular viewpoint. The applicant should also consider undertaking a reverse viewshed analysis.
Section 6.0: Cumulative Visual Impacts	The baseline analysis should identify and describe the location of any existing operational or approved large-scale energy developments within a regional and local context, including projects which may have the potential to create direct or indirect cumulative impacts with the project.
Section 7.0: Summary and Next Steps	

Table 1 Overview of Report Structure

2.3 Steps Undertaken for PVIA

The following process has been undertaken to develop this PVIA:





# 3.0 Project Overview

## 3.1 The Project

### 3.1.1 Project Description

The Project would include the construction, operation and decommissioning of an approximately 100 megawatt solar farm, including up to 220,000 photovoltaic panels, a BESS, and ancillary associated infrastructure. The project would supply electricity to the national electricity market (NEM) via the existing transmission infrastructure within the local area.

**Figure 1** shows the existing site context and **Figure 2** provides an indicative layout of the Project. The final layout and capacity of the Project will be investigated during the preparation of the EIS and will be selected on the basis of environmental constraints identification, outcomes of stakeholder engagement, engineering assessments and design of project infrastructure.

As a worst case assumption for visual impact assessment, the maximum height of the PV modules at maximum tilt angle is expected to be **3 m above ground level**.

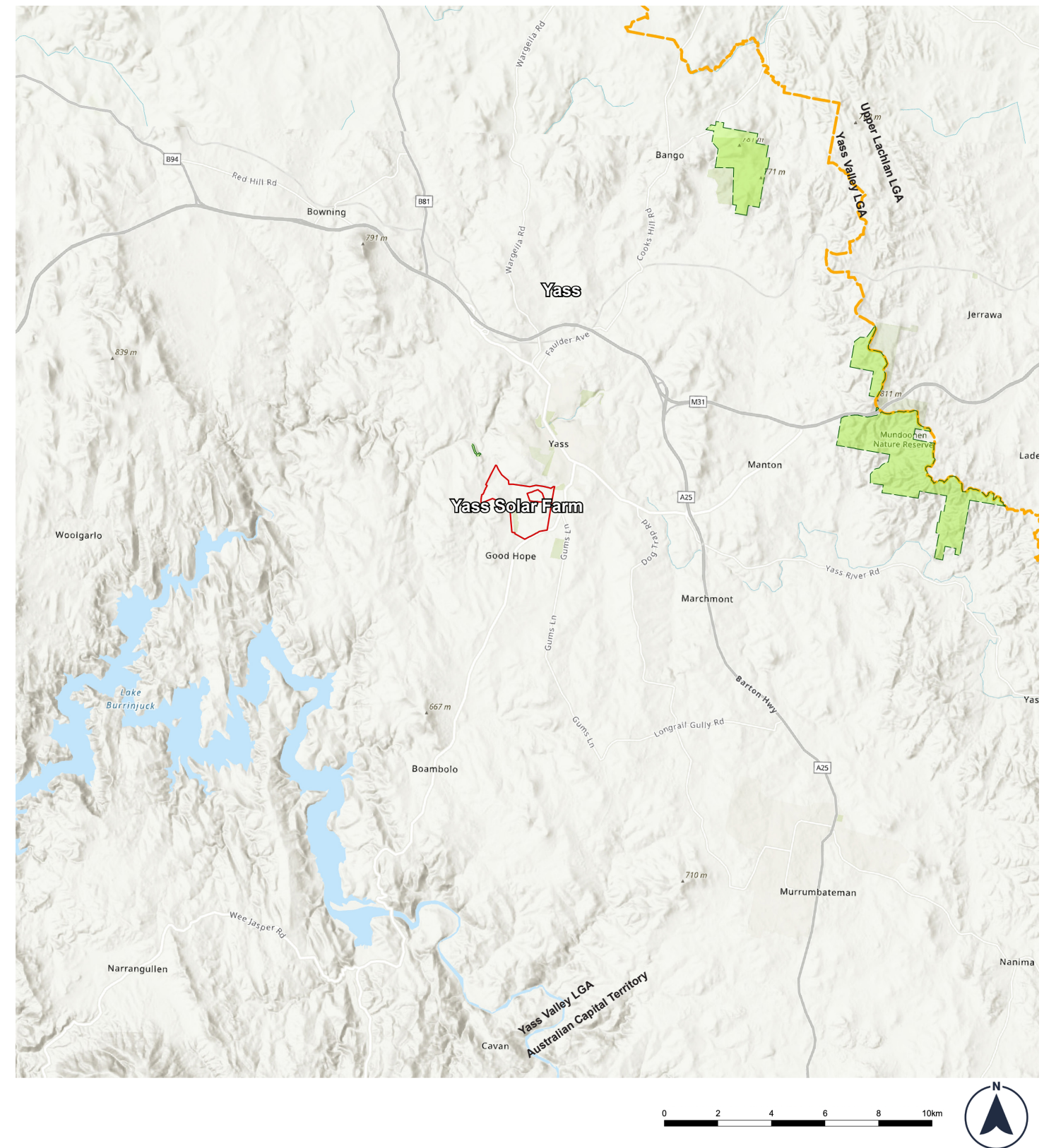


Figure 1 Site Context (Map Source: ArcGIS Map, November 2022)

### 3.1.2 Key Project Components

It is anticipated that the physical layout and design of the Project will comprise the following key infrastructure elements:

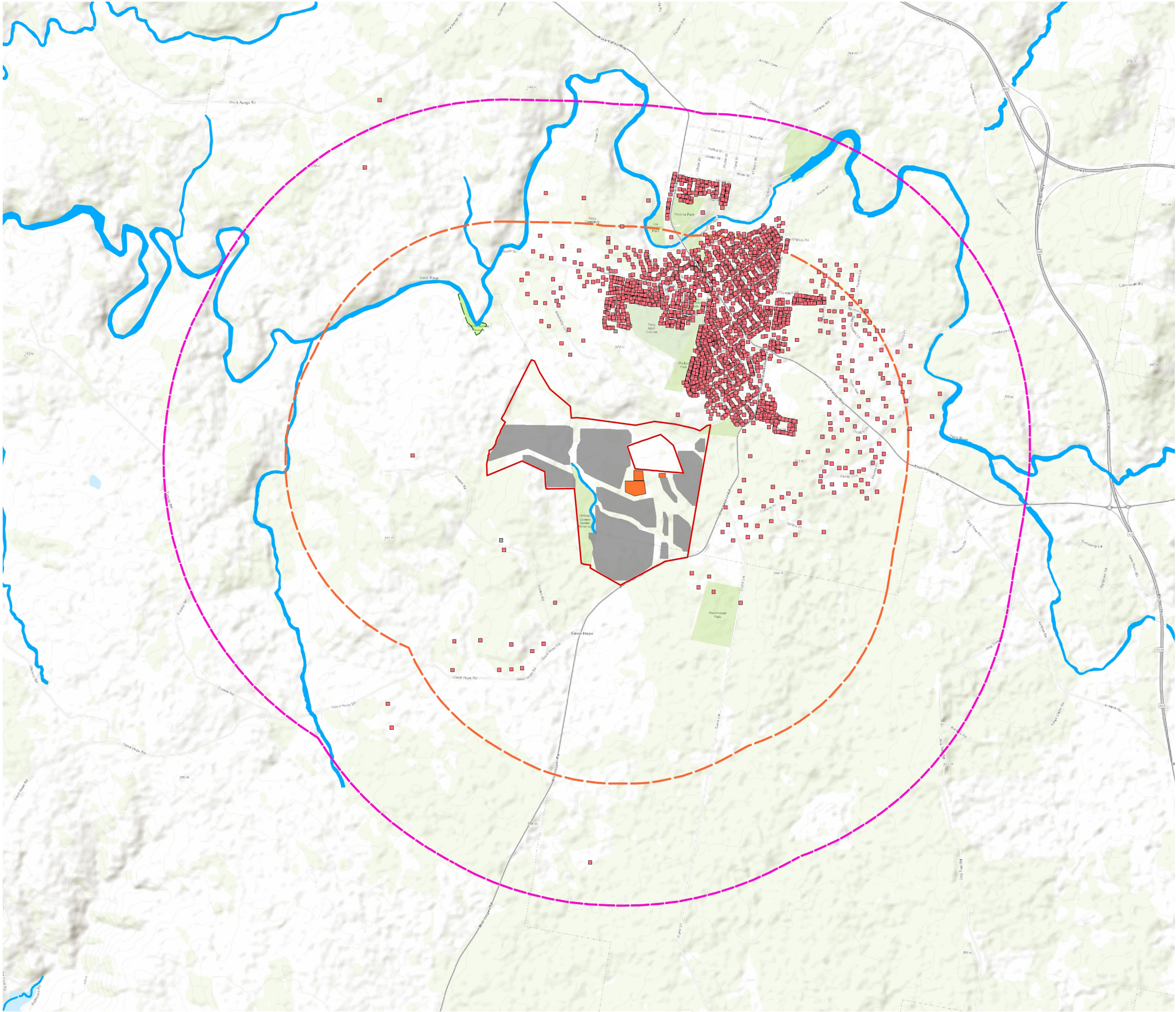
- up to approximately 220,000 single axis tracking photovoltaic modules (solar panels)
- electrical infrastructure including:
  - approximately 30 power conversion units (PCUs) which include inverters for converting direct current (DC) power to alternating current (AC)
  - onsite substation containing two (2) main transformers and associated switchgear
  - overhead and underground electrical reticulation connecting the solar farm elements
  - onsite connection from the substation to the existing 330 kilovolt (kV) transmission lines operated by TransGrid
  - BESS
- other permanent onsite ancillary infrastructure including:
  - operational and maintenance facility
  - a temperature-controlled spare parts storage facility
  - SCADA facilities
  - a workshop and associated infrastructure
  - access roads, both to the project and internal access roads
  - carparking area
  - security fencing and landscaping
- temporary construction ancillary infrastructure including:
  - construction compounds
  - laydown areas
  - parking areas
  - access tracks and associated infrastructure, including gates and fencing
  - potential construction workforce accommodation.

The project is expected to require up to 150 full-time equivalent employees during peak construction, and approximately 2 full-time equivalents would be required during operation and ongoing maintenance of the solar farm. After the initial operating period, the solar farm would either be decommissioned, removing all above ground infrastructure, and returning the site to its existing land capability, or upgraded with new PV equipment.



# Preliminary Project Layout

## Yass Solar Farm



### LEGEND

- Project Area
- PV Array Area
- Non-associated residences
- Associated residences
- 2,500m from the nearest Solar Array Panel
- 4,000m from the nearest Solar Array Panel
- Major Road
- Rivers and Creek channels
- Proposed BESS, Substation and O&M location (indicative location)

Figure 2 Preliminary Project Layout (Map Source: Esri Map)



# 4.0 Preliminary Landscape Character Assessment

## 4.1 Existing Visual and Landscape Character

The Project is proposed along Wee Jasper Road approximately 1.70 kilometres (km) southwest of Yass within the Yass Valley Local Government Area (LGA). The Project Area is defined as the area covered by the PV Arrays and associated infrastructure, permanent and temporary facilities. The Project Area is characterised by modified paddocks cleared of most of its vegetation used for livestock grazing. The surrounding land is modified to support rural residential living. Several residential subdivisions have also been proposed adjacent to the Project Area. Topography is typically shallow valleys with a gentle undulating character.

Land within the Project Area is characterised by open pastures generally used for grazing. Patches of trees are spread across the paddocks and along roadsides. Vegetation within the Project site has been cleared to support grazing with sparse isolated vegetation in some grazing lots.

Booroo Ponds Creek and Rainbow Creek flow through the Project Area generally in a north west and south east direction. Several creeks and gully channels are visible in the surrounding area.

A total of 2,686 dwellings were identified within 4 km of the Project. Of these, 2,684 were identified as non-associated with the Project. Two (2) dwellings are associated with the Project. Preliminary assessment for some of these dwelling receptors has been undertaken in **Section 5** of this report.

**Figure 3** represents a ‘Study Area’ of 5 km from the Project Area and has been defined in accordance with the Technical Supplement to assess the landscape character within the surrounding landscape.

## 4.2 Existing Landscape Character Zones

The Technical Supplement states: *“If the landscape includes distinct areas that have different qualities, the study area should be broken down into different character zones. Landscape character zones (LCZs) should divide the landscape based on common distinguishing visual characteristics. These patterns are formed by combinations of vegetation, water bodies, landforms and land use, from which key landscape features can also be identified.”* Further, the Technical Supplement states: *“The study area for the landscape character assessment should generally be approximately 5 km from the proposed development”* (DPE, 2022b).

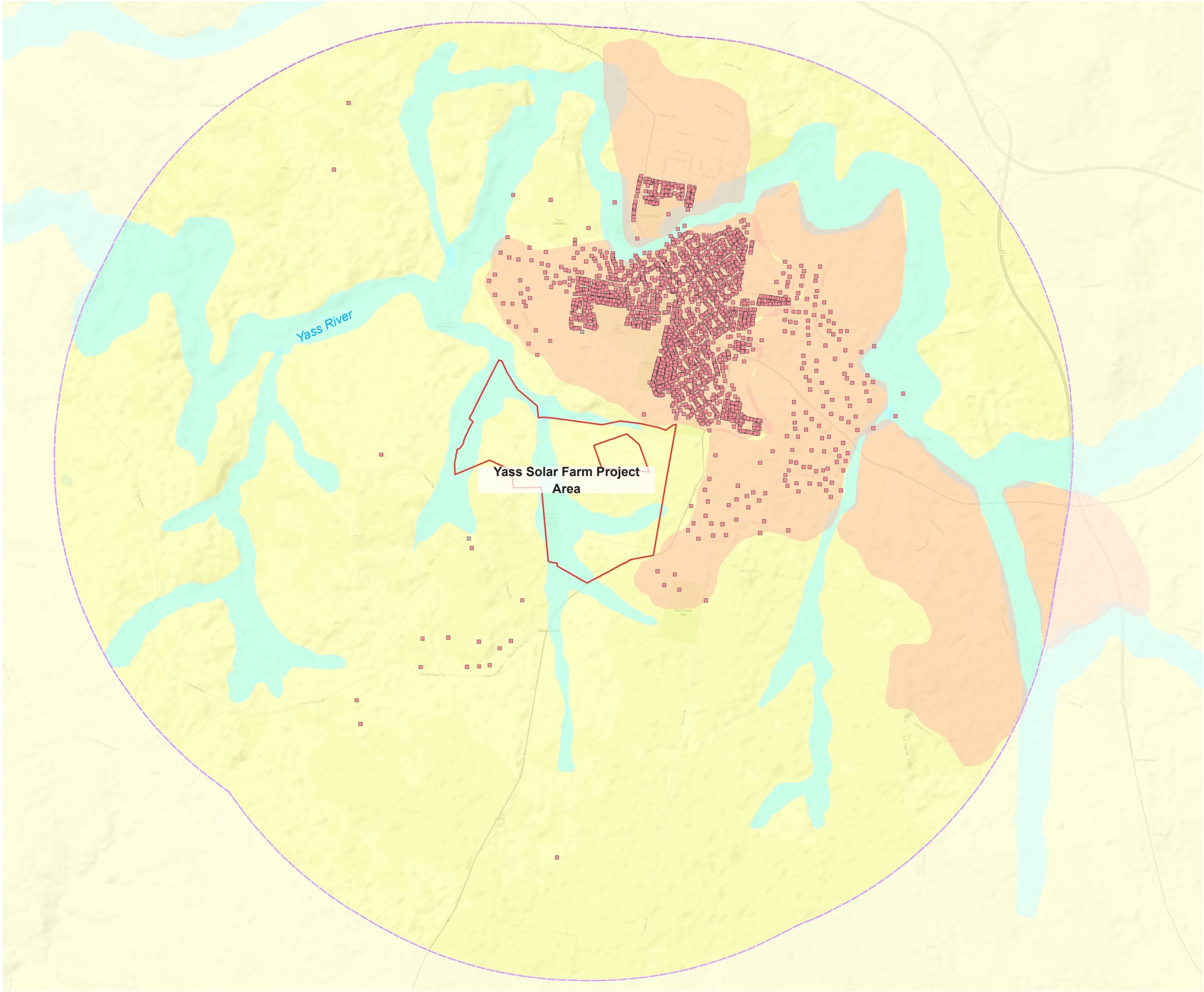
A preliminary desktop assessment indicates typical existing LCZ identified within the Study Area form a precursory baseline for character assessment which will be assessed in detail in the EIS.

**Figure 3** indicates the preliminary LCZ identified through field work and desktop assessment.

A summary of the preliminary LCZ identified is provided in **Table 2** below.

Preliminary Landscape Character Zone	
LCZ:	Name:
LCZ01	Towns and Settlements
LCZ02	Water Corridors
LCZ03	Undulating Grazing Pastures

Table 2 Overview of Landscape Character Zone



# Preliminary Landscape Character Zones

## Yass Solar Farm

### LEGEND

- Project Area
- Major Road
- 5,000m from Project Area
- LCZ01: Towns and Settlements
- LCZ02: Water Corridors
- LCZ03: Undulating Grazing Pastures
- PV Array Area
- Proposed BESS, Substation and O&M location (indicative location)
- Non-associated residences
- Associated residences

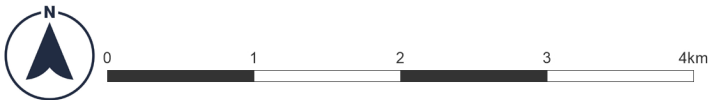


Figure 3. Landscape Character Zones (Map Source: Esri Map)



# 5.0 Preliminary Visual Impact Assessment

## 5.1 Preliminary Visual Impact Assessment

The Technical Supplement states: “A preliminary visual assessment must be included in an applicant’s scoping report as part of their request for the Secretary’s environmental assessment requirements (SEARs)” (DPE, 2022b). Further, it states: “To use the preliminary assessment tools; identify all viewpoints from public roads and rail lines within 2.5 km of the proposed development; identify other public and private viewpoints within 4 km of the proposed development.” (DPE, 2022b).

The preliminary assessment tools must be used to identify viewpoints that require detailed assessment in the EIS. The tools can be used to eliminate the need to assess viewpoints that are likely to experience very low impacts. This is based on the vertical and horizontal field of view that a development is likely to occupy when viewed from each viewpoint and is influenced by distance, height elevation changes, and width of a project (DPE, 2022). **Table 3** provides an overview of the requirements of the Preliminary Assessment (in accordance with the Technical Supplement) and where these have been addressed in this report.

### Assessment Parameters:

The Technical Supplement states:“The calculations can be based on either the project area, or the development footprint depending on the level of information available at the time. A more refined approach that uses the development footprint, may result in less viewpoints requiring assessment.” (DPE, 2022b).

Moir LA have considered 2.5 km, 4 km and 5 km buffers from the Project Area to identify preliminary visual impacts in a worst case scenario. Assessment will be refined in the LVIA and will account for any further revisions to the development footprint.

