ATTACHMENTS

ORDINARY MEETING

Thursday 19 March 2026
10:00am
Council Chambers

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Upper Lachlan Shire Council

All correspondence addressed to the Chief Executive Officer, PO Box 42, Gunning NSW 2581 p: 02 48301000 I e: council@upperlachlan.nsw.gov.au I www.upperlachlan.nsw.gov.au

Crookwell Office: 44 Spring Street, Crookwell NSW 2583
Gunning Office: 123 Yass Street, Gunning NSW 2581

28 February 2026

NSW Department of Planning and Environment
Energy Assessments
4 Parramatta Square
12 Darcy Street
PARRAMATTA NSW 2150

Dear Nicholas,

Re: Request for comments on the Environmental Impact Statement – Merion Solar Farm (SSD-59155459)

Thank you for the opportunity for Upper Lachlan Shire Council to provide advice on the Environmental Impact Statement (EIS) for the Merino Solar Farm.

Please note that this submission has been prepared by Council officers. The exhibition period provided did not permit sufficient time for a report to be presented to Council for endorsement, within the exhibition window. The matter will be presented to Council at the 19 March 2026 Ordinary Meeting of Council.

A supplementary submission will be prepared for Council and submitted to the Department of Planning, Housing and Infrastructure (the Department) following this Ordinary Council meeting.

Council have reviewed the EIS and Goulburn Mulwaree Council submission, and have identified the following items for the consideration of DPHI in its assessment of the project:

Key Matters for Consideration

Having regard to the documentation provided, Council staff raise several concerns in relation to:

- Landscape and visual impacts
- Cumulative impacts across the region
- Agricultural land fragmentation and long-term land capability
- Accommodation and workforce pressures
- Biodiversity outcomes

This report outlines Council's staff assessment of the environmental impacts statement and makes recommendation for further considerations in relation to the proposal.

Landscape and Visual Impact

Scale and Scenic Character

The proposal comprises approximately 870,000 single-axis tracker panels across a footprint of approximately 767 hectares, within a broader project area approaching 1,000 hectares.

The scale of this development is substantial and will materially alter the rural landscape character of the Gundary Plain and surrounding agricultural vistas. The open, gently undulating grazing landscape currently provides:

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- A distinctive rural character.
- Key view corridors from elevated locations.
- A transition landscape between Goulburn and the rural hinterland.
- An important scenic entry experience along Windellama Road.

The Landscape and Visual Assessment (LVA) conclude moderate-to-low impact in most character zones. However, Council considers the methodology to underestimate real-world experiential impact due to:

- Reliance on 2D photomontages without depth perception.
- Limited public viewpoint analysis.
- Technical errors and missing photomontages (R05, R30, R32).
- Limited cumulative visual modelling with other solar projects.

Cumulative Visual Impact

The cumulative impact with the proposed Gundary Solar Farm has not been robustly demonstrated. While sequential viewing is acknowledged, the assessment concludes impacts are "low" without detailed modelling of sequential corridor experience along Windellama Road.

Given the scale of both projects, the combined transformation of the rural landscape is likely to be significant and enduring over the 35-year operational life.

Council recommends:

- Full independent peer review of the Landscape and Visual Assessment.
- Correction and reissue of Appendix D photomontages.
- Expanded cumulative modelling including all nearby renewable energy projects.
- On-site verification during DPHI inspection.

Agricultural Impact

The Agricultural Impact Assessment (AIA) confirms:

- Predominantly Class 5 land (with some Class 6 along creek lines);
- No State Significant or Biophysical Strategic Agricultural Land;
- Dominant grazing use, with limited winter cropping.

While the land is not State-significant agricultural land, it remains productive grazing country contributing to the local agricultural economy.

Cropping Impact

The AIA identifies that:

- The site contributes 150–200 hectares of cropping annually.
- This represents 6–8% of total cropping area in the Goulburn Mulwaree LGA.

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This reduction is regionally notable, particularly when considered cumulatively with other solar developments.

Solar Grazing Uncertainty

The viability of "solar grazing" is central to minimising agricultural loss. However:

- The AIA states it is unclear whether grazing will occur.
- Significant design adaptation would be required.
- Pasture improvement must occur pre-construction.
- Internal fencing, water systems and panel heights must support grazing.

Council strongly recommends that solar grazing be mandated as a condition of consent, including:

- Integrated grazing management plan.
- Pasture establishment program prior to panel installation.
- Protected wiring and panel clearances.
- Long-term agronomic oversight.

Biodiversity

The project proposes clearing approximately 64 hectares of native vegetation. Council notes contradictions within the EIS regarding tree removal and shelterbelt retention.

More critically, Council is concerned that:

- There is no proposed undertaking for on-site biodiversity enhancement strategy.
- There is no clarity of a revegetation strategy across the remaining 700+ hectares.

Given the scale of the landholding, the proponent should be require to:

- Commit to landscape-scale habitat restoration.
- Enhance connectivity corridors.
- Establish revegetation zones.
- Provide visual screening vegetation.
- Exceed minimum offset obligations.

Accommodation and Employment Impacts

The Accommodation and Employment Strategy understate cumulative regional impacts.When factoring in the below SSD:

- Wattle Creek BESS
- Boro Solar Farm
- Hanworth BESS
- Swallowtail BESS
- Bannaby BESS

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- Blind Creek Solar
- HumeLink

Council recommends:

- Dedicated accommodation coordination role.
- An investigation and monitoring of cumulative accommodation impacts.
- Mandatory local procurement reporting.

Water

Council advises that it has limited capacity to supply potable and non-potable water. Council is unable to guarantee the supply of water required and the cumulative impact of water usage required to facilitate all the SSD within the LGA and neighbouring LGA's.

Waste

The EIS for the proposal outlines waste management measures across the construction, operational, and decommissioning phases. Council raises concern regarding the waste impacts associated with this project and the significant cumulative waste impact of renewable energy developments in the LGA.

Proposal Overview

Based on the concerns raise above, this proposal:

- Is of unprecedented scale in this landscape.
- Has not adequately demonstrated cumulative visual impact mitigation.
- Relies on uncertain solar grazing assumptions.
- Understates cumulative accommodation and workforce pressures.

Accordingly, Council recommends that:

1. The Landscape and Visual Assessment be independently peer reviewed.
2. Solar grazing be mandated through enforceable conditions.
3. A biodiversity enhancement strategy be incorporated.
4. A comprehensive cumulative workforce and accommodation review be undertaken.

Conclusion

The scale and pace of SSD within the Region demands more than isolated, project by -project assessment. Coordinated oversight is required and without this, the cumulative impacts remain poorly managed. The matters raised within the submission will require a complex assessment by DPHI and Council requests the issues be appropriately considered.

Yours Sincerely

Hugh Waters
Manager of Planning and Regulatory Services

DRAFT

Prepared for EDP Renewables

Environmental Impact Statement

Merino Solar Farm

Goulburn, NSW

November 2025

Project Number: 230286

Document verification

Project Title: Merino Solar Farm
Project Number: 230286
Project File Name: 230286_Merino Solar Farm EIS_Final v1.1

Revision	Date	Prepared by	Approved by
Draft v2.0	7/08/2025	Bishal Ghimire, Kyle Mercer, Matt Spann, Brooke Marshall	Brooke Marshall
Final v1.0	19/09/2025	Matt Spann Brooke Marshall	Brooke Marshall
Final v1.1	7/11/2025	Matt Spann Brooke Marshall	

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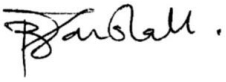
We acknowledge the traditional owners of this land and pay our respect to Elders past, present and emerging. We recognise that the First Nations peoples of Australia have traditionally managed the resources of this land in a sustainable way, and that they are the original stewards of the Australian environment.

REAP declaration

Declaration of registered environmental assessment practitioner	
Name	Brooke Marshall
Registration number	General and Impact Assessment Specialist + Registered Environmental Assessment Practitioner (REAP) certification (IA11090 and REAP certification R80042)
Organisation registered with	NGH Consulting Pty Ltd

The undersigned declares that this EIS:

- Has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2021*
- Contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates
- Does not contain information that is false or misleading
- Addresses the Secretary's Environmental Assessment Requirements (SEARs) for the Project
- Identifies and addresses the relevant statutory requirements for the Project, including any relevant matters for consideration in environmental planning instruments
- Has been prepared having regard to the Department's *State Significant Development Guidelines - Preparing an Environmental Impact Statement*
- Contains a simple and easy to understand summary of the Project as a whole, having regard to the economic, environmental and social impacts of the Project and the principles of ecologically sustainable development
- Contains a consolidated description of the Project in a single chapter of the EIS
- Contains an accurate summary of the findings of any community engagement
- Contains an accurate summary of the detailed technical assessment of the impacts of the Project as a whole.