Requirements of the Preliminary Assessment in accordance with the Technical Supplement	Addressed in this PVIA:
The applicant can use viewshed mapping to further eliminate the need to assess viewpoints that fall below the lines in the Preliminary Assessment Tool if the analysis shows there is intervening terrain that would block line of sight to a particular viewpoint.	Refer to Section 5.3 and Section 5.4 - Viewshed Mapping
Identify all viewpoints from public roads and rail lines within 2.5 km of the proposed development.	Refer to Figure 6
Identify other public and private viewpoints within 4 km of the proposed development.	Refer to Figure 6
Calculate the distance of each of these viewpoints from the nearest point of the proposed development.	Refer to Table 5
Determine the ‘relative height difference’ between the proposed development and each viewpoint.	Refer to Table 5. Note: Analysis is based on elevation within the Project Area which is; Lowest Point = 462 m Highest Point = 528 m
Plot each viewpoint on the Preliminary Assessment Tool – Vertical Field of View (Figure 4) to determine the indicative vertical field of view (as either 1, 2, 3 or 4+ degrees)	Refer to Figure 9
Measure the worst-case horizontal field of view of the project from each viewpoint (not considering topography or vegetation)	This is based on the Project Area (to represent a worst case scenario), assessment will be refined in the EIS Phase.
Compare the vertical and horizontal fields of view using the matrix in Table 1 to determine whether detailed visual assessment of each viewpoint is required.	Refer to Table 4

Table 3 Overview of Preliminary Assessment Tools (Source: Technical Supplement, DPE, August 2022)



5.2 Viewpoint Selection and Preliminary Assessment Tool

The following provides an overview of the viewpoint selection process. Viewpoints have been illustrated on **Figure 6**. Further refinement of the viewpoints will be undertaken in the preparation of the LVIA.

Public Roads and Rail Lines:

In accordance with the Technical Supplement, all viewpoints from public roads and rail lines within 2.5 km of the Project must be assessed. A total of 16 public viewpoints have been selected to represent roads within 2.5 km of the Project.

Other Public and Private viewpoints:

In accordance with the Technical Supplement, other public and private viewpoints within 4 km of the Project Area must be identified and assessed. 2,684 non-associated dwellings were identified within 4 km of the Project.

Due to a large number of dwellings that require detailed assessment, non-associated dwellings with similar views towards the Project have been grouped into clusters. A total of 12 clusters were identified within 4 km of the Project Area. The dwelling receptor in each cluster with the highest potential impact (based on proximity, elevation, absence of intervening vegetation and Zone of Visual Influence visibility) were selected for further detailed analysis.

From these 12 clusters, a total of 18 representative dwellings were selected. Additionally, 44 non-associated dwellings were assessed in detail within 4 km of the Project Area. These non-associated dwelling receptors were selected either based on their proximity or their elevated position in relation to the Project Area.

**Figure 6** illustrates the nominated dwellings and cluster mapping undertaken to demonstrate Visual Impact at dwelling receptors.

Additional viewpoints:

The Technical Supplement states: “Additional viewpoints should be considered if ancillary infrastructure, such as substations, have the potential to cause impacts beyond the distances prescribed in the tool.” (DPE, 2022b).

5.3 Viewshed Mapping

A viewshed map identifies all areas from which a project may be viewed. Viewshed mapping can be achieved by using geographic information systems (GIS) that account for topography and line of sight between viewpoints and the project.

The purpose of the viewshed map is to further eliminate the need to assess viewpoints that fall below the lines in the Preliminary Assessment Tool if the analysis shows there is intervening terrain that would block line of sight to the Project.

Viewshed mapping was undertaken for the Project to eliminate viewpoint locations that will not have a line of sight to the Project (refer to **Figure 4**). It is important to note that the viewshed map provides an assessment based on topography alone and does not take into account intervening elements such as vegetation and structures. The viewshed map, therefore, represents a theoretical worst case scenario.

**Viewshed mapping has been undertaken based on a panel height of 3m.**

Summary of Viewshed Map:

The following provides a summary of the viewshed map prepared for the Project Area:

- Due to the undulating terrain surrounding the Project Area, the viewshed map indicates that views toward the majority of the Project are limited to elevated areas to the immediate north and south of the Project and to the north west in excess of 2.5km of the Project.
- Based on topography alone, the Project is not likely to be visible from the Town of Yass, due to a ridge located to the north of the Project and settlements to the east in excess of 2km of the Project.
- Portions (up to 25%) of the Project may be visible from some locations within settlements located to the north and immediate east of the Project.
- Portions of the Project (up to 75%) may be visible from dwellings in elevated positions to the north, north east and south west.

It is important to reiterate that this is a preliminary assessment based on theoretical worst case scenario that does not consider the impact of vegetation or structures. Ground-truthing during field work will ascertain actual visibility by taking into account existing intervening structures and vegetation that may screen or fragment views.

## 5.4 Reverse Viewshed Map

The Technical Supplement states: *“The applicant should also consider undertaking a reverse viewshed analysis. This can be a useful tool to refine the project design process to reduce any significant impacts. It can also be used to communicate the visibility of certain parts of the project and aid consultation with the community. This analysis should be used to highlight parts of the project that can be seen from the greatest number of viewpoints”* (DPE, 2022b).

**Figure 5** represents a reverse viewshed map that takes into account a total of 2,684 non-associated dwellings up to 4 km of the Project Area. The map shows parts of the Project Area that are likely to be visible from all dwelling receptor locations. This assessment also represents a bare ground scenario, i.e., a landscape without intervening elements such as vegetation and structures.

### Summary of Reverse Viewshed Map:

The following provides a summary of the reverse viewshed map prepared for the Project Area:

- Of the 2,684 non-associated dwellings identified, approximately 396 non-associated dwellings were identified within 4 km of the Project Area that will likely have views to the majority of the Project.

It is important to iterate that this is a preliminary tool to ascertain parts of the Project that can be seen from the highest number of viewpoints.



# Viewshed Map

## Yass Solar Farm

### LEGEND

- Project Area
- PV Array Area
- Non-associated residences
- Associated residences
- 2,500 m from the nearest Solar Array Panel
- 4,000 m from the nearest Solar Array Panel
- Local Road

### ZVI (Based on 5 m Panel Height)

- No Visibility
- 1 - 25% Visibility
- 25 - 50% Visibility
- 50 - 75% Visibility
- 75 - 100% Visibility

**Note:**  
Viewshed Map is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the map is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

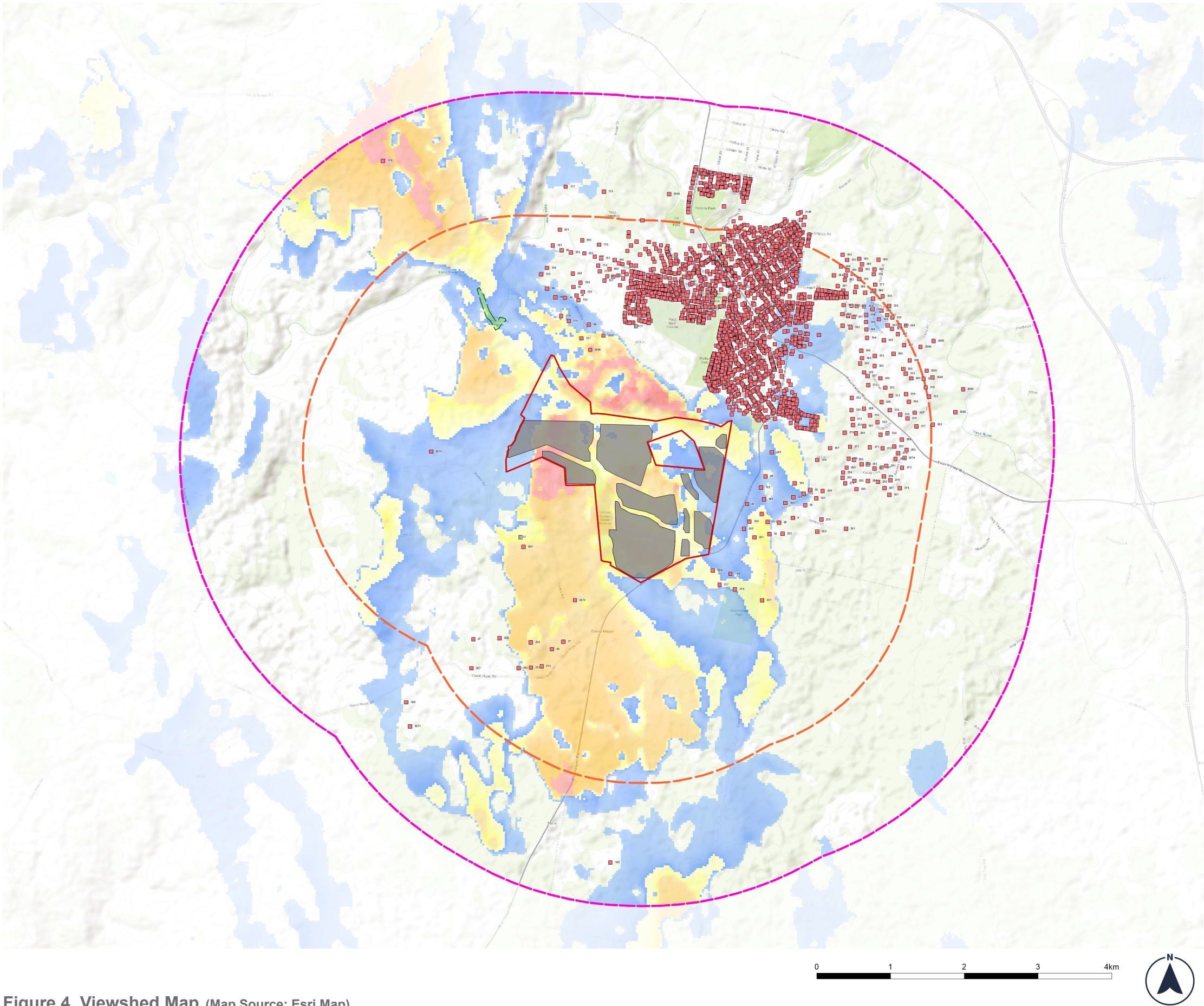
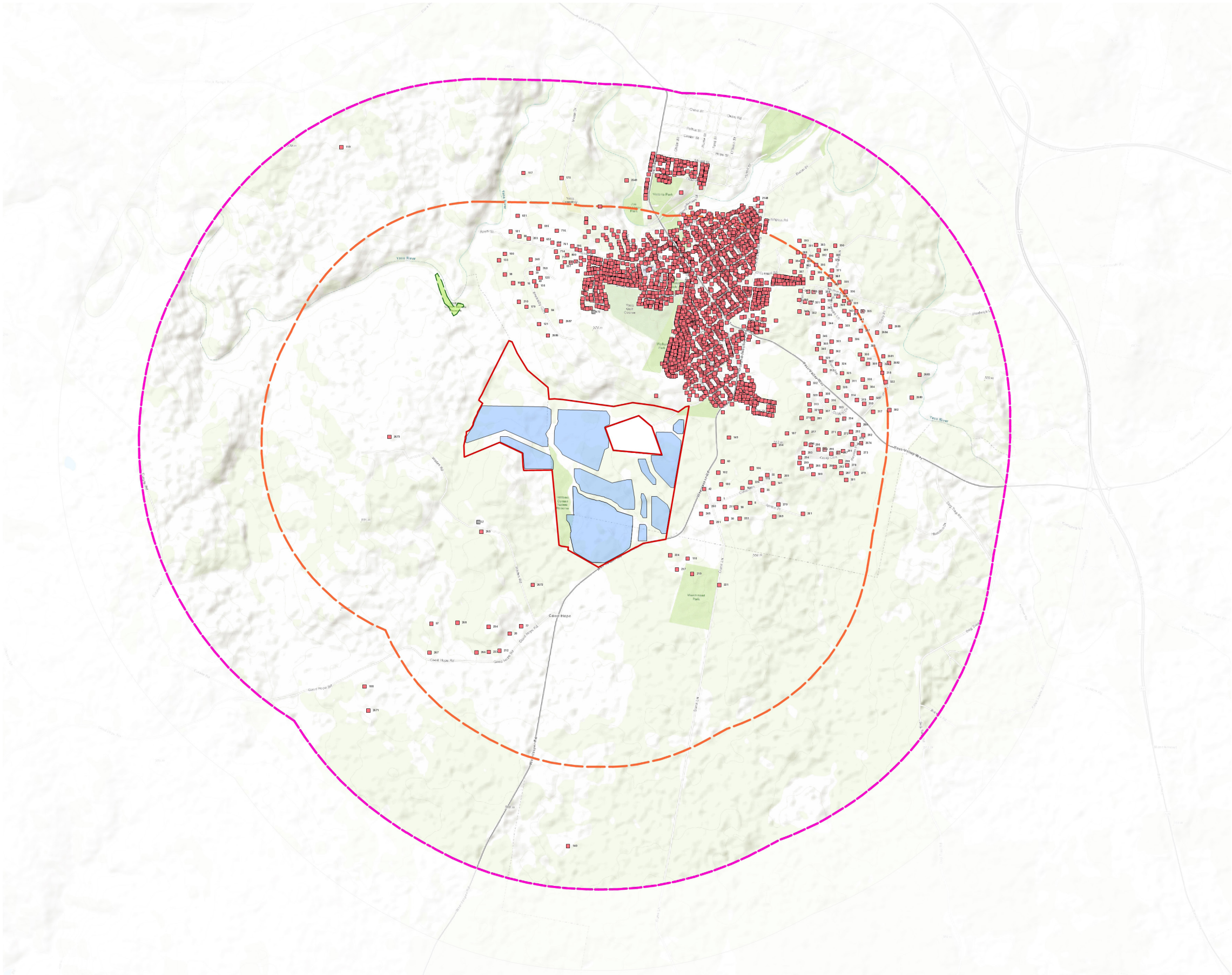


Figure 4. Viewshed Map (Map Source: Esri Map)





# Reverse Viewshed Map

## Yass Solar Farm

LEGEND

- Project Area
- PV Array Area
- Non-associated residences
- Associated residences
- 2,500 m from the nearest Solar Array Panel
- 4,000 m from the nearest Solar Array Panel
- Local Road

Reverse ZVI (Based on 5 m Panel Height)

- No Visibility from surrounding dwellings
- 1 - < 671 dwellings
- 671 - < 1,342 dwellings
- 1,342 - < 2,013 dwellings
- 2,013 - <= 2,685 dwellings

**Note:**  
This reverse viewshed map is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the viewshed map is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

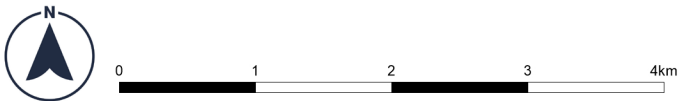


Figure 5. Preliminary Reverse Viewshed Map (Map Source: Esri Map)



# Viewpoint Locations

## Yass Solar Farm

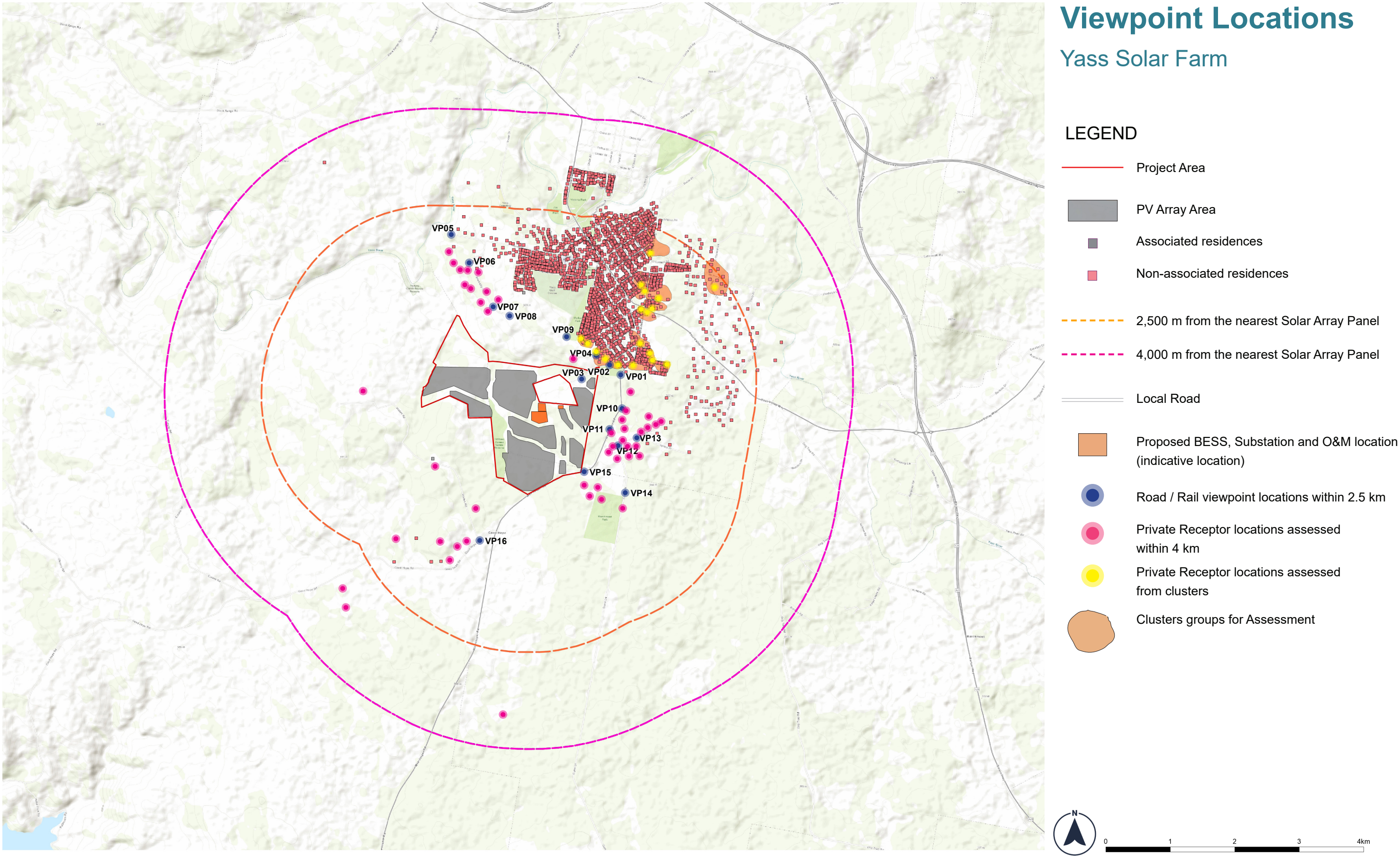


Figure 6 Viewpoint Locations (Map Source: Esri Map)

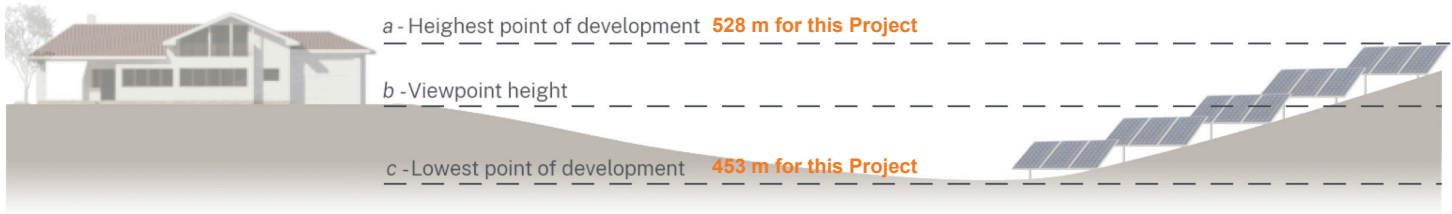
18 Yass Solar Farm | Preliminary Visual Impact Assessment



5.5 Vertical Field of View Calculation

Figure 7 below illustrates how the vertical field of view is calculated for each viewpoint location. Plotting viewpoints on Figure 9 and Figure 10, however, provides the actual value of the vertical field of view.

Project located above and below viewpoint (a - c)



Project located above viewpoint (a - b)



Project located below viewpoint (b - c)

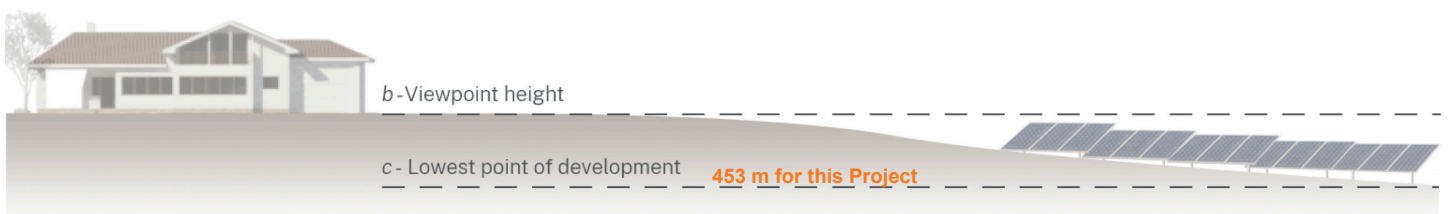


Figure 7 Vertical field of view calculation (Source: Technical Supplement, DPE, 2022)

5.6 Horizontal Field of View Calculation

Figure 8 below illustrates how the horizontal field of view is calculated for each viewpoint location. For the purpose of this report, the horizontal field of view has been calculated based on the Project Area to provide a worst case scenario assessment. This will be refined in the EIS phase.

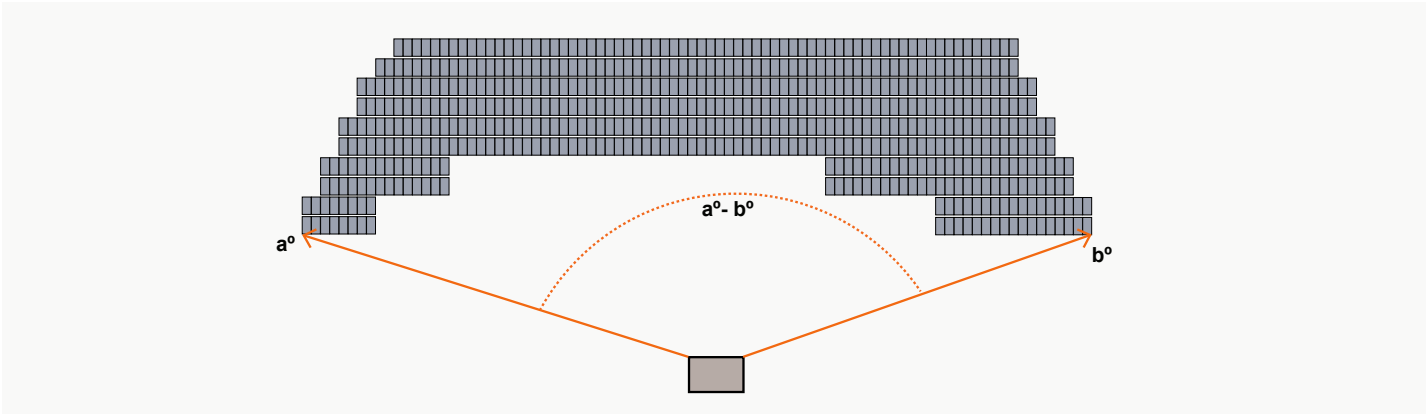
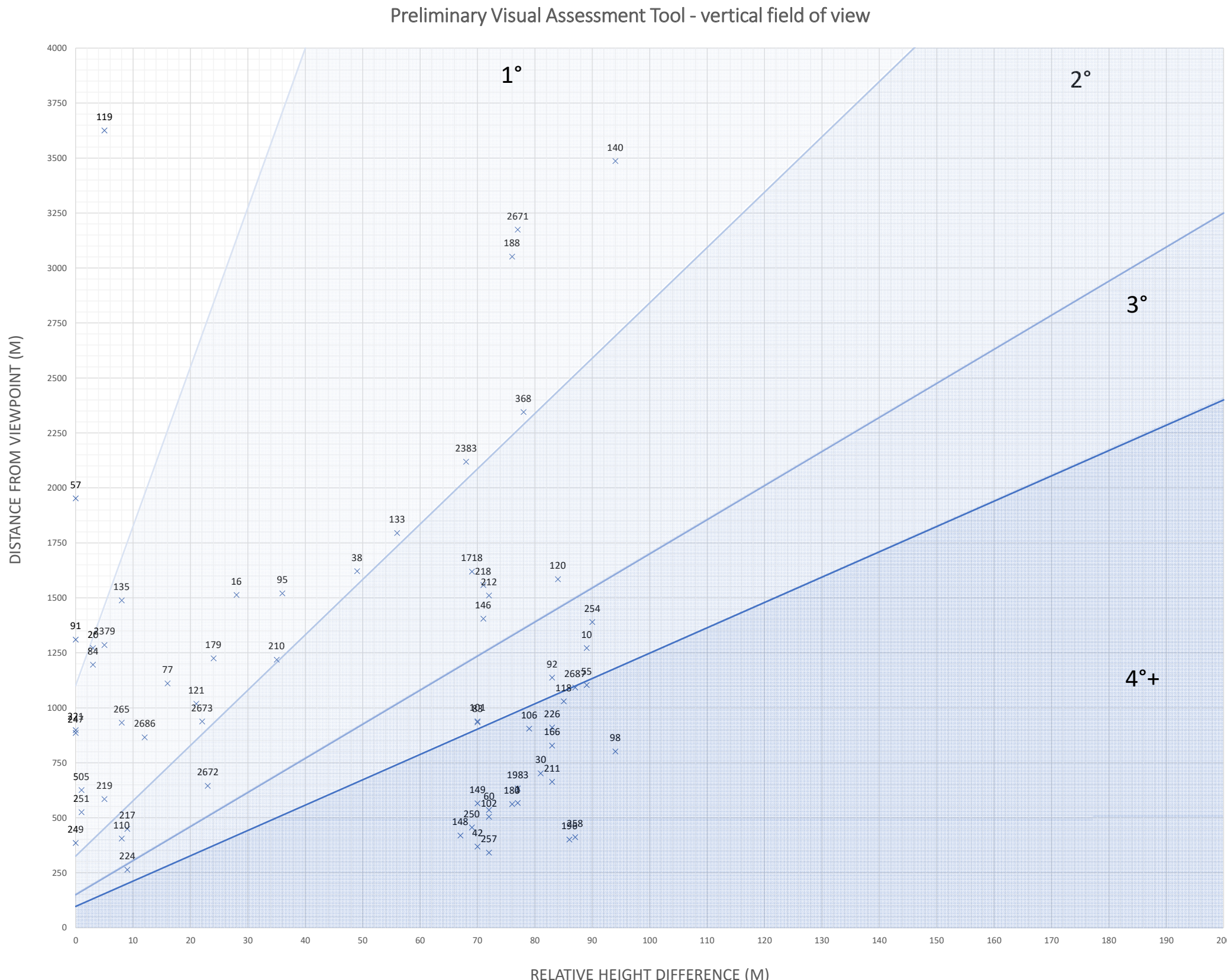


Figure 8 Horizontal Field of View (Source: MoirLA, 2023)

5.7 Assessment Requirements

Horizontal field of view of project	1° vertical field of view	2° vertical field of view	3° vertical field of view	4° + vertical field of view
1 - 10°	No assessment required	No assessment required	No assessment required	No assessment required
11 - 20°	No assessment required	No assessment required	No assessment required	Assessment required
21 - 30°	No assessment required	No assessment required	Assessment required for all viewpoints except road / rail	Assessment required
31 - 40°	No assessment required	Assessment required for all viewpoints except road / rail	Assessment required for all viewpoints except road / rail	Assessment required
41 - 50°	No assessment required	Assessment required for all viewpoints except road / rail	Assessment required	Assessment required
51 - 60°	No assessment required	Assessment required for all viewpoints except road / rail	Assessment required	Assessment required
61 - 70°	No assessment required	Assessment required	Assessment required	Assessment required
71 - 130°	Assessment required for all viewpoints except road / rail	Assessment required	Assessment required	Assessment required
130°+	Assessment required	Assessment required	Assessment required	Assessment required

Table 4 Preliminary Visual Assessment Tool - Assessment Requirements (Source: Technical Supplement, DPE, 2022)



**Figure 9 Preliminary Assessment Tool – vertical field of view - Private Receptors** (Source: DPE, 2022)



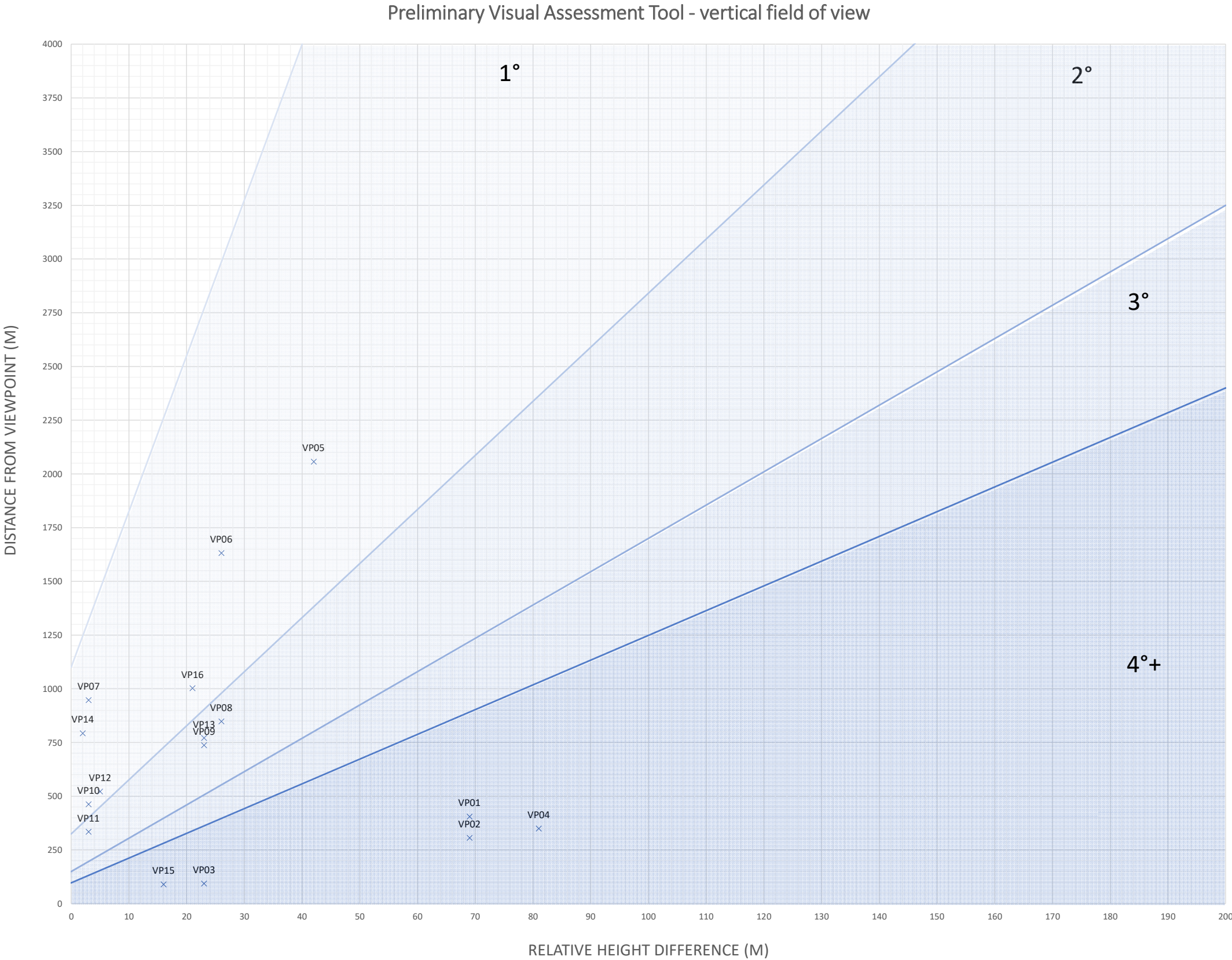


Figure 10 Preliminary Assessment Tool – vertical field of view - Public Receptors (Source: DPE, 2022)



Residential Viewpoints:								
Receptor ID:	Distance to nearest panel (m):	Relative Height Difference (m):	Elevation of receptor (m):	Vertical field of view:	Horizontal extent of view:	Horizontal field of view:	Visible based on viewshed mapping:	Detailed Assessment Required?:
1	568	77	539	4°	236°- 335°	99°	YES	YES
10	1272	89	551	3°	165° - 260°	95°	YES	YES
16	1514	28	501	1°	129° - 199°	70°	YES	NO
20	1272	3	526	1°	57° - 346°	71°	YES	YES
30	702	81	543	4°	249°- 336°	87°	YES	YES
38	1622	49	479	1°	128° - 192°	64°	YES	YES
42	369	70	532	4°	219°- 342°	123°	YES	YES
55	1104	89	551	4°	239°- 302°	63°	YES	YES
60	536	72	534	4°	217°- 316°	99°	YES	YES
77	1111	16	513	1°	56°- 343°	73°	YES	YES
83	935	70	532	3°	267°- 212°	55°	YES	YES
84	1196	3	525	1°	127° - 212°	85°	YES	YES
91	1311	0	528	0°	202°- 254°	53°	YES	NO
92	1138	83	545	3°	219°- 268°	49°	YES	YES
95	1521	36	492	1°	128°- 196°	68°	YES	YES
98	802	94	556	4°	247°- 328°	81°	YES	YES
101	939	70	532	3°	210°- 265°	55°	YES	YES
102	505	72	534	4°	220°- 325°	105°	YES	YES
106	905	79	541	4°	232°- 304°	72°	YES	YES
110	406	8	520	2°	266°- 357°	91°	YES	YES
118	1030	85	547	4°	239°- 306°	67°	YES	YES
120	1585	84	546	2°	203° - 251°	48°	YES	YES
121	1019	21	508	1°	123°- 214°	91°	YES	YES
133	1796	56	472	1°	130°- 189°	59°	YES	YES
135	1489	8	521	1°	131°- 204°	73°	YES	YES
146	1406	71	533	2°	204°- 253°	49°	YES	YES
148	420	67	529	4°	200°- 268°	78°	YES	YES
149	566	70	532	4°	212°- 286°	74°	YES	YES
166	829	83	545	4°	238°- 318°	80°	YES	YES
179	1226	24	504	1°	125°- 204°	79°	YES	YES
180	562	76	538	4°	227°- 329°	79°	YES	YES
188	3053	76	538	1°	21°- 62°	41°	YES	NO
196	401	86	548	4°	181°- 263°	82°	YES	YES

Table 5 Results of Preliminary Viewpoint Assessment - Private Receptors

Residential Viewpoints:								
Receptor ID:	Distance to nearest panel (m):	Relative Height Difference (m):	Elevation of receptor (m):	Vertical field of view:	Horizontal extent of view:	Horizontal field of view:	Visible based on viewshed mapping:	Detailed Assessment Required?:
210	1219	35	494	1°	125°- 200°	75°	YES	YES
211	664	83	545	4°	245°- 334°	89°	YES	YES
212	1511	72	534	2°	350° - 54°	296°	YES	YES
217	450	9	520	2°	274° - 1°	87°	YES	YES
218	1559	71	533	2°	199°- 248°	56°	YES	YES
219	585	5	523	1°	275°- 356°	81°	YES	YES
221	899	0	528	1°	249°- 347°	98°	YES	YES
224	264	9	518	3°	262° - 5°	103°	YES	YES
226	911	83	545	4°	237°- 312°	75°	YES	YES
247	886	0	528	1°	204° - 262°	58°	YES	NO
249	386	0	528	1°	240°- 348°	108°	YES	YES
250	456	69	531	4°	235°- 344°	109°	YES	YES
251	526	1	527	1°	248°- 344°	96°	YES	YES
254	1390	90	552	3°	352° - 61°	69°	YES	YES
257	342	72	534	4°	191°- 265°	74°	YES	YES
258	412	87	549	4°	131°- 265°	134°	YES	YES
265	933	8	520	1°	349° - 104°	115°	YES	YES
368	2345	78	540	1°	258° - 215°	43°	YES	YES
505	626	1	527	1°	206°- 268°	62°	YES	NO
1718	1620	69	531	2°	197°- 247°	50°	YES	YES
1983	634	77	539	4°	160°- 258°	98°	YES	YES
2379	1286	5	523	1°	200°- 253°	53°	YES	NO
2383	2119	68	530	1°	197°- 240°	43°	YES	NO
2671	3175	77	539	1°	19°- 58°	39°	YES	NO
2672	646	23	505	2°	334° - 72°	98°	YES	YES
2673	938	22	506	1°	72° - 121°	49°	YES	NO
2686	866	12	516	1°	120°- 220°	105°	YES	YES
2687	1093	87	549	4°	128°- 225°	97°	YES	YES
119	3626	5	523	0°	128°- 156°	28°	YES	NO

Table 5 Results of Preliminary Viewpoint Assessment - Private Receptors

Road or Rail Receptors:								
Receptor ID:	Distance to nearest panel (m):	Relative Height Difference (m):	Elevation of receptor (m):	Vertical field of view:	Horizontal extent of view:	Horizontal field of view:	Visible based on viewshed mapping:	Detailed Assessment Required?:
VP01	406	69	531	4°	202°- 272°	70°	YES	YES
VP02	307	69	531	4°	194°- 268°	74°	YES	YES
VP03	94	23	505	4°	84°- 278°	201°	YES	YES
VP04	350	81	543	4°	181°- 284°	87°	YES	YES
VP05	2058	42	486	1°	134°- 189°	55°	YES	NO
VP06	1632	26	502	1°	132°- 198°	66°	YES	NO
VP07	948	3	531	4°	123°- 222°	99°	YES	YES
VP08	849	26	554	4°	125°- 233°	108°	YES	YES
VP09	738	23	551	4°	145°- 255°	110°	YES	YES
VP10	463	3	531	4°	213°- 318°	105°	YES	YES
VP11	335	3	531	4°	216°- 343°	127°	YES	YES
VP12	522	5	533	4°	239°- 340°	101°	YES	YES
VP13	772	23	551	4°	240°- 324°	84°	YES	YES
VP14	793	2	530	4°	270°- 344°	74°	YES	YES
VP15	90	16	512	4°	249° - 6°	118°	YES	YES
VP16	1003	21	507	1°	337° - 53°	76°	YES	NO

Table 6 Results of Preliminary Viewpoint Assessment - Road and Rail Receptors

5.8 Results of Preliminary Assessment Tool

The preliminary assessment tool identifies viewpoints (public and private) within 4 km of the Project Area. Application of the preliminary assessment tool identified that from a total of 62 non-associated dwellings selected for assessment, 52 receptors will require further detailed assessment.

Additionally, 16 road receptors were identified of which 13 would require further detailed assessment. These identified receptors will be assessed in detail in the LVIA.

**Table 5** and **Table 6** provide a summary of these results.



# 6.0 Cumulative Visual Impacts

## 6.1 Overview of potential cumulative impacts

The Project is located within Yass Valley LGA. The area is noted as allowing for optimum harvest of renewable energy and as such, it is anticipated that the occurrence of renewable energy developments in the area will increase over time. **Figure 11** shows renewable energy projects that are currently proposed, operating and under construction over a broader area.