Signature: 

Date: 07/11/2025

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Acronyms and abbreviations

AC	Alternating current
AEMO	Australian Energy Market Operator
AHIMS	Aboriginal Heritage Information Management System
APZ	Asset Protection Zone
BC Act	Biodiversity Conservation Act 2016 (NSW)
BESS	Battery Energy Storage System
BFEMOP	Bush Fire Emergency Management and Operations Plan
BSAL	Biophysical Strategic Agricultural Land
CBS	Community Benefit Scheme
CCTV	Closed-Circuit Television
Cth	Commonwealth
DPE	Department of Planning and Environment, NSW (now Department of Planning, Housing and Infrastructure)
EDC	Estimated Development Cost
EEC	Endangered Ecological Community – as defined under relevant law applying to the Project
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMF	Electric and Magnetic Fields
EPA	NSW Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EP&A Regulation	Environmental Planning and Assessment Regulation 2021 (NSW)
ESD	Ecologically Sustainable Development
FTE	Full time equivalent
GMRC	Goulburn Mulwaree Regional Council
GW	Gigawatts
ha	hectares

km	kilometres
kw	Kilowatts
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
LUCRA	Land Use Conflict Risk Assessment
m	metres
MW	Megawatts
MNES	Matters of National Environmental Significance, under the EPBC Act
OSOM	Oversized and Over Mass (vehicle)
REP	Regional Environmental Plan
RET	Renewable Energy Target (Australian Government)
REZ	Renewable Energy Zone
RFS	Rural Fire Service
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development

Table of definitions

Applicant	EDP Renewables (EDPR) under the Special Purpose Vehicle (SPV) Merino Solar Farm Pty Ltd
Project	The proposed Merino Solar Farm.
Involved Lots	All lots and easements affected by the Project.
Project area	The full extent of the site investigated prior to identifying the constraints and exclusions [1]. This area includes identified road and transmission line corridors.
Development Footprint	The uppermost area of land that would be impacted by the Project (including during construction, operation and decommissioning).
Indicative infrastructure layout	Shows the indicative location of key infrastructure components and most closely represents the area of operational impact area of the solar farm. The final infrastructure layout will be subject to detailed design with appointed contractors, informed by detailed topographic and geotechnical surveys.
Associated receivers	These dwellings are associated with the Project. As the landowners would host Project infrastructure, they are considered Project-involved and impacts are not required to be assessed for these receivers.
Non-associated receivers	These constructed and / or approved dwellings are not associated with the Project. All potential impacts are assessed for non-associated receivers.

[1] Some specialist reports use alternative terms but, in this EIS, terms have been rationalised as per this table.

Executive summary

Overview

The purpose of this Environmental Impact Statement (EIS) is to assess the economic, environmental and social impacts of the Merino Solar Farm (the Project). The Merino Solar Farm is being proposed by EDPR Australia under the Special Purpose Vehicle (SPV) Merino Solar Farm Pty Ltd (the Applicant).

Project area is located in the Goulburn Mulwaree Local Government Area (LGA) (refer to Figure 1-1). It is approximately:

- 6 km south of Goulburn
- 70 km northeast of Canberra
- 170 km southwest of Sydney

The Project proposed includes the construction, operation and eventual decommissioning of a 450MW alternating current (AC) solar farm that would be connected into the electricity grid. During its operational life of approximately 35 years, it would provide electricity generation and storage, assisting the grid's transition to renewable energy sources, as fossil fuel electricity generation is retired. Key infrastructure components include approximately 870,000 photovoltaic solar panel modules, a 450MW / 1800MWhr Battery Energy Storage System (BESS) with 4-hour storage duration, an enclosed site substation as well as operations and maintenance buildings, internal tracks and perimeter fencing (where required).