## 6.2 Nearby Large-Scale Renewable Energy Projects

Currently, four (4) other renewable energy projects have been identified in the area.

<i>Name of Project</i>	<i>Distance to Project Area</i>	<i>Current Status</i>
Rye Park Wind Farm (outside Yass LGA)	Approx. 26 km	Operational
Bango Wind Farm (outside Yass LGA)	Approx. 31 km	Operational
Wallaroo Solar Farm (within Yass LGA)	Approx. 35 km	In Planning Phase
Coppabella Wind Farm (within Yass LGA)	Approx. 35 km	Approved
Springdale Solar Farm	Approx. 35 km	Approved
Gunning Solar Farm	Approx. 20 km	Under Assessment
Western Range Wind Farm	Approx. 35 km	In Planning Phase

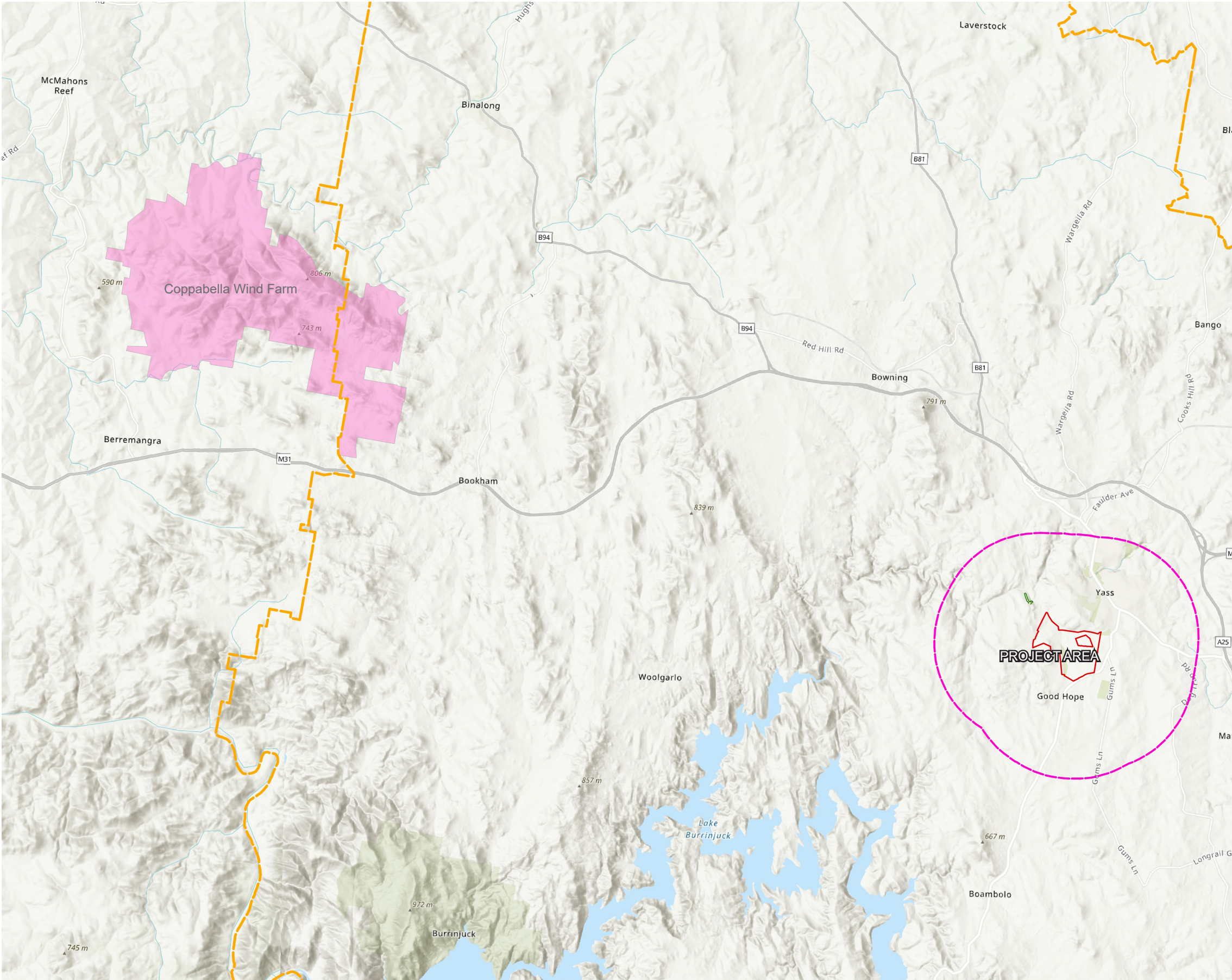
Table 7 Nearby Renewable Energy projects

It is unlikely that the above mentioned large-scale renewable energy projects would have a cumulative impact on the surrounding landscape. However, re-occurrence of renewable energy projects has the potential to alter the perception of the overall landscape character irrespective of being viewed in a single viewshed. It is important to determine whether the effect of major infrastructure projects within the region would combine to become the dominant visual element, altering the perception of the general landscape character. Cumulative impacts of these renewable energy projects will be assessed in detail during the EIS Phase.

## 6.3 Cumulative Impact on Broader Landscape Character

It is unlikely that views to multiple projects will be visible within the Study Area. However further assessment of the cumulative visual impact will be detailed in the EIS, and if necessary potential mitigation and management measures will be discussed that can be employed to reduce impacts.





**LEGEND**

- Project Area (Yass Solar Farm)
- 4,000 m radius from Project
- LGA Boundary
- Coppabella Wind Farm Indicative Layout - Based on information available on Goldwind 2018, Coppabella Wind Farm, <https://www.coppabellawindfarm.com/>, viewed 26 April 2023, <<https://www.coppabellawindfarm.com/>>.

**Figure 11 Existing Large-Scale Renewable Energy Projects**  
(Source: DPE 2022) Map source: ArcGIS 2022; Project outline source: EMM Consulting 2018, Envisage Consulting PTY LTD 2018, Moir Landscape Architecture 2019.



# 7.0 Summary & Next Steps

## 7.1 Summary of Findings

Due to the relatively gentle undulating topography that is typical of the existing landscape, it is likely that views toward the majority of the Project may be available from elevated areas to the immediate north and south of the Project and to the north west in excess of 2.5km of the Project.

In addition, views toward portions of the Project may be available from some locations within settlements located to the north and some elevated areas to the immediate east.

Topography is likely to assist in screening views toward the Project from Yass and settlements to the east in excess of 2km of the Project.

It is likely that existing intervening vegetation and structures will assist in screening views of the Project from some locations. However, further preliminary desktop analysis and ground-truthing is required in the EIS phase of the Project to confirm potential visual impacts from identified dwellings and viewpoint locations, where a detailed summary of the potential visual impacts will be provided as part of the LVIA.

The preliminary visual assessment considered a 4 km buffer from the Project Area in order to identify preliminary visual impacts for a worst case scenario. 62 non-associated dwelling receptors have been identified within 4 km of the Project. Application of preliminary assessment tools indicates that 52 residential receptors within 4 km would require a detailed assessment. In addition, 13 public viewpoints would require detailed assessment in the EIS phase.

## 7.2 Next Steps

An LVIA will be prepared in accordance with the Guideline and the Technical Supplement. During the preparation of the LVIA, detailed site investigations will be undertaken from areas identified in the preliminary assessment as having potential visibility towards the Project. This process will be undertaken using the procedures outlined in the following Guidelines:

- Large-Scale Solar Energy Guideline (August, 2022)
- Technical Supplement Landscape and Visual Impact Assessment - Large-Scale Solar Energy Guideline (August, 2022)
- Environmental Planning and Assessment Regulation 2021
- Yass Valley Local Environmental Plan (LEP) 2013
- State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP).

Specialised modelling tools and visualisations (including photomontages) will be developed to illustrate potential views of the Project from key public viewpoints identified through this report. In addition site inspections will be undertaken from key public viewpoints identified as requiring further assessment.

The LVIA will include an assessment of the landscape and visual impact resulting from all associated infrastructure and ancillary structures, and consideration of cumulative impacts of nearby infrastructure. Further assessment will be undertaken to assess potential impacts of glint and glare using industry standard methodology.

Ongoing community consultation will be undertaken to ensure and develop an understanding of the community's landscape values.

Cumulative impacts of surrounding renewable energy projects will also be assessed in the LVIA in order to identify impacts on the broader landscape character of the region.

On-site and off-site visual landscape mitigation strategies will be developed in response to the assessment and community consultation. The purpose of the mitigation strategies will be to ensure the Project is integrated into the existing landscape.

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**APPENDIX 5  
PRELIMINARY SOCIAL IMPACT ASSESSMENT PREPARED BY AAP  
CONSULTING**



# Social Impact Scoping Report – FINAL

Yass Solar Farm, NSW

November 2023

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# 1. Introduction

---

## 1.1 Background

International Power (Australia) Pty Ltd, trading as ENGIE Australia and New Zealand (ENGIE), is proposing to construct and operate the Yass Solar Farm (the project), on Ngunnawal land in Yass, New South Wales (NSW). The project would be located within the Yass Valley Council local government area (LGA) and be situated on the south-western outskirts of the township of Yass (refer to Figure 1.1).

The capital investment value of the project is valued at over \$30 million and the project is considered State Significant Development (SSD) under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and the State Environmental Planning Policy (Planning Systems 2021) (Planning Systems SEPP).

This Social Impact Scoping Report has been prepared by AAP Consulting Pty Ltd on behalf of ENGIE, the proponent of the project. It documents the process and outcomes of the scoping phase of the social impact assessment and has been prepared in consideration of the DPE Social Impact Assessment Guideline (February, 2023) (SIA Guideline).

## 1.2 Introduction to the project

### 1.2.1 Project overview

The project would include the construction, operation and decommissioning of an approximately 100 megawatts solar farm, including up to 220,000 photovoltaic panels, a battery energy storage system (BESS), and ancillary associated infrastructure. The project would supply electricity to the national electricity market (NEM) via the existing transmission infrastructure within the local area.

Key infrastructure for the project would include:

- up to approximately 220,000 single axis tracking photovoltaic modules (solar panels)
- electrical infrastructure including:
  - approximately 30 power conversion units (PCUs) which include inverters for converting direct current (DC) power to alternating current (AC)
  - onsite substation containing two main transformers and associated switchgear
  - overhead and underground electrical reticulation connecting the solar farm elements
  - onsite connection from the substation to the existing 330 kilovolt transmission lines operated by TransGrid
  - BESS
- other permanent onsite ancillary infrastructure including:
  - operational and maintenance facility

- a temperature-controlled spare parts storage facility
- SCADA facilities
- a workshop and associated infrastructure
- access roads, both to the project and internal access roads
- carparking area
- security fencing and landscaping
- temporary construction ancillary infrastructure including:
  - construction compounds
  - laydown areas
  - parking areas
  - access tracks and associated infrastructure, including gates and fencing
  - potential construction workforce accommodation.

An indicative project layout is provided in Figure 1.2.

The project is expected to require up to 150 full-time equivalent employees during peak construction, and approximately two full-time equivalents would be required during operation and ongoing maintenance of the solar farm.

### 1.3 Structure of this report

The structure of this report is influenced by the SIA Guideline requirements and is outlined below.

**Table 1.1 Structure of this report**

Chapter	Description
Chapter 1	Introduces the project and structure of this report
Chapter 2	Describes the methodology during the scoping phase
Chapter 3	Describes the social locality
Chapter 4	Establishes the preliminary social baseline
Chapter 5	Identification of the likely social impacts for different groups in the social locality
Chapter 6	Framework for approach to SIA in the assessment phase
Chapter 7	Concludes the scoping report

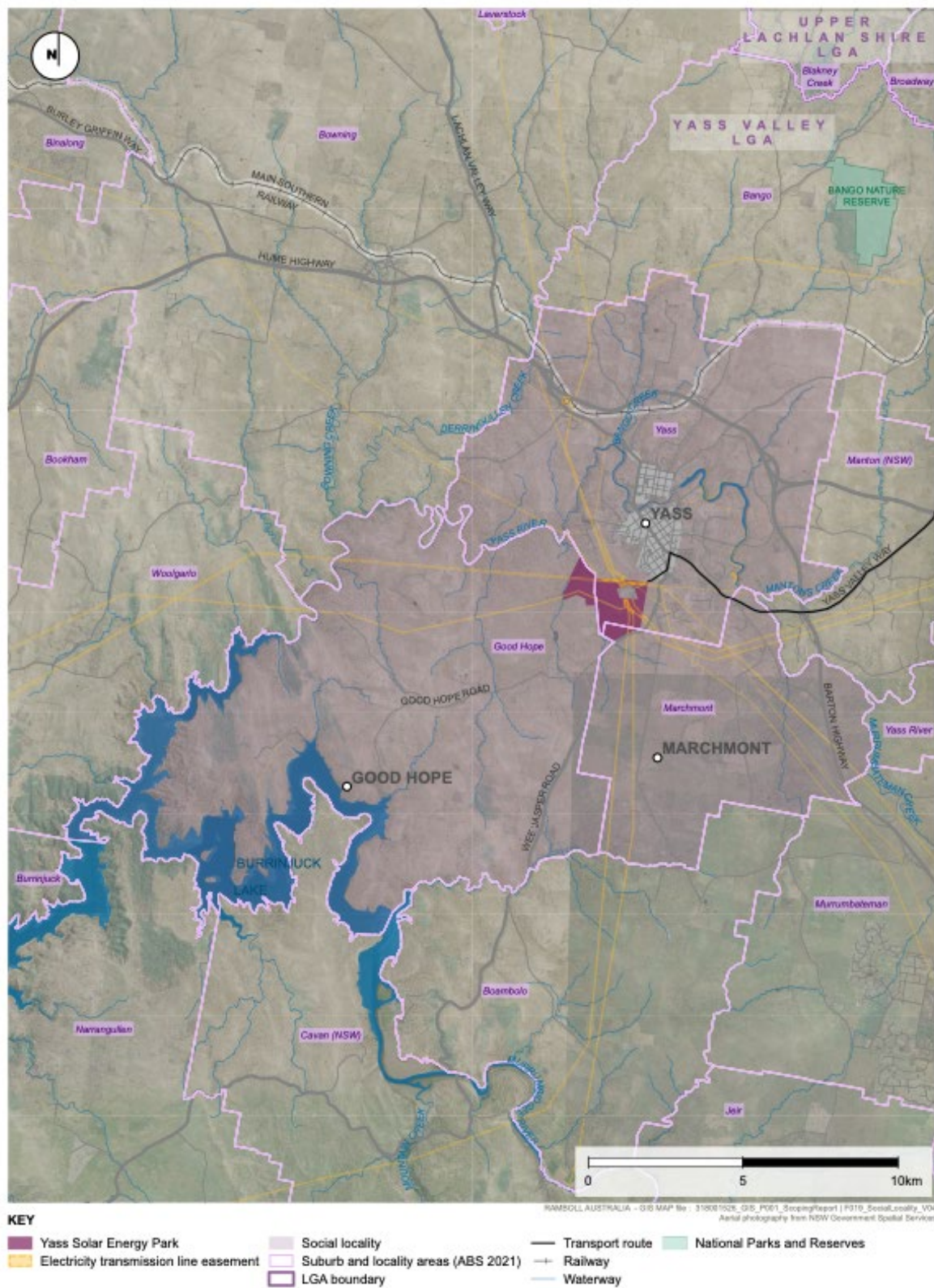


Figure 1.1 Project locality



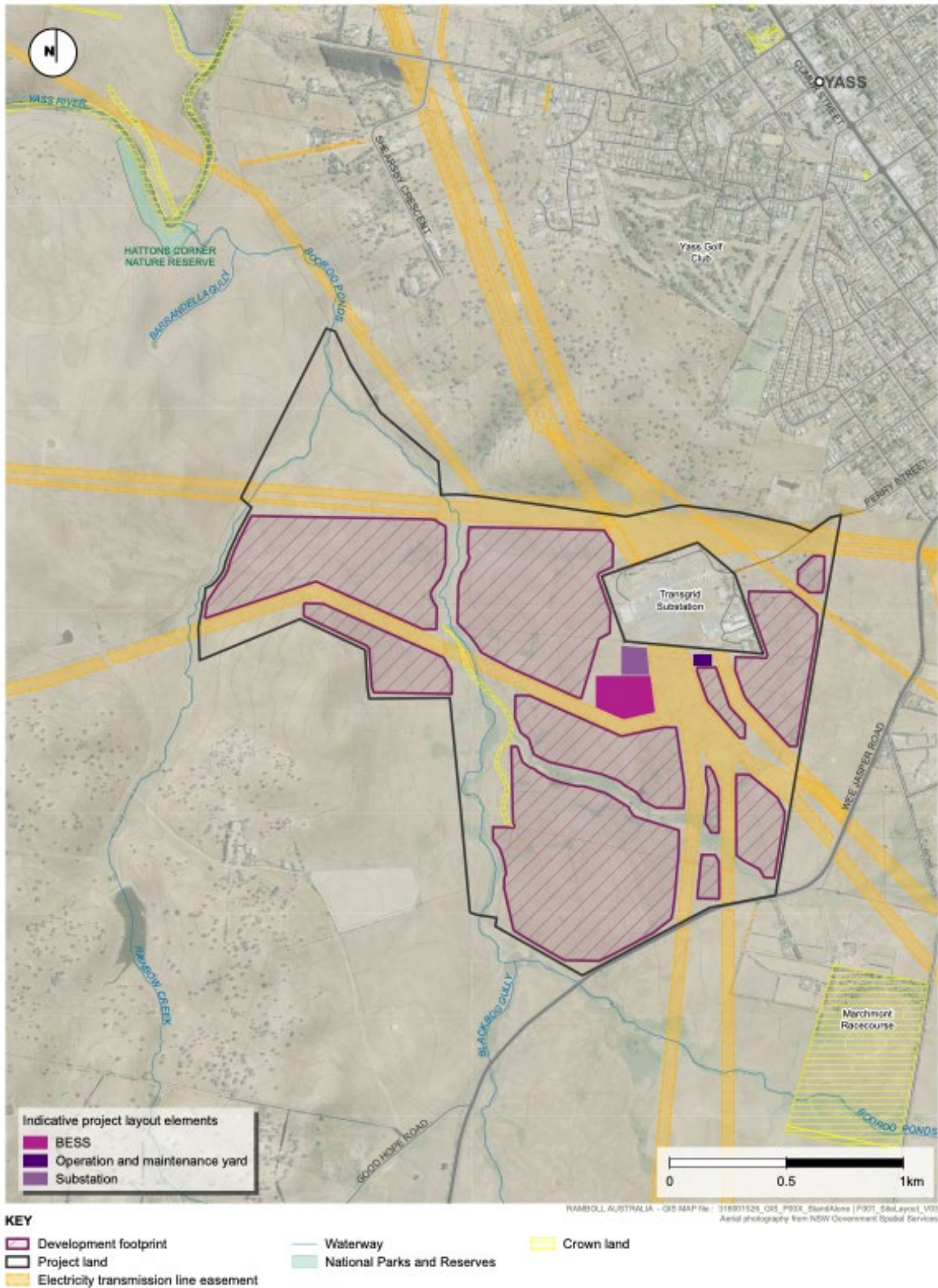


Figure 1.2 Project layout

## 2. Methodology

---

This report forms part of the Scoping Report and Request for SEARs to be lodged with NSW DPE and demonstrates an understanding of:

- the project's social locality
- high level characteristic of the communities within the social locality (social baseline)
- potential or likely social impacts for different groups in the social locality and the level to which these impacts need to be addressed
- project refinements or approaches to date in response to likely social impacts

This section details the methods used to inform this scoping phase.

### 1.4 Understanding of project context

A review of regional planning policies and strategies was conducted to contextualise the project. Outcomes of community engagement completed by ENGIE relating to the project, as well as a review of various comparative studies of nearby projects has also informed this project context.

### 1.5 Identifying the preliminary social locality and description of existing environment

The approach used to identify the preliminary social locality considered who is most likely to experience direct and indirect impacts because of the project and where those groups of people are located.

The social locality will be further refined and updated according to project changes and further investigation of impacts during the assessment phase.

The description of the existing environment provides a summary of the social locality, including a high-level overview of regional demographic characteristics, socio-economic backgrounds, land use, key industries, and social infrastructure and an overview of directly impacted state suburbs and localities.

### 1.6 Scoping of likely social impacts

The scoping of likely social impacts resulting from the project has been guided by the SIA Guideline and with reference to the social impact categories presented in Table 2.1 below. The scoping of likely social impacts included:

- gaining an understanding of the project's social locality
- considering the characteristic of the communities within the social locality (the social baseline)
- identifying likely social impacts for different groups in the social locality.

The initial scoping of likely social impacts was informed by:

- understanding the project context and activities
- reviewing the outcomes of consultation activities conducted by ENGIE to date
- reviewing the existing environment and outcomes of preliminary assessments completed as part of the Scoping Report for the project
- considering community opinions and sentiment towards the project activities through:
  - desktop research and review of other comparative projects
  - social commentary of comparative projects and issues in the social locality
  - outcome of engagement undertaken by ENGIE
  - review of submissions and research from comparative projects including Springdale Solar Farm.

**Table 2.1 Social impact categories (SIA Guideline)**

Categories	Definition
<b>Way of life</b>	How people live, how they get around, how they work, how they play, and how they interact each day.
<b>Community</b>	Community composition, cohesion, character, how the community functions, and people's sense of place.
<b>Accessibility</b>	How people access and use infrastructure, services and facilities, whether provided by a public, private or not-for-profit organisation.
<b>Culture</b>	Aboriginal and non-Aboriginal, including shared beliefs, customs, values and stories, and connections to Country, land, waterways, places and buildings.
<b>Health and wellbeing</b>	Physical and mental health especially for people vulnerable to social exclusion or substantial change, psychological stress resulting from financial or other pressures, access to open space and effects on public health.
<b>Surroundings</b>	Ecosystem services such as shade, pollution control, erosion control, public safety and security, access to and use of the natural and built environment, and aesthetic value and amenity.
<b>Livelihoods</b>	People's capacity to sustain themselves through employment or business.
<b>Decision-making systems</b>	Including the extent to which people can have a say in decisions that affect their lives, and have access to complaint, remedy and grievance mechanisms.

## 2.5 Determining the complexity of Phase 2 SIA report

The approach used to determine the level of assessment required for an identified social impact has been completed in accordance with the SIA Guidelines following the completion of the SIA Scoping Tool. A key objective of the SIA scoping phase is to identify the level of assessment required for each impact in the assessment phase. The level of assessment determines the extent of effort and data

required to assess the impact. The levels of assessment and the indicative data requirements are shown in Table 2.2.

**Table 2.2 Level of assessment (DPE, 2021)**

Level of Assessment	Secondary Data	Primary Data	
		Consultation	Research
<b>Detailed:</b> the project may result in significant social impacts, including cumulative impacts.	Required	Broad consultation	Targeted research
<b>Standard:</b> the project is unlikely to result in significant social impacts, including cumulative impacts.	Required	Targeted consultation	Potentially targeted research
<b>Minor:</b> the project may result in minor social impacts.	Required	Limited – if required (e.g. local council)	Not required
<b>Not relevant:</b> The project will have no social impact, or the social impacts of the project will be negligible.	N/A		

The scoped social impacts and their required level of assessment are outlined in Chapter 4.



## 2 Social locality

---

### 2.1 Preliminary identification of social locality

This report considers social impacts in the 'social locality'. There is no prescribed meaning or fixed, predefined geographic boundary to a project's social locality; rather, the social locality has been construed based on the project's nature and its impacts.

A number of factors have been considered in determining the social locality for the project including the nature and scale of the project and its associated activities, the characteristics of surrounding communities and the potentially affected built or natural features located near the project that have social value or importance.

Cumulative impacts that may impact affected communities because of other projects or operations near the project site and any relevant social, cultural, demographic trends or social change processes occurring now or in the past near the project site have also been considered.

The broader (indirect) area of social influence of communities that will be impacted by future incoming workforces, business opportunities, construction access and transport routes.

A social baseline profile has been developed of the project's social locality, which for this project is defined as:

- The suburbs and localities (SAL) that host or are adjacent to the project as per the Australian Bureau of Statistics' (ABS) statistical areas of Yass and the SAL in which the project is located, Good Hope and Marchmont (the adjacent SAL directly to the east) and the host local government area (LGA) of Yass.

The social locality may extend beyond these boundaries as the project planning progresses to include haulage routes, places of residence of future construction and operational workforce and their primary dependents, and where materials may be sourced for the project. The social locality will be further refined as required during the assessment phase.

### 2.2 Stakeholder identification

Social impact assessment involves the participation and collaboration of people who have an interest in, or those that are affected by, a project. As Burdge (2004) outlines, stakeholders may be affected groups or individuals that:

- live, work, or recreate near the project
- have an interest in the proposed action or change
- use or value a resource associated with the project
- are affected by the project e.g., may be required to relocate because of the project.

A stakeholder identification process was undertaken during the scoping phase for the project to support the planning and delivery of community consultation to inform the broader EIS, including the

SIA. This process involved identifying people with an interest in the project, or those directly and indirectly affected. This included identifying any potentially vulnerable or marginalised groups within the community (refer to Appendix 1). It is noted that stakeholders will be refined throughout the assessment process to reflect the direct and indirect social impacts arising as the project progresses and the EIS progresses.

## **2.3 Stakeholder engagement**

Consultation undertaken by ENGIE during the scoping phase has provided valuable early input into the understanding of stakeholder needs and concerns. A brief summary of engagement to date is provided in Table 2.1. The key outcomes of engagement have been considered to inform the scoping of likely social impacts and further detailed in Chapter 4.

The Social Impact Assessment Guidelines for State Significant Projects refers to the need for secondary and primary data sources to inform the SIA process. Engagement undertaken by an SIA practitioner is considered a primary source of data. All other engagement inputs are considered secondary data sources. While traditional project engagement plays a crucial role in facilitating dialogue and gathering community input, engaging for SIA requires additional social science expertise and knowledge to undertake a targeted and rigorous assessment and develop management measures for social impacts.

SIA led engagement will be undertaken during the assessment phase of the Project to ensure that the key principals of SIA including impartiality, rigour, inclusiveness and distributive equity are demonstrated. The proposed approach to collect data during the assessment phase is outlined in Chapter 5 of this report.

**Table 2.1 Engagement to date and outcomes**

Stakeholder Group	Stakeholder	Timing	Method	Engagement activities	Summary of feedback
Community	Host landowners	Nov 2022 - May 2023	Emails, meetings, and phone calls	<ul style="list-style-type: none"> <li>Discussions on the project, updates, land agreements and potential impact</li> </ul>	<ul style="list-style-type: none"> <li>Land use               <ul style="list-style-type: none"> <li>land use suitability for renewable energy opposed to residential developments</li> <li>changes to land use affecting the availability of land for agricultural purposes</li> <li>impacts on property value</li> </ul> </li> <li>Visual               <ul style="list-style-type: none"> <li>concerns about changes to the visual landscape, including potential impacts from glint and glare (for both nearby neighbours and those further away, such as those living in Shearsby Crescent)</li> </ul> </li> <li>Traffic and access               <ul style="list-style-type: none"> <li>amenity and access impacts, specifically for those living along the access and haulage routes during construction</li> </ul> </li> <li>Noise               <ul style="list-style-type: none"> <li>understanding of the potential noise impacts for those living near the project, including along haulage and access routes and how it may impact on way of life</li> </ul> </li> <li>Hazards and risks               <ul style="list-style-type: none"> <li>fire risk and health impacts to people living near the project</li> </ul> </li> <li>Socio-economic</li> </ul>
	Near neighbours	Dec 2022	Letterbox drop	<ul style="list-style-type: none"> <li>Letter and factsheet distributed to the Yass locality which included a QR code to direct residents to the project webpage and complete an online Community Benefits survey</li> </ul>	
		Dec 2022 – Mar 2023	Emails, meetings, and phone calls	<ul style="list-style-type: none"> <li>Targeted discussions and on-site meetings were held with approximately 10 neighbouring landholders on the project, updates and potential impact</li> </ul>	
	General community	Nov 2022 – May 2023	Community benefits survey	<ul style="list-style-type: none"> <li>47 responses have been received (to date) to an online community attitudes survey which was published online from November 2022 to current (refer Appendix 3)</li> </ul>	
		Dec 2022	Letterbox drop	<ul style="list-style-type: none"> <li>Letter and factsheet distributed to the Yass locality which included a QR code to direct residents to the project webpage and complete an online Community Benefits survey</li> </ul>	
		7 and 8 Feb 2023	Community information sessions	<ul style="list-style-type: none"> <li>More than 50 community members attended the Community Information Sessions which were held at the Yass Soldiers' Memorial Hall</li> </ul>	
		Nov – May 2023	Emails, meetings,	<ul style="list-style-type: none"> <li>A Q&amp;A factsheet was sent to the community mailing list in March 2023 and published on the project webpage, to provide further information relation to the key issues</li> </ul>	

Stakeholder Group	Stakeholder	Timing	Method	Engagement activities	Summary of feedback
			and phone calls	<ul style="list-style-type: none"> <li>raised during the community information sessions and subsequent community and landholder meetings</li> <li>1800 phone line specific to the project available for community to call</li> <li>Project specific email address available for community to contact</li> </ul>	<ul style="list-style-type: none"> <li>employment opportunities and community benefits resulting from the project including distributive equity</li> </ul>
		24 and 25 May 2023	Community information sessions	<ul style="list-style-type: none"> <li>Approximately 30 community members attended the Community Information Sessions which were held at the Yass Soldiers' Memorial Hall</li> </ul>	
	Yass Solar Action Group	24 May 2023	Meeting	<ul style="list-style-type: none"> <li>In person meeting with approximately 12 members of the Yass Solar Action Group and four members of the ENGIE project team</li> </ul>	<ul style="list-style-type: none"> <li>In addition to the feedback provided by the community above, the group raised: <ul style="list-style-type: none"> <li>fog impact on solar resource</li> <li>impact to Yass River and other waterways</li> <li>decommissioning</li> <li>security</li> </ul> </li> </ul>
Local Aboriginal groups	Local Aboriginal Land Council	Feb – May 2023	Emails and phone calls	<ul style="list-style-type: none"> <li>An invitation was sent to Onerwal LALC Dec 2022. A meeting was to be held on 8 February 2023 however the representative was unable to attend.</li> <li>Representatives from Onerwal LALC attended in-person community information sessions held in May 2023. An interim CEO has been appointed and the group will be calling for board members in the coming weeks. ENGIE will continue to engage with members of the group to provide opportunities for the LALC and Traditional Custodians to be involved in the project and help shape its benefits to the community.</li> </ul>	<ul style="list-style-type: none"> <li>Project overview</li> <li>Socio-economic</li> <li>employment opportunities and community benefits resulting from the project</li> <li>Aboriginal heritage</li> <li>mitigation and management of potential impacts to items of heritage significance</li> </ul>



Stakeholder Group	Stakeholder	Timing	Method	Engagement activities	Summary of feedback
Business owners	Suppliers and local business owners	Feb 2023 – May 2023	Emails, meetings, website form submissions and phone calls	<ul style="list-style-type: none"> <li>A number of local business owners attended the February Community Information Sessions.</li> <li>An online form has been created on the project webpage to capture the details of local businesses, suppliers and jobseekers who are interested in supplier and employment opportunities. 13 jobseekers, suppliers and local businesses have registered their interest to date.</li> </ul>	<ul style="list-style-type: none"> <li>Socio-economic <ul style="list-style-type: none"> <li>Supplier and employment opportunities and community benefits</li> </ul> </li> </ul>
Yass High School	Principal and Deputy Principal	Feb 2023	Meeting	<ul style="list-style-type: none"> <li>Discussions at the community information session regarding training, upskilling and opportunities for students to participate in site surveys</li> </ul>	<ul style="list-style-type: none"> <li>Socio-economic <ul style="list-style-type: none"> <li>Training and upskilling opportunities for students</li> </ul> </li> </ul>
Local Business Chamber	Business Development Manager (Department of Regional NSW)	Feb 2023	Meeting, email	<ul style="list-style-type: none"> <li>An invitation was sent to Yass Valley Business Chamber January and May 2023 to attend the community information sessions. Discussions were held during the information session regarding ENGIE's attendance at local business networking event and Region Connect events.</li> </ul>	<ul style="list-style-type: none"> <li>Socio-economic <ul style="list-style-type: none"> <li>Supplier and employment opportunities and community benefits</li> </ul> </li> </ul>
Governing bodies	Yass Valley Council	November 2022 February 2023 May 2023 September 2023 October and November 2023		<ul style="list-style-type: none"> <li>Three meetings have been held with council today, include both council officers and councilors. These include an online w\meeting with Council officers during November 2022, a workshop with councilors during February 2023 and an online meeting with council officers in May 2023.</li> <li>A fourth meeting was scheduled between DPE and Council for the 26 September 2023, however was only attended by DPE and Engie.</li> <li>Following the meeting on 26 September, several emails were sent between Council and Engie to arrange a meeting to review and discuss the proposed changes to</li> </ul>	<ul style="list-style-type: none"> <li>Rental shortage is an important issue for the community. Workers at the wind farms near Yass escalate the rental market.</li> <li>Some of the communities have concerns around 'the sterilization of agricultural land', wanting to maintain the agricultural landscape and rural lifestyle.</li> <li>Potential future land use conflicts including plans to extend the town all the way to the site.</li> <li>Visual impacts including views from the golf course.</li> </ul>

Stakeholder Group	Stakeholder	Timing	Method	Engagement activities	Summary of feedback
				the Yass Solar Farm layout prior to the lodgment of the scoping report. Unfortunately, a meeting did not proceed prior to lodgment due to scheduling conflicts. Engie noted that they would continue to engage with Council throughout the assessment process in the new year.	

## 3 Preliminary social baseline

---

This chapter presents the social baseline for the project and describes the social context without the project. It documents the existing social environment, conditions and trends relevant to the project and defines characteristics of the communities within the project's social locality, including any vulnerable groups. The social baseline provides a point of comparison – it can be used as reference against which to measure the impacts of the project as it develops, and/or to determine the adequacy or otherwise of existing facilities (Vanclay, 2015).

For this assessment, a summary of the social baseline is provided in the body of this report to provide an overview of the existing environment.

### 3.1 Development context

#### 3.1.1 National and international context

2022 has seen electricity prices in NSW and Australia significantly rise. In May 2022, the NSW short-term wholesale price of electricity was reportedly 80 per cent higher than in 2021 while National wholesale energy prices had increased 140 per cent in 12 months. The Australian Energy Regulator (AER) also announced an 18.3 per cent increase to benchmark electricity price, taking effect in July 2022, expected to further increase the price of electricity.

In June 2022, for the first time since its establishment, the Australian Energy Market Operator (AEMO) suspended wholesale spot market trading on the East Coast of Australia to ensure reliable supply. Price caps, implemented by AEMO to limit rising electricity costs, resulted in unprofitable conditions for electricity generators. Consequently, electricity generators withdrew from the energy market, reducing supply in a period of notably high demand. This nexus of high demand and high energy production cost has highlighted vulnerabilities within the East Coast energy market.

Instability and restriction of global supply chains have led to market prices for fossil fuels to increase notably in Australia. Renewable energy and energy storage have been identified as an appropriate measure to reduce energy prices and reduce State and National vulnerability to global instability.

The cost of living in NSW has also continued to increase with electricity being one of many household costs on the rise (alongside petrol, interest rates, housing, HECS debt indexation and food). Of particular note, on the 7th of June 2023 the RBA increased the official cash rate by 0.25% to 4.10%. This is the twelfth increase to the cash rate since May 2022 (ASX, 2023), the most aggressive rate rises since 1994. Paired with limited wage growth across the State, the cost of living is currently rising faster than wages, placing increasing pressure on households.

Overall, the reliability of electricity supply in NSW is highly strained, while consumer electricity costs and general costs of living are on the rise, placing increasing pressure on businesses and households.

### 3.1.2 Renewable energy in NSW

NSW is currently undergoing an energy sector transformation. The National Energy Market (NEM) (managed by the AEMO) is transitioning from a system dominated by a small number of large coal-fired generators to one of diverse renewable and distributed energy generation and storage.

The Electricity Infrastructure Roadmap is the NSW Government's plan to transform our electricity system into one that is cheap, clean and reliable. The Roadmap emphasises the need for NSW to transition to renewable energy and aims to replace NSW's ageing coal-fired power stations with a coordinated portfolio of energy generation, storage and network investment. The Roadmap is expected to help reduce NSW electricity emissions by 90 million tonnes by 2030 and support NSW to deliver on its net zero by 2050 ambitions (NSW Energy, 2020).

The Net Zero Plan Stage 1: 2020-2030 is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's plan to grow the economy, create jobs and reduce emissions over the next decade. It is projected by the proponent that the project will contribute to meeting Australia's commitments through the generation of renewable energy and resultant annual reduction in greenhouse gas emissions.

### 3.1.3 Draft South East and Tablelands Regional Plan 2041

The NSW Department of Planning, Infrastructure and Environment (now DPE)'s South East and Tablelands Regional Plan 2041 is a 20-year blueprint for the future of the South East and Tablelands region and the overarching strategic planning framework.

The vision outlined in the plan is that by 2041, the South East and Tablelands will be recognised as a region of collaboration and innovation, demonstrated through increased investment in tourism, renewable energy generation, sustainable agriculture and smart manufacturing. There are five overarching themes within the Plan, including:

- recognising Country, people and place
- enhancing sustainable and resilient environments
- leveraging diverse economic identities
- planning fit for purpose housing and services
- supporting a connected and active region.

Renewable energy is identified as a priority growth sector for the region with the aim to diversify the economy. The region aims to be a hub of renewable energy excellence taking advantage of the established network of high voltage transmission lines that traverse the region.

## 3.2 The Tablelands Regional Community Strategic Plan 2016-2036

The Tablelands Regional Community Strategic Plan 2016-2036 (CSP) identifies the community's priorities and aspirations for the future for The Tablelands region (Yass Valley, Upper Lachlan, Goulburn Mulwaree and Canberra regions). The vision for the plan is *To build and maintain sustainable communities while retaining the region's natural beauty.*



The vision is supported by five strategic priorities, including *Our Infrastructure; Our community is well serviced and connected to built, social and communications infrastructure*. The project has the ability to contribute to this priority by providing new industry and investment in renewable energy to reduce climate change.

### 3.3 Regional context

The project is located within the Yass Valley LGA which has a population of approximately 17,281 and covers a total area of 3,995 square kilometres (Australian Bureau of Statistics, 2022).

The Yass Valley LGA includes the larger township of Yass, and smaller townships of Binalong, Bowning, Bywong, Gundaroo, Murrumbateman, Parkwood, Sutton and Wallaroo. It also includes 21 other localities including Good Hope and Marchmont. The people living here have a median age of 43 years, with 1,139 more people calling Yass Valley home in 2021 compared to 2011 (ABS, 2021). It has strong transport and linkages to major cities and is located 280 kilometres south-west of the Sydney CBD, 600 kilometres north-east of the Melbourne CBD and 60 kilometres north of the Canberra CBD.

In 2021 Yass Valley had a higher proportion of children (under 18) and a lower proportion of persons aged 60 or older than Regional NSW. Overall, 24 per cent of the population was aged between 0 and 17, and 24.9 per cent were aged 60 years and over, compared with 21.4 per cent and 29.1 per cent respectively for Regional NSW. The largest change in age structure in the Yass Valley was an increase of 457 people aged 70 to 84 (id.community, 2023).

The Yass Valley has traditionally been inhabited by the Aboriginal Ngunnawal and Wiradjuri tribes. The Ngunnawal tribe covered the area, which is present day Canberra, and also extends into the majority of the Yass Valley area. Wiradjuri covered a large portion of NSW, but only a small part within the western edge of the present day Yass Valley LGA (Yass Valley Council, 2023). Aboriginal people account for approximately 2.5 per cent of the Yass Valley LGA (ABS, 2021). The region known for its Aboriginal cultural heritage and several locations within the Yass region are of cultural significance including North Yass, Edgerton, Hollywood, Bango Creek, Pudman Creek and Blakney Creek (Australian Institute of Aboriginal and Torres Strait Islander Studies, 2022). Two historical Aboriginal places are located within Yass being the Yass Aboriginal Cemetery and the Oakhill Aboriginal Reserve.

Key land uses in the local and broader region include agriculture, consisting primarily of sheep and cattle grazing and viticulture. Renewable energy development is a growing land use in the area, with multiple renewable energy projects located in the vicinity. This is reflective of the labour force, with agriculture, forestry and fishing the largest employer in the LGA, generating 733 local jobs in 2020-21. Employment in accommodation and food services and health care and social assistance were the next most commonly identified professions (Remplan, 2023). Analysis of the employment status (as a percentage of the labour force) in the region compared to NSW, shows that unemployment levels are relatively low. In the September 2022 quarter, unemployment in the Yass Valley LGA was 2.5 per cent (Remplan).

Major sources of employment within the region include agriculture, forestry, fishing and construction (Australian Bureau of Statistics, 2022). The key land uses and economic activities within the region are centred around agriculture, with livestock and wool generating local employment and international

exports (Yass Valley Council, n.d.). Other land uses in the region include protected areas, national parks and nature reserves.

The Yass Valley region, once a former gold mining area, includes a number of historical sites such as the early settlement village of Bowning. Murrumbateman, once a former gold mining town, is now home to some 20 established boutique wineries.

Nature reserves within the Yass Valley LGA include:

- Hattons Corner Nature Reserve (located 1.2 kilometres north west from the site)
- Mundoon Nature Reserve (located 11 kilometres east from the site)
- Bango Nature Reserve (located 12 kilometres north east from the site)
- Burrunjuck Nature Reserve (located 23 kilometres southwest from the site)

In terms of vulnerability, this assessment has reviewed the Socio-Economic Indexes for Areas (SEIFA). This is a suite of indexes that have been created by the Australian Bureau of Statistics from social and economic Census information. Specifically, this assessment looks at the Index of Relative Socio-economic Disadvantage (IRSD), a general socio-economic index that summarises a range of information about the economic and social conditions of people and households within an area.

The SEIFA score for the Yass Valley in 2016 was 1062. Across Australia's local government areas SEIFA scores range from 188 (most disadvantaged) to 1186 (least disadvantaged). This score is reflective of several indicators, including the lower incomes when compared to the NSW average, similar levels of educational attainment, age of population and health statistics, as socio-economic status is a significant determinant of physical and mental health (Wang & Geng 2019). This SEIFA information will be updated during the assessment phase, as more information becomes available from the ABS.

### **Yass Valley Community Strategic Plan 2042**

Yass Valley Council's Community Strategic Plan (CSP) 2042 identifies priorities and aspiration to be implemented over the next 20 years. The plan is based on broad community consultation across the LGA and establishes objectives and strategies to achieve those main priorities.

The five key themes addressed in the community plan are our community, our economy, our environment, our infrastructure and our civic leadership. Under the theme of our economy, the plan identifies the attraction of business and industry to the region, boosting the local economy and jobs as a key goal to service local and regional needs.

## **3.4 Vulnerabilities**

Inherent within the SIA process is the need to identify and empower vulnerable groups. "Although vulnerability is context dependent and can include a very wide range of groups, typically the concept includes Indigenous peoples, ethnic minorities, migrants, disabled people, the homeless, the poor, those struggling with substance abuse, and isolated elderly people" (Vanclay, 2015).

From the social profile analysis undertaken for the project, it is possible to assess key areas of community resilience and risk in the social locality. The key findings are summarised in Table 3.1 and identifies several population groups as potentially having vulnerability to the social or economic

changes that the project, and the cumulative effects of other developments across the region, may bring. These include:

- low income earners
- the elderly
- First Nations, Aboriginal and Torres Strait Islanders
- those with a disability, or of ill-health, requiring medical attention.

**Table 3.1 Social baseline summary of strengths, vulnerabilities and opportunities for the locality**

Strengths	Vulnerabilities and opportunities within the social locality	Potential implications for vulnerable groups
Diverse economy including growing renewable energy services to the area.	<ul style="list-style-type: none"> <li>• Temporary reduction in social amenity during construction which could have greater health impacts on the elderly or those living with illness or disability.</li> <li>• Impact on livelihoods and existing industry due to changes in land use.</li> <li>• Reduced community cohesion due to differing perceptions on renewable energy and distributive equity, and changes to the population due to the construction workforce.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential further restrictions to access to services for vulnerable groups due to influx of workers for major works.</li> <li>• Improved livelihoods due to access to employment opportunities</li> <li>• Employment and training opportunities, and opportunities to strengthen community resilience to natural disasters such as drought and floods.</li> </ul>
Proximity to Canberra and Sydney	<ul style="list-style-type: none"> <li>• Public transport linkages to centres for those without access to a private vehicle or are unable to drive.</li> </ul>	<ul style="list-style-type: none"> <li>• Those without access to a vehicle or a license, particularly First Nations, Aboriginal and Torres Strait Islander and the elderly have restricted access and limited provisions for assistance.</li> </ul>
Diverse natural capital, including diversity of natural resources, heritage items, agricultural lands, and national parks and reserves.	<ul style="list-style-type: none"> <li>• Competing land uses in the region and managing community perceptions.</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing potential for conflict between different and similar industries utilising the natural capital of the area.</li> <li>• Potential for project to cause intangible harm to Aboriginal communities through cultural and physical loss.</li> </ul>
A stable population with high levels of community cohesion	<ul style="list-style-type: none"> <li>• Potential for reduced community cohesion due to differing perceptions on renewable energy and distributive equity, and changes to the population due to the construction workforce.</li> </ul>	<ul style="list-style-type: none"> <li>• Service infrastructure will be vital for a growing population, including for vulnerable groups.</li> </ul>
Low unemployment rates, high labour force participation rate and incomes	<ul style="list-style-type: none"> <li>• Industry diversification</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that vulnerable groups, including First Nations people are adequately trained in emerging industries (such as renewables)</li> </ul>

### 3.5 Social baseline summary

Key characteristics, strengths and challenges of the social locality include:

- notable economic growth and steady reliance on rural based industries
- strong sense of community and social ties with higher-than-average volunteer rates
- a mix of urban and rural communities with a strong labour force and fairly high levels of affluence
- strong transport links to Canberra, Sydney and Melbourne
- strong labour participation rates, incomes and professional status (i.e. Managerial level)
- managing land use conflicts, particularly in agricultural production areas
- conservation of heritage and environment



## 4 Scoping of likely social impacts

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The scoped impacts have been informed by research undertaken during the scoping phase, including understanding the feedback received by ENGIE during community engagement, consideration of nearby projects, outcomes of preliminary technical assessment and review of existing literature. The consideration of cumulative impacts and scoping engagement are included in section 4.1 with the scope social impacts outlined in section 4.2.

### 4.1 Consideration of cumulative impacts and scoping engagement

#### Nearby projects

In this report, cumulative impacts refer to the combined effect of impacts from several activities on a particular value or receiver. According to the SIA Guideline, cumulative impacts can take three forms. They can be:

- Spatial impacts: occurring over the same area, such as trucks from multiple operations which may produce a cumulative noise impact along a common haulage route
- Temporal: vary over time, such as the construction of multiple large projects over the same timeframe which may produce a spike in temporary work in an area, creating a cumulative shortage of accommodation
- Linked impact: involve more complex interactions – one impact may trigger another.

The nearest known operating Solar Farm is Boorowa Solar Farm, approximately 46 kilometres north-west of the project. The Springdale Solar Farm is located at Sutton, approximately 35 kilometres to the south-east of the subject site, which has been approved but is yet to commence operations. In addition, there is a proposed solar farm at Gunning which is 20 kilometres north-east of the project, the Western Range Solar Farm (38 kilometres to the east) and the Wallaroo Solar Farm (36 kilometres to the south-east).

At a state significant level, wind farms have been the more common form of renewable energy projects proposed in the Yass Valley LGA, including the following developments:

- Rye Park Wind Farm - located approximately 24 kilometres north of Yass (approved yet to commence operations)
- Copperbella Wind Farm - located approximately 35 kilometres north-west (approved yet to commence operations)
- Bango Wind Farm - located approximately 36 kilometres north-west of Yass (existing and operating).

To build an understanding of potential community perceptions of the project and to inform the assessment approach for the SIA, a select number of comparable projects in the region have been reviewed to identify how communities have responded to these proposed developments. A review of

scoping reports, response to submissions and media has been undertaken and the key community sentiments towards these projects are presented in Table 4.1 .

## Engagement outcomes

As noted in Chapter 6 of the Scoping Report, ENGIE has undertaken a number of engagement activities during the scoping phase of the project. The outcomes of this engagement have been used to further inform the scoping of likely social impacts and are presented in Table 4.1.

The stakeholder engagement action plan specific to the SIA for the EIS phase is further discussed in Chapter 6. This action plan outlines a participatory approach to SIA and identifies how ENGIE will seek broader involvement across the stakeholder groupings over the subsequent phases of the EIS.

The outcome of the review of both nearby projects and engagement has been used to help inform the scoping of likely social impacts (refer to Chapter 4).

**Table 4.1 Summary of sentiment resulting from review of nearby projects and scoping engagement.**

Nearby projects	Project specific engagement
<ul style="list-style-type: none"> <li>Land use compatibility: the suitability of the land for renewable energy</li> <li>Visual impact: concerns about changes to the visual landscape, something that people value and negative impact to how people live in their own homes</li> <li>Impacts to biodiversity: including threatened species, and damages to the rural landscape</li> <li>Traffic impacts: including an increase in heavy vehicle traffic that will discourage visitors to the region and impact on all of those along the haulage and access routes</li> <li>Land values: the potential impacts on land values, with no supporting studies</li> <li>Economic benefits: increase in business for local services providers and improve economic sustainability for those other recipients of community benefit</li> <li>Renewable energy: the validity of solar and wind as an economic and efficient source to meet the needs of the energy market in Australia</li> </ul>	<ul style="list-style-type: none"> <li>Land use: the suitability of the land for renewable energy as opposed to residential developments, as well as changes to land use affecting the availability of land for agricultural purposes and impacts on property value</li> <li>Visual impact: concerns about changes to the visual landscape once operational, including impacts from glint and glare (for both nearby neighbours and those further away, such as those living in Shearsby Crescent)</li> <li>Access and haulage routes: the impact on both amenity and access for during the construction phases for those living along the access and haulage routes</li> <li>Noise: understanding of the potential noise impacts for those living near the project, including along haulage and access routes and how it may impact on way of life</li> <li>Safety: including fire risk and health impacts to people near the project</li> <li>Community benefit: employment opportunities and community benefit resulting from the project including distributive equity</li> </ul>

## 4.2 Scoped likely social impacts

The scoping phase determined a number of social impacts that will require further investigation during the EIS phase. Table 4.2 summarises these impacts and demonstrates the interrelationships that exist between scoped impacts and the social impact categories.

**Table 4.2 Scoped likely social impacts**

Affected people	Impact to people	Social impact category	Impact type	Level of assessment
<b>Project activity: Project scoping and site justification</b>				
<ul style="list-style-type: none"> <li>• Council</li> <li>• Property developers</li> <li>• Potential home / land buyers</li> </ul>	<ul style="list-style-type: none"> <li>• The use of the land for the production and storage of solar energy limiting future residential developments in the locality</li> </ul>	<ul style="list-style-type: none"> <li>• Surroundings</li> </ul>	Negative	Standard
<ul style="list-style-type: none"> <li>• Nearby property owners</li> </ul>	<ul style="list-style-type: none"> <li>• Commentary about changes to land use affecting the value of surrounding properties</li> </ul>	<ul style="list-style-type: none"> <li>• Livelihoods</li> </ul>	Negative	Standard
<ul style="list-style-type: none"> <li>• Community within the social locality</li> </ul>	<ul style="list-style-type: none"> <li>• Stress and uncertainty arising from the proposed changes in land use and potential land use conflicts</li> </ul>	<ul style="list-style-type: none"> <li>• Health and wellbeing</li> <li>• Livelihoods</li> </ul>	Negative	Standard
<ul style="list-style-type: none"> <li>• Community within the social locality</li> </ul>	<ul style="list-style-type: none"> <li>• The validity of solar as an economic and efficient resource to meet the needs of the Australian energy market</li> </ul>	<ul style="list-style-type: none"> <li>• Decision making systems</li> </ul>	Negative / Positive	Minor
<b>Project activity: Construction</b>				
<ul style="list-style-type: none"> <li>• Community within the social locality</li> </ul>	<ul style="list-style-type: none"> <li>• Changes to the land use resulting in potential loss of flora and fauna, changing how people experience their environment and damaging the rural landscape</li> </ul>	<ul style="list-style-type: none"> <li>• Surroundings</li> </ul>	Negative	Standard
<ul style="list-style-type: none"> <li>• Aboriginal and Torres Strait Islanders</li> <li>• Community within the social locality</li> </ul>	<ul style="list-style-type: none"> <li>• Likelihood of project to cause intangible harm through cultural and physical loss and tangible harm to items of heritage and cultural significance</li> </ul>	<ul style="list-style-type: none"> <li>• Culture</li> </ul>	Negative	Standard
<ul style="list-style-type: none"> <li>• Community within the social locality including those living along the access roads and haulage routes (i.e. Perry Street residents)</li> </ul>	<ul style="list-style-type: none"> <li>• Changes to amenity resulting from construction, affecting how people live (i.e., because of construction dust, noise, lighting and headlight glare)</li> </ul>	<ul style="list-style-type: none"> <li>• Way of life</li> </ul>	Negative	Detailed
<ul style="list-style-type: none"> <li>• Community within the social locality including those living along the access roads and haulage routes (i.e. Perry Street residents)</li> </ul>	<ul style="list-style-type: none"> <li>• Increased traffic and temporary disruptions to traffic movements on the local road network causing day to day disruption for people in the locality due to increased travel times or changes to access, and potentially discouraging visitors to the area</li> </ul>	<ul style="list-style-type: none"> <li>• Access</li> <li>• Livelihoods</li> </ul>	Negative	Standard

Affected people	Impact to people	Social impact category	Impact type	Level of assessment
<ul style="list-style-type: none"> <li>Visitors to the area</li> </ul>	<ul style="list-style-type: none"> <li>Potential impacts of the Project on important community used assets and infrastructure such as water, sewerage, and roads due to construction requirements</li> </ul>			
<ul style="list-style-type: none"> <li>Local business</li> </ul>	<ul style="list-style-type: none"> <li>Economic stimulus to local business owners resulting from the proposal procurement opportunities and increased patronage</li> </ul>	<ul style="list-style-type: none"> <li>Livelihoods</li> </ul>	Positive	Standard
<b>Project activity: Operation</b>				
<ul style="list-style-type: none"> <li>Nearby neighbours</li> <li>Those in visual catchment (including Shearsby Crescent)</li> </ul>	<ul style="list-style-type: none"> <li>Changes to the visual landscape, something that people value, including potential impacts from glint and glare</li> </ul>	<ul style="list-style-type: none"> <li>Way of life</li> <li>Surroundings</li> </ul>	Negative	Detailed
<ul style="list-style-type: none"> <li>Community within the social locality</li> </ul>	<ul style="list-style-type: none"> <li>Community investment initiatives leading to improved sustainability and enhancing resilience</li> </ul>	<ul style="list-style-type: none"> <li>Community</li> </ul>	Positive	Minor
<ul style="list-style-type: none"> <li>Council</li> <li>Broader community</li> <li>Nearby neighbours</li> </ul>	<ul style="list-style-type: none"> <li>Changes to land use affecting the availability of land for agricultural purposes. Fear that the presence of the project will devalue properties</li> </ul>	<ul style="list-style-type: none"> <li>Livelihoods</li> </ul>	Negative	Standard
<ul style="list-style-type: none"> <li>Community within the social locality</li> </ul>	<ul style="list-style-type: none"> <li>Benefits of intergenerational equity due to solar farms being used as an alternate energy source</li> </ul>	<ul style="list-style-type: none"> <li>Way of life</li> </ul>	Positive	Minor
<ul style="list-style-type: none"> <li>Community within the social locality</li> <li>Road users</li> </ul>	<ul style="list-style-type: none"> <li>The potential for a decline in safety for those living near the project due to fire risks and other health related impacts (dust/ road safety etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Health and wellbeing</li> </ul>	Negative	Standard
<b>Project activity: Employment of workforce</b>				
<ul style="list-style-type: none"> <li>Community within the social locality</li> <li>Aboriginal and Torres Strait Islanders</li> <li>Businesses</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced wellbeing from job opportunities and training, including increased opportunities for vulnerable groups</li> <li>Opportunities for small local businesses to increase services and flow on economic benefits during construction and operation</li> </ul>	<ul style="list-style-type: none"> <li>Livelihoods</li> </ul>	Positive	Minor
<ul style="list-style-type: none"> <li>Community within the social locality</li> </ul>	<ul style="list-style-type: none"> <li>Changes to local population causing a decline in the composition and character of the community</li> <li>A decline in access to affordable housing, accommodation and community services (e.g. health and</li> </ul>	<ul style="list-style-type: none"> <li>Community</li> <li>Access</li> <li>Way of life</li> </ul>	Negative	Detailed



Affected people	Impact to people	Social impact category	Impact type	Level of assessment
	childcare) due to a temporary increase in population caused by a transient workforce <ul style="list-style-type: none"> <li>Cumulative impacts associated with the other construction in the locality including access to affordable accommodation and community services</li> </ul>			

### 4.3 Project refinement and potential mitigation measures

In February 2020 Tetris Energy submitted a Scoping Report to the Department of Planning and Environment (DPE) for the original iteration of the Yass Solar Farm. The original development site was located on Lot 5 DP1165198, Lot 1 DP999493 and Lot 7 DP15756 with a development footprint of approximately 150 hectares. In March 2020 DPE issued the Planning Secretary's Environmental Assessment Requirements (SEARs) for the project.

ENGIE subsequently acquired the project and secured land options for three adjoining properties (Lot 7141 DP1095199, Lot 7142 DP1095199, and part of Lot 2 DP844272). These three properties (south-east of the original development site) have increased the project land to a total area of approximately 340 hectares. The SEARs for the original iteration of the Yass Solar Farm were withdrawn in February 2023.

Refinements to the project layout were made during the scoping phase based on the location of existing Transgrid substation, electrical easements, waterways and Crown land within the project land.

Following further engagement with Council and DPE, further refinements were made to the proposed development footprint to remove the north-western solar arrays from the development and reduced the solar farm from 140 megawatts to 100 megawatts.

This has resulted in the development footprint as presented in the Scoping Report and the potential locations of the substation, BESS and operation and maintenance yard.

Further refinements to the project layout will be made during preparation of the EIS in response to the findings of detailed assessments and feedback from engagement with the view to avoid or minimise environmental and social impacts.

## 5 SIA research methodologies and engagement

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### 5.1 SIA research methodologies

The Social Impact Assessment Guidelines for State Significant Projects refers to the need for secondary and primary data sources to inform the SIA process. The scoping phase has identified a range of social matters of relevance to various people. These will be assessed during the EIS phase using both primary and secondary data sources to help inform the assessment.

Engagement is both a primary and secondary data source. As a primary data source, engagement will be used by the SIA Practitioner to gather first-hand insights into what people value and how they expect the project to affect them. The SIA will also use outcomes from engagements undertaken by the ENGIE Project Team as a secondary data source.

Engaging in SIA is important for building trust and collaboration, improving project and policy outcomes, and meeting legal and regulatory requirements. By considering the social impacts of projects and policies, decision-makers can ensure that they are making informed decisions that promote the well-being of all members of society. The SIA process can help build trust and collaboration between decision-makers and community members. This can help to ensure that the needs and concerns of community members are heard and considered in decision-making processes.

The proposed techniques that will be used to achieve the desired SIA engagement outcomes are shown in Table 5.1.

**Table 5.1 SIA engagement approach and justification**

Description	Justification for approach	Targeted people and community groups	Engagement lead	Related social impact category
<b>Engagement Technique: Semi-structured interviews</b>				
Interviews will be used to further explore the social impacts of the project and to collect data, evidence, and insights for those people nearest to the project and most impacted by changes to their surrounding and amenity. They will also be used for focused discussions with key community groups regarding the change in access to community services. The semi-structured interview format provides a flexible structure which allows the interviewer to create and ask questions about situations as they emerge, and the interviewee to digress and express views freely. It will help to inform the assessment for those social impacts identified as needing a 'detailed' level of assessment in the EIS.	<ul style="list-style-type: none"> <li>Consulting to collect information and insights</li> <li>Understanding the impact of the project</li> <li>Improving project and making more informed decisions in relation to proposed mitigation and management measures</li> </ul>	<ul style="list-style-type: none"> <li>Nearby neighbours including those within the visual catchment,</li> <li>First Nations, Aboriginal and Torres Strait Islanders,</li> <li>community groups,</li> <li>local business and suppliers.</li> </ul>	SIA Consultant	Way of life Surroundings Livelihoods Access
<b>Engagement technique: Online forums / face to face meetings / walk on Country / workshops or focus groups</b>				
This technique presents opportunities to generate two way discussions with community groups and organisations relating to specific impacts. For example, impact on community infrastructure and services is a key conversation with Council.	<ul style="list-style-type: none"> <li>Consulting to collect information and insights</li> <li>Help to identify the distribution of costs and benefits of the project among different social groups</li> <li>Understanding the impact of the project</li> </ul>	<ul style="list-style-type: none"> <li>Key stakeholder groups specific to relevant impact themes, e.g., those within the visual catchment, those along access and haulage routes, Aboriginal and Torres Strait Islanders, emergency services, Council and developers of nearby sites</li> </ul>	SIA Consultant / ENGIE Project Team	Access Community Culture

Description	Justification for approach	Targeted people and community groups	Engagement lead	Related social impact category
	<ul style="list-style-type: none"> <li>Improving project and making more informed decisions in relation to proposed mitigation and management measures</li> </ul>			
<b>Engagement technique: Information Sessions contact points (e.g., phone, email)</b>				
Helping people to understand the role of the social impact assessment, identify affected and interested people, groups, organisations and communities. Provide people with a forum to identify social impacts in relation to the project	<ul style="list-style-type: none"> <li>Sharing information with opportunities to collect insights to further inform the project design, refinements and proposed mitigation and management measures</li> </ul>	<ul style="list-style-type: none"> <li>Broader community within the social locality</li> </ul>	ENGIE Project Team with SIA Consultants in attendance	All
<b>Engagement technique: Fact sheets / newsletters</b>				
Provide input into project information prepared by ENGIE to help people understand the social impact assessment and ways that they can get involved	<ul style="list-style-type: none"> <li>Sharing information</li> </ul>	<ul style="list-style-type: none"> <li>Broader community within the social locality</li> </ul>	ENGIE Project Team	All



## 6 Conclusion

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This report documents the process and outcomes of the scoping phase of the SIA to be undertaken for the project. Specifically, it has:

- demonstrated an understanding of the project's social locality
- considered the characteristic of the communities within the social locality (the social baseline)
- identified likely social impacts for different groups in the social locality and the level of assessment required for the assessment phase.

The report has identified key social impacts that require varied levels of assessment as part of the EIS and future stages of SIA for this project to analyse and predict the unmitigated and mitigated social impacts and develop strategies to avoid or mitigate negative impacts and enhance positive impacts.

Subsequent phases of the SIA program will include:

- a detailed update of the baseline social profile to ensure that any further baseline data relevant to the impacts identified is obtained
- further validation of the area of social influence and identification of affected communities and vulnerable groups
- collection of primary research data through participatory engagement methodologies to understand the perceptions of the identified stakeholders within the social locality and those indirectly affected by the project
- a comprehensive assessment and evaluation of social impacts against existing baseline conditions.

The SIA will seek broader involvement across the stakeholder groupings identified, over the subsequent phases of the EIS. This includes further engagement with Council, businesses and the community regarding impacts related to community benefits, accommodation and services.

The scoped issues will be further explored and validated during the EIS preparation phase using several research methodologies, including a participatory and impartial engagement approach to inform the SIA. This engagement will build upon the engagement carried out by ENGIE as part of the development of the EIS.

## 7 References

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- Australian Bureau of Statistics 2021 and 2016, Quick Stats
- Australian Bureau of Statistics 2021 and 2016, Community Profiles
- Australian Government, Labour Market Information Portal, September 2022 quarter
- Bhattacharjee, A. (2012). Social Science Research: Principles, methods and practices
- Bradshaw and Stratford, Qualitative research design and rigour (January 2005)
- DPE, Social Impact Assessment Guideline (November 2021)
- DPE, Technical Supplement, Social Impact Assessment Guideline for State Significant Projects (November 2021)
- Id.community (2023) Yass Valley <https://profile.id.com.au/yass-valley>
- The Tablelands Regional Community Strategic Plan 2016-2036 (December 2016)
- Torrens University Australia, Social Health Atlas, <https://phidu.torrens.edu.au/social-health-atlases/data#social-health-atlases-of-australia-local-government-areas>
- Remplan, Yass Valley Council, <https://app.remplan.com.au/>
- Yass Valley Community Strategic Plan 2042 (2022)
- Yass Valley Council website <https://www.yassvalley.nsw.gov.au/our-community/your-valley/yass-valley-history/> (accessed March 2023)

## Appendix 1 Project Stakeholders

Stakeholder group	Stakeholder name	Potential interests relevant to the project
<b>Government</b>		
Local	Yass Valley Council	<ul style="list-style-type: none"> <li>• construction and operational traffic impacts and potential road upgrades</li> <li>• employment and workforce opportunities</li> <li>• broader benefits and stimulation of the regional economy</li> <li>• construction workforce accommodation strategy</li> <li>• materials to be used in construction</li> <li>• construction and operational noise and visual amenity impacts</li> <li>• waste quantities and disposal</li> <li>• agriculture and land use</li> <li>• community consultation</li> </ul>
	Yass Valley Councillors	<ul style="list-style-type: none"> <li>• Mayor Allan McGrath</li> <li>• Deputy Mayor Jasmin Jones</li> <li>• Councillor Adrian Cameron</li> <li>• Councillor Cayla Pothan</li> <li>• Councillor Cecil Burgess OAM</li> <li>• Councillor Jim Abbey</li> <li>• Councillor Kim Turner</li> <li>• Councillor Kristin Butler</li> <li>• Councillor Mike Reid</li> </ul>
State	The Hon. Wendy Tuckerman MP (NSW Member for Goulburn, Minister for Local Government)	<ul style="list-style-type: none"> <li>• project details, assessment pathway and timing</li> <li>• approach to community and stakeholder engagement</li> <li>• adequate assessment of environmental impacts and ongoing environmental management</li> <li>• role of the project in the context of the Government's electricity infrastructure roadmap</li> <li>• social and economic benefits to the local community from the project</li> </ul>
	NSW Energy Minister Penny Sharpe	<ul style="list-style-type: none"> <li>• project details, assessment pathway and timing</li> <li>• approach to community and stakeholder engagement</li> <li>• adequate assessment of environmental impacts and ongoing environmental management</li> <li>• role of the project in the context of the Government's electricity infrastructure roadmap</li> </ul>
	DPE	<ul style="list-style-type: none"> <li>• project details, assessment pathway and timing</li> <li>• approach to community and stakeholder engagement</li> <li>• adequate assessment of environmental impacts and ongoing environmental management</li> <li>• role of the project in the context of the Government's electricity infrastructure roadmap</li> </ul>

Stakeholder group	Stakeholder name	Potential interests relevant to the project
	DPE – BCS	<ul style="list-style-type: none"> <li>• biodiversity impacts</li> <li>• biodiversity offsets</li> <li>• Aboriginal and historic heritage</li> <li>• water and soils</li> <li>• flooding</li> </ul>
	DPI – Agriculture	<ul style="list-style-type: none"> <li>• sediment and erosion controls</li> <li>• closure strategy</li> <li>• land capability</li> <li>• land use</li> <li>• biosecurity</li> <li>• amenity impacts from traffic</li> </ul>
	DPI – Fisheries	<ul style="list-style-type: none"> <li>• aquatic ecology</li> <li>• waterway crossings</li> <li>• riparian vegetation</li> </ul>
	DPI – Water and the NSW Department of Natural Resources Access Regulator	<ul style="list-style-type: none"> <li>• watercourses</li> <li>• water supply arrangements</li> <li>• surface water and groundwater impacts</li> <li>• flooding</li> <li>• erosion and sediment control</li> </ul>
	EPA	<ul style="list-style-type: none"> <li>• dust emissions</li> <li>• storage of chemicals, fuels and batteries</li> <li>• noise and vibration</li> <li>• waste management</li> <li>• surface water protection</li> </ul>
	Heritage NSW	<ul style="list-style-type: none"> <li>• impacts to Aboriginal cultural heritage</li> <li>• historic heritage</li> </ul>
	Transport for NSW	<ul style="list-style-type: none"> <li>• traffic impacts</li> </ul>
	Fire and Rescue NSW	<ul style="list-style-type: none"> <li>• bushfire hazards and emergency planning</li> </ul>
	NSW Rural Fire Service	<ul style="list-style-type: none"> <li>• bushfire hazards and emergency planning</li> <li>• impacts to asset protection zones</li> </ul>
	South East Local Land Services (LLS)	<ul style="list-style-type: none"> <li>• impacts to Aboriginal cultural heritage</li> <li>• land use</li> <li>• biosecurity</li> </ul>
	Office of The Registrar: Aboriginal Land Rights Act (ALRA)	<ul style="list-style-type: none"> <li>• impacts to Aboriginal cultural heritage</li> </ul>
	Service NSW Crown Lands Office	<ul style="list-style-type: none"> <li>• development on Crown lands</li> </ul>
Commonwealth	Hon Kristy McBain MP (Commonwealth Member for Eden-Monaro, Minister for	<ul style="list-style-type: none"> <li>• project details, assessment pathway and timing</li> <li>• approach to community and stakeholder engagement</li> <li>• adequate assessment of environmental impacts and ongoing environmental management</li> </ul>



Stakeholder group	Stakeholder name	Potential interests relevant to the project
	Regional Development, Local Government and Territories)	<ul style="list-style-type: none"> <li>role of the project in the context of the Government's electricity infrastructure roadmap</li> <li>social and economic benefits to the local community from the project</li> </ul>
	DCCEEW	<ul style="list-style-type: none"> <li>impacts to MNES under the EPBC Act</li> </ul>
	National Native Title Tribunal	<ul style="list-style-type: none"> <li>impacts to Aboriginal cultural heritage</li> </ul>
	Australian Energy Market Operator (AEMO)	<ul style="list-style-type: none"> <li>connection to the national electricity transmission network</li> </ul>
<b>Community</b>		
Directly involved landowners	Host landholders	<ul style="list-style-type: none"> <li>general and detailed project information</li> <li>land acquisition, leasing and access</li> <li>mitigation and management of potential impacts</li> </ul>
	Associated landholders	<ul style="list-style-type: none"> <li>general and detailed project information</li> <li>neighbour agreements</li> <li>mitigation and management of potential impacts</li> </ul>
Residences with potential direct or indirect visual and / or amenity impacts	Non-associated landholders	<ul style="list-style-type: none"> <li>general and detailed project information</li> <li>amenity impacts</li> <li>conflict with adjacent land use</li> <li>mitigation and management of potential impacts</li> </ul>
Residences without potential direct or indirect visual and amenity impacts but within the Yass township / within 5km	Local community	<ul style="list-style-type: none"> <li>general project information</li> <li>amenity impacts</li> <li>mitigation and management of potential impacts</li> <li>explore potential for involvement in the project</li> </ul>
Broader community located outside the locality (i.e. greater than 5km)	Broader community	<ul style="list-style-type: none"> <li>general project information</li> <li>mitigation and management of potential impacts</li> </ul>
Aboriginal community and stakeholder groups	<p>Registered Aboriginal Parties (consulted in accordance with <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010</i> (DECCW))</p> <p>Onerwal Local Aboriginal Land Council (LALC)</p>	<ul style="list-style-type: none"> <li>general project information</li> <li>Aboriginal heritage</li> <li>adequacy of consultation</li> <li>mitigation and management of potential impacts to items of heritage significance</li> </ul>

Stakeholder group	Stakeholder name	Potential interests relevant to the project
	Ngunnawal Nation Traditional Owners Network Group	
Local businesses and community service providers	Various	<ul style="list-style-type: none"> <li>• general project information</li> <li>• project benefits and opportunities</li> <li>• impacts on the local community, infrastructure and services</li> <li>• mitigation and management of potential impacts</li> </ul>
Nearby projects	Springvale Solar Farm	<ul style="list-style-type: none"> <li>• cumulative impacts</li> </ul>
	Conroy's Gap Wind Farm	<ul style="list-style-type: none"> <li>• cumulative impacts</li> </ul>
	Bango Wind Farm	<ul style="list-style-type: none"> <li>• cumulative impacts</li> </ul>
	Yass Valley Wind Farm	<ul style="list-style-type: none"> <li>• cumulative impacts</li> </ul>
Local media	Yass Tribune	<ul style="list-style-type: none"> <li>• general project information</li> <li>• project benefits and opportunities</li> <li>• impacts on the local community, infrastructure and services</li> </ul>
	Yass Valley Times	<ul style="list-style-type: none"> <li>• general project information</li> <li>• project benefits and opportunities</li> <li>• impacts on the local community, infrastructure and services</li> </ul>
	Yass Valley community group Facebook Page	<ul style="list-style-type: none"> <li>• general project information</li> <li>• project benefits and opportunities</li> <li>• impacts on the local community, infrastructure and services</li> </ul>
	Yass FM	<ul style="list-style-type: none"> <li>• general project information</li> <li>• project benefits and opportunities</li> <li>• impacts on the local community, infrastructure and services</li> </ul>
Special interest groups	Local community action group/s including Yass Solar Action Group	<ul style="list-style-type: none"> <li>• general project information</li> <li>• cumulative impacts</li> <li>• mitigation and management of potential impacts</li> </ul>
	Clean Energy Council	
	NSW Farmers Association	
<b>Network Service providers</b>		
Electricity grid	TransGrid	<ul style="list-style-type: none"> <li>• connection to transmission infrastructure for evacuation of the electricity generated by the project</li> </ul>
Distribution network	Essential Energy	<ul style="list-style-type: none"> <li>• connection to the distribution network for auxiliary supply</li> </ul>

## Appendix 2 Community profile datasets

### Data sources:

- Primary Health Network, LGA Population Health Snapshot (2021) (PHIDU)
- Australian Bureau of Statistics 2021, quick stats
- Australian Bureau of Statistics 2021, Community Profiles

Indicator	Good Hope	Marchmont	Yass Valley LGA	NSW
<b>People - Demographics and Education (Source ABS 2021)</b>				
Total population (2021)	159	285	17281	8072163
Male	44.2%	44.6%	49.2%	49.4%
Female	55.8%	55.4%	50.8%	50.6%
Aboriginal and/or Torres Strait Islander people	3.1%	1.8%	3.2%	3.4%
<b>Age Structure (Source ABS 2021)</b>				
% Population under 14 and under	14.8%	22.0%	19.8%	18.2%
% Population over 65 years.	21.0%	16.3%	12.6%	17.7%
Median Age (years)	44	42	43	39
<b>Social Marital status (Source ABS 2021)</b>				
Registered Married	58.5%	64.9%	54.1%	47.3%
De facto marriage	3.8%	7.3%	12.4%	10.6%
Not married	37.7%	27.7%	33.5%	42.1%
<b>Education</b>				
Pre-school	6.7%	2.9%	6.8%	6.8%
Infants/Primary	22.2%	41.7%	31.2%	26.5%
Secondary	31.1%	22.3%	25.3%	20.9%
Technical or Further Educational Institution	8.9%	4.9%	8.4%	8.5%
University or other Tertiary Institution	11.1%	4.9%	10.8%	15.3%
Other type of educational institution	8.9%	0.0	2.3%	3.0%
Not stated	24.4%	20.4%	15.6%	19.0%
<b>Level of highest education attainment (Source ABS 2021)</b>				
Bachelor's degree level and above	15.9%	32.1%	27.2%	27.8%
Advanced Diploma and Diploma level	12.1%	8.4%	10.2%	9.3%
Certificate level IV	5.3%	2.3%	4.1%	3.3%

Indicator	Good Hope	Marchmont	Yass Valley LGA	NSW
Certificate level III	17.4%	11.6%	13.8%	11.7%
Year 12	8.3%	13.5%	14.2%	14.5%
Year 11	3.8%	1.4%	3.3%	3.2%
Year 10	10.6%	9.8%	10.9%	10.6%
Certificate level II	0.0	0.0	0.1%	0.1%
Certificate level I	0.0	0.0	0.0	0.0
Year 9 or below	8.3%	7.4%	6.4%	7.4%
No educational attainment	0.0	0.0	0.3%	1.0%
Not stated	9.1%	10.7%	6.9%	8.3%
<b>People - cultural and language diversity (Source ABS 2021)</b>				
Australian ancestry	49.1%	53.3%	45.0%	28.6%
English ancestry	44.7%	33.7%	42.8%	29.8%
Scottish ancestry	15.1%	13.3%	12.3%	7.7%
Irish ancestry	5.0%		13.9%	9.1%
German ancestry	4.4%	3.5%	4.5%	3.0%
<b>Country of birth</b>				
Australia	86.8%	80.0%	84.1%	65.4%
<b>Languages (Source ABS 2021)</b>				
English only spoken at home	91.8%	88.1%	91.1%	67.6%
<b>Employment Type (Source ABS 2021)</b>				
Worked Full Time	62.8%	66.9%	61.4%	55.2%
Worked part-time	24.5%	25.7%	29.8%	29.7%
Away from work	8.5%	3.7%	6.1%	10.2%
Unemployed	0.0	4.4%	2.7%	4.9%
Labour force participation (15-85 years) (including those are unemployed looking)	71.2%	63.3%	66.8%	58.7%
<b>Occupation (Source ABS 2021)</b>				
Managers	34.1%	26.0%	20.5%	14.6%
Professionals	19.8%	22.9%	21.7%	25.8%
Technicians and Trades Workers	15.4%	9.9%	14.3%	11.9%
Clerical and Administrative workers	9.9%	12.2%	13.3%	13.0%
Sales Workers	7.7%	5.3%	5.9%	8.0%
<b>Industry of employment (Source ABS 2021) (Top 5)</b>				



Indicator	Good Hope	Marchmont	Yass Valley LGA	NSW
Sheep Farming (Specialised)	15.4%		2.6%	0.2%
Primary Education	8.8%	3.8%	2.6%	2.1%
Sheep-Beef Cattle Farming	4.4%			0.1%
Site Preparation Services	4.4%			0.3%
Central Government Administration	4.4%	10.7%	7.6%	0.8%
Hospitals (except Psychiatric Hospitals)		6.1%		4.2%
Computer System Design and Related Services		3.8%		2.3%
Non-Residential Building Construction		3.1%		0.7%
<b>Median weekly income (Source ABS 2021)</b>				
Personal	982	1139	1050	813
Family	1958	3250	2701	2185
Households	1906	3187	2289	1829
<b>Method of Travel to Work (Source ABS 2021)</b>				
Walked only	5.5%	2.3%	3.1%	2.5%
Worked at home	18.7%	25.2%	15.8%	31.0%
by car as driver or passenger	58.2%	64.9%	67.3%	47.2%
Public Transport	0.0	3.1%	1.0%	4.0%
<b>Unpaid work (Source ABS 2021)</b>				
did unpaid domestic work	76.0%	82.2%	78.1%	66.5%
cared for child/children	25.2%	31.4%	30.2%	25.3%
provided unpaid assistance to a person with a disability	14.7%	11.7%	14.0%	11.5%
did voluntary work through an organisation or group	26.9%	24.9%	22.2%	13.0%
<b>Family composition (Source ABS 2021)</b>				
Couple family with no children	47.6%	37.7%	40.8%	37.9%
Couple family with children	35.7%	51.9%	47.0%	44.7%
One parent family	7.1%	9.1%	11.5%	15.8%
Other family	0.0	0.0	0.7%	1.6%
<b>Employment status of couple families (Source ABS 2021)</b>				
Both employed, worked full-time	40.0%	30.4%	29.8%	21.7%
Both employed, worked part-time	8.6%	4.3%	4.3%	4.7%
One employed full-time, one part-time	20.05	30.4%	23.7%	18.2%
One employed full-time, other not working	11.4%	4.3%	9.9%	12.3%

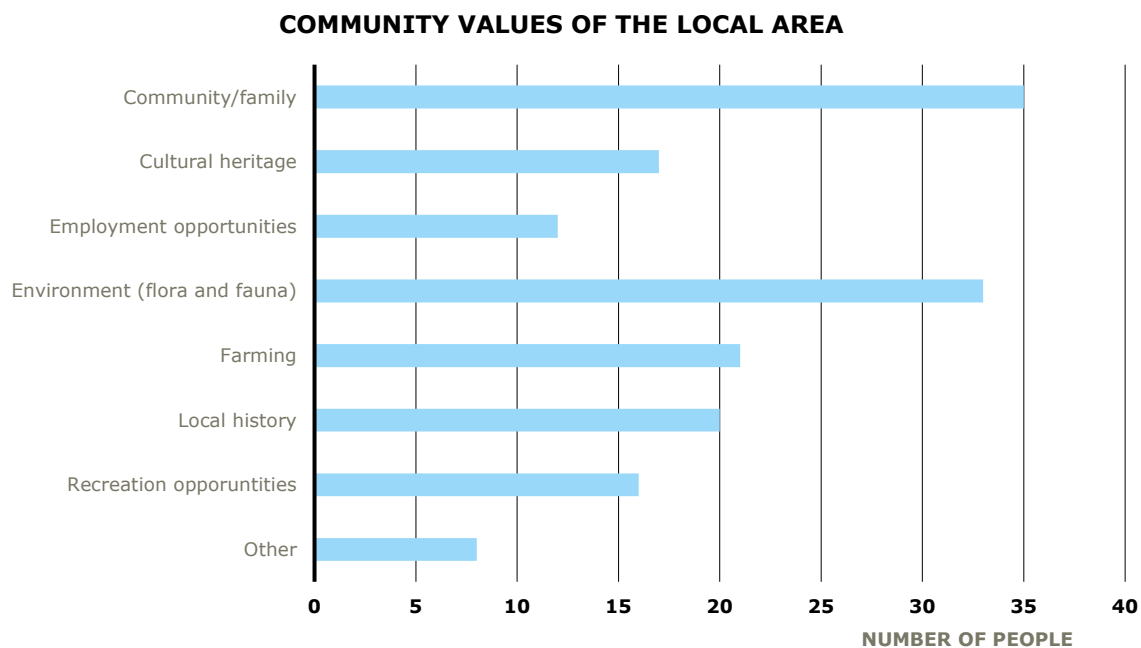
Indicator	Good Hope	Marchmont	Yass Valley LGA	NSW
One employed part-time, other not working	0.0	0.0	5.4%	22.9%
Both not working	14.3%	18.8%	16.9%	22.9%
other (includes away from work)	14.3%	0.0	6.8%	10.3%
Labour force status not stated	20.0%	0.0	3.4%	3.7%
<b>Dwellings</b>				
Occupied private dwellings	96.6%	91.8%	91.8%	90.6%
Separate house	91.2%	100%	94.3%	65.6%
Semi-detached, row or terrace house, townhouse etc.	0.0	0.0	3.4%	11.7%
Flat, unit or apartment	0.0	0.0	1.4%	21.7%
Other dwelling	7.0%	0.0	0.2%	0.7%
Average number of bedrooms per dwelling	3.6%	4	3.6	3.1
Average number of people per household	2.6	3.2	1.3	2.6
Owned outright	36.8%	29.5%	34.6%	31.5%
Owned with a mortgage	40.4%	66.7%	46.0%	32.5%
Rented	10.5%	7.7%	15.6%	32.6%
Tenure type not stated	0.0	0.0	1.2%	1.5%
<b>Household composition (Source ABS 2021)</b>				
Family	62.7%	85.9%	78.5%	71.2%
Single (or lone)	32.2%	14.1%	20.0%	25.0%
Group households	5.1%	0.0	1.5%	3.8%
<b>Household income (Source ABS 2021)</b>				
Less than \$650 gross weekly income	15.1%	0.0	11.0%	16.3%
More than \$3000 gross weekly income	34.0%	55.1%	37.6%	26.9%
Median rent	300	340	350	420
Households where rent payments are less than 30% of householder income	100%	100%	62.7%	56.1%
Households with rent payments greater than or equal to 30% of household income	0.0	0.0	26.2%	35.5%
Median mortgage repayments	2266	2644	2167	2167
Households where mortgage payments are less than 30% of householder income	47.8%	88.5%	78.5%	71.9%
Households with mortgage payments greater than or equal to 30% of household income	43.5%	9.6%	10.8%	17.3%
<b>Car ownership per dwelling (Source ABS 2021)</b>				
None	0.0	0.0	2.3%	9.0%

Indicator	Good Hope	Marchmont	Yass Valley LGA	NSW
One	27.1%	21.4%	23.1%	37.8%
Two	33.3%	46.4%	38.8%	34.1%
Three or more	33.3%	32.1%	34.7%	17.5%
Not stated	6.2%	0.0	1.1%	1.5%
<b>Population mobility (address) (Source ABS 2021 Community Profile)</b>				
Proportion of population with a different address 1 year ago	80.5%	84.9%	84.1%	79.4%
Proportion of population with a different address 5 years ago	70.1%	58.1%	59.8%	53.9%
<b>At risks and vulnerable groups</b>				
Aboriginal and/or Torres Strait Islander people	3.1%	1.8%	3.2%	3.4%
Provided unpaid assistance to a person with a disability (last two weeks before Census night) (%)	14.7%	11.7%	14.0%	11.5%
Highest Educational attainment: Year 9 or below (%)	8.3%	7.4%	6.4%	7.4%
Population aged 65+ (%)	21.0%	16.3%	12.6%	17.7%
SEIFA Index of Relative Socio-economic Disadvantage (IRSD) (2016)			1,062	

## Appendix 3 Community attitude survey outcomes

47 responses have been received (to date) to an online community attitudes survey published by ENGIE from November 2022 to current (refer Appendix 3). A summary of outcomes to date are captured in the three following figures.

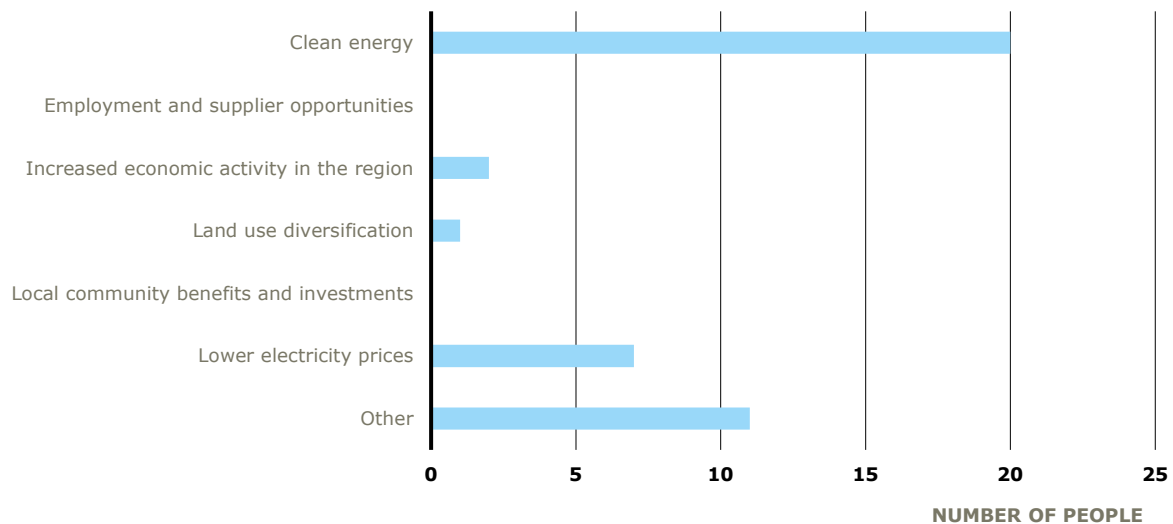
Please note, this survey was designed by ENGIE without any input from AAP Consulting and outcomes are considered a secondary source of information only.



(N=47 respondents with multiple responses allowed)

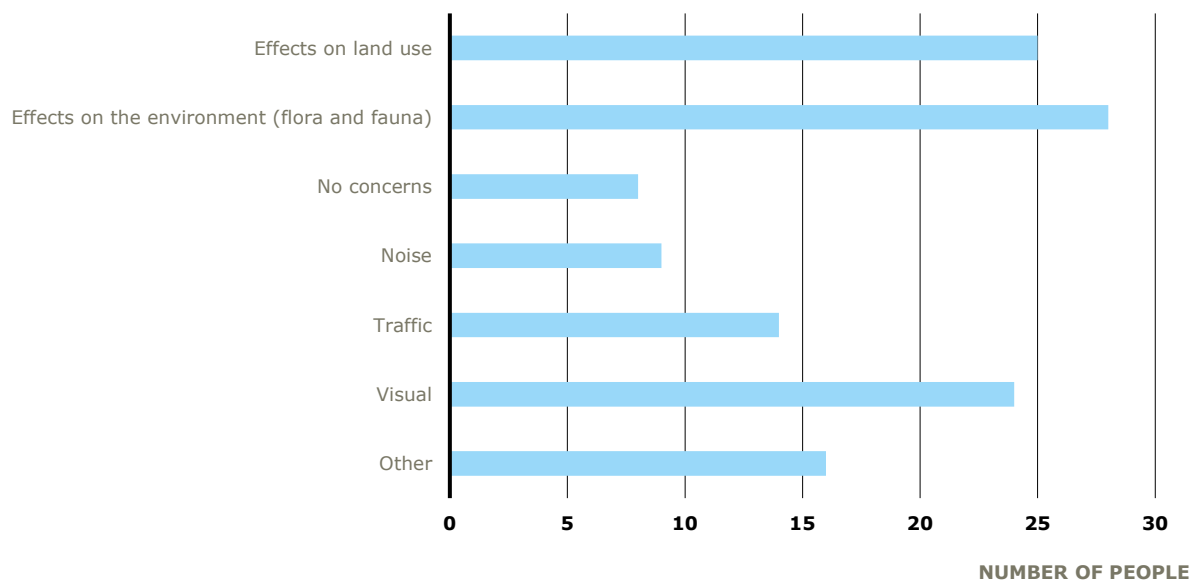


## COMMUNITY PERCEPTION OF PROJECT BENEFITS



(N=47 respondents with multiple responses allowed)

## COMMUNITIES MAIN CONCERNS OF THE PROJECT



(N=47 respondents with multiple responses allowed)

## Appendix 4 Authors certification

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I, Angela Peace, certify that this SIA Scoping Report contains all information relevant to the SIA for the project, and that the information is not false or misleading. My qualifications and experiences are listed below.

### Qualifications and Professional Memberships:

- Bachelor of Arts (Communications)
- Social Impact Assessment Certificate, University of Strathclyde and Community Insights Group (2020)
- Member, International Association of Impact Assessment (membership no. 10499330)
- Member, International Association of Public Participation
- Member, Social Impact Measurement Network Australia
- Member, Environmental Institute of Australian and New Zealand Inc.

### Experience:

The author is experienced in social science methodologies and has demonstrated SIA skills in government, private and education settings. Angela is a Social Impact and Community Engagement Specialist and has managed SIAs for extractive industries, waste recovery, transport infrastructure, recreational facilities and energy projects in NSW and the ACT, including State Significant Projects.

Date: 21 November 2023

## **APPENDIX 6**

### **HISTORIC HERITAGE ITEM LIST YASS VALLEY COUNCIL LEP**

<b>Heritage ID</b>	<b>Heritage item/place</b>
I165	Soldiers- Memorial Hall
I262	Chief Constables- residence and grounds
I177	Triggs- office (former)
I136	Montrose-house
I182	Mechanics- Institute (former)
I222	Rathluba
I215	House
I199	Yass tramline
I193	Ashby
I241	Rose cottage and kitchen building
I167	Commercial building
I191	Drinking fountain, Coronation Park
I176	Commercial building
I201	Squatters Home Inn (stone outbuildings)
I140	Pair of semi-detached cottages
I195	Devonia
I210	Fifield and garden
I173	Commercial building
I207	Brick cottage
I153	Bank and post office (former)
I205	Crona
I238	Brick cottage
I282	Hardwicke
I281	Margolly
I268	Cottage (pre-1898)
I246	Brick cottage
I134	Pair of semi-detached cottages
I265	Goodradigbee Shire Council Chambers (1910) (former)
I224	Brick house
I277	The Parsonage
I248	Holly Lynne cottage
I245	Fermanagh
I145	Weatherboard cottage
I243	The Cabin
I257	Brick and stone cottage
I249	Corona
I252	Benochy
I194	Yass Town Railway Station and yard group
I275	Weatherboard cottage
I192	The Australian Arms (former)
I198	Yass Town railway bridge over Yass River
I231	Trigg memorial gateway and memorial obelisk, Victoria Park



I170	National Australia Bank, residence, stables and hitching posts
I270	Cottage (pre-1898)
I212	Weatherboard cottage
I160	Oddfellows- Hall
I196	Boree-log cottage
I256	Brick cottage
A300	Kenilworth ruins and trees
I144	Brick house
I278	Shantalla
I260	Darcyville
I280	Yass railway weir
I271	Cottage
I264	Ronnoco
A288	Town Camp (former)
I140	Pair of semi-detached cottages
I183	Commonwealth Bank (former)
I139	Attached cottages
I168	Yass Post Office and hitching posts
I154	Rose Inn
I184	Commercial building
I223	Brick house
I211	Stone cottage
I155	Yass Courthouse, Police Station and grounds
I143	Brick house
I266	The Globe Hotel (former)
A287	Oak Hill (former Aboriginal Reserve)
I218	Albury Villa
I267	Cottage (pre-1898)
I253	Ronola
I181	Australian Hotel
I202	Cottage
I213	Cottage
I236	Brick house
I169	Commercial building
I188	Club House Hotel
I166	Cafe and residence
I162	Allambee Club
I149	Brick house and garden
I156	General store (former)
A303	Ruins of Telegraph Inn
I179	Westpac Bank
I221	The Elms
I190	Pair of semi-detached cottages

I239	Cottage
I186	Liberty Cafe
I228	Brick and rubble stone cottage
I151	Brick house and garden
I227	Slab cottage
I251	Brick cottage
I217	Linton and garden
I146	Weatherboard cottage
I230	Cliftonwood
I273	Masonic Hall
I187	Liberty Theatre
I225	Yass Showground group
I161	Herfort building
I180	State Bank (former)
I214	Taralula
I175	Commercial building
I283	Cooma Cottage
I258	Brick house
I274	The Manse
I219	Douro
I142	Brick house
I203	Brick cottage
I171	Commercial building
I150	Brick house
I174	Commercial building
I208	Fairy Hole Inn
I197	Weatherboard cottage
I247	Brick cottage
I279	Brick cottage
I157	Shops (former Oriental Bank, later Williamson Building)
I172	Royal Hotel
I272	Brick cottage
I237	Hawthorn
I163	Commercial building
I233	Rosebank
I216	Rose Cottage
I242	Yass Fire Station
I232	Yass Public School and grounds
C4	Yass
I220	Kerrowgair
I159	Commercial building
I152	Aberlour and stables
I240	Brick cottage

I235	Brick house
I269	Cottage
I250	Brick cottage
I244	Stonehaven
I158	Commercial building
I200	Brick cottage
I276	Methodist church (former)
I209	Yass Junction Railway Station
I259	Iona
I226	Catholic pioneer cemetery with grave of Thomas Laidlaw
I178	Coens- Department Store (former)
I204	Mt Carmel School, presbytery, chapel, St Augustine's Hall, Convent of Mercy, Mt Carmel School
I263	Police Sergeant's residence and stables
I138	St Clement's Anglican Church and cemetery
I206	Station master's house (former)
I137	St Clement's Anglican rectory
I229	Yass Cemetery (includes Hamilton Hume's grave)
I148	St Andrew's Uniting Church
A301	Hatton's Corner
I189	Crago's Mill (former)
I261	Chinaman's Creek culvert
I135	Milltown-house
I164	R. Caspers- building
I147	Weetalabah-house
I234	Cobblestone Drain
A301	Hatton's Corner