The Project's northern and southern sections would be accessed primarily from Windellama Road (north; one access directly through a host landholding) and Painters Lane (south; four accesses via Braidwood Road). In addition, limited use of Gundary Lane (for direct substation access) and an additional emergency access route off Braidwood Road are proposed. A transmission easement will link the northern and southern sections.

The land required for the Project would be leased from seven private host landholdings, currently used for agriculture (grazing). Once constructed, a portion of the substation would be gifted to TransGrid to be managed as part of the grid. Works within TransGrid easements and Council road reserves would be undertaken in consultation with these stakeholders. No Crown Land is affected by the Project. As part of the eventual decommissioning of the Project, the land capability would be retained for continued agricultural (or alternative) land use.

No negotiated agreements with any other landholdings as compensation for impacts are relevant to the Project. Specifically, all visual and noise impacts have been assessed as low / compliant for near neighbours. A Community Benefit Scheme however, is proposed, with specific distribution parameters and initiatives that have been developed to reflect issues raised during community engagement. General terms regarding the amount and administration of the fund have been discussed with Goulburn Mulwaree Council.

Site selection, location and values

Goulburn is the nearest population centre to the Project; an important regional city that will be an advantage in sourcing construction staff and meeting their accommodation requirements, as well providing electricity to the grid near to a consumption centre. Goulburn is also a 'regional city' for the purposes of the State Environmental Planning Policy (Transport and Infrastructure) 2021; Clause 2.42 requires that solar projects within 10km of the site demonstrate they are located to avoid significant conflict with existing or approved residential or commercial uses of the land surrounding the development. They must demonstrate they do not have a significantly adverse impact on the regional city's capacity for growth, or scenic quality and landscape character.

The Project will be located on RU1 Primary Production zoned land, under the Goulburn Mulwaree Local Environmental Plan 2009. It is located on land used for grazing with limited cropping. It is well south of areas of residential expansion shown in local planning instruments. It will be immediately south of an existing airport (Goulburn Airport) and east of the One Raceway (previously Wakefield Park).

Other key regional features include:

- The Project area is located within the Sydney Drinking Water Catchment; further hydrological modelling is progressing in tandem with Project design to inform the specific requirements to achieve a *neutral or beneficial impact* on water quality.
- The Project is not located within a Renewable Energy Zone (REZ) but it is recognised that renewable projects will be required outside REZs to meeting state and federal energy transition targets.
- The Gundary Solar Farm is the nearest Major Project, located approximately 1km to the east. It is in the planning phase (the Gundary Solar Farm Applicant has responded to submissions to the EIS). Potential for cumulative impacts with this and other nearby major projects have been carefully considered.

The Project has demonstrated that it is compatible with these land uses and the visual assessment has determined that, when relevant cumulative impact potential is considered (Merino Solar Farm and Gundary Solar Farm were both approved and constructed), there would not be a significant landscape character impact.

The Project's proposed location and scale are a result of good grid connection and construction cost factors, willingness of host landholders to enter into lease agreements and the ability to manage environmental and social impacts within acceptable limits.

- The Project has been sited to connect into the existing 330kV transmission line with available capacity and can be serviced by the existing road network (with limited upgrades). The Project area has appropriate topography and aspect to accommodate a viable solar farm.
- Seven local landholders, currently operating agricultural enterprises, would host the Project and retain an option for ongoing agricultural use over the Project area in operation (restored in full on decommissioning). Agreements with host landholders include commitments to monitor and return the land in its current land use capability but will also include remediation of sensitive soils and water ways that may enhance the productive capacity and broader catchment benefits.

The key regional and local features relevant to the Merino Solar Farm are mapped below.

Within the Project area of **986ha**, the Applicant seeks to gain consent for a maximum 'Development Footprint' (all areas that may be subject to disturbance to construct and operate the Merino Solar Farm) of **767ha.** The Applicant will then work within this area as the Project progresses into detailed design. After the siting of perimeter fencing, asset protection zones (APZ) and perimeter roads, the final array area is likely be smaller and further from receivers than shown and assessed in this document. This provides conservatism in the assessment of Project impacts and allows for necessary flexibility in detailed design. The key regional features and key site constraints are mapped on Figure A-1 and Figure A-2.

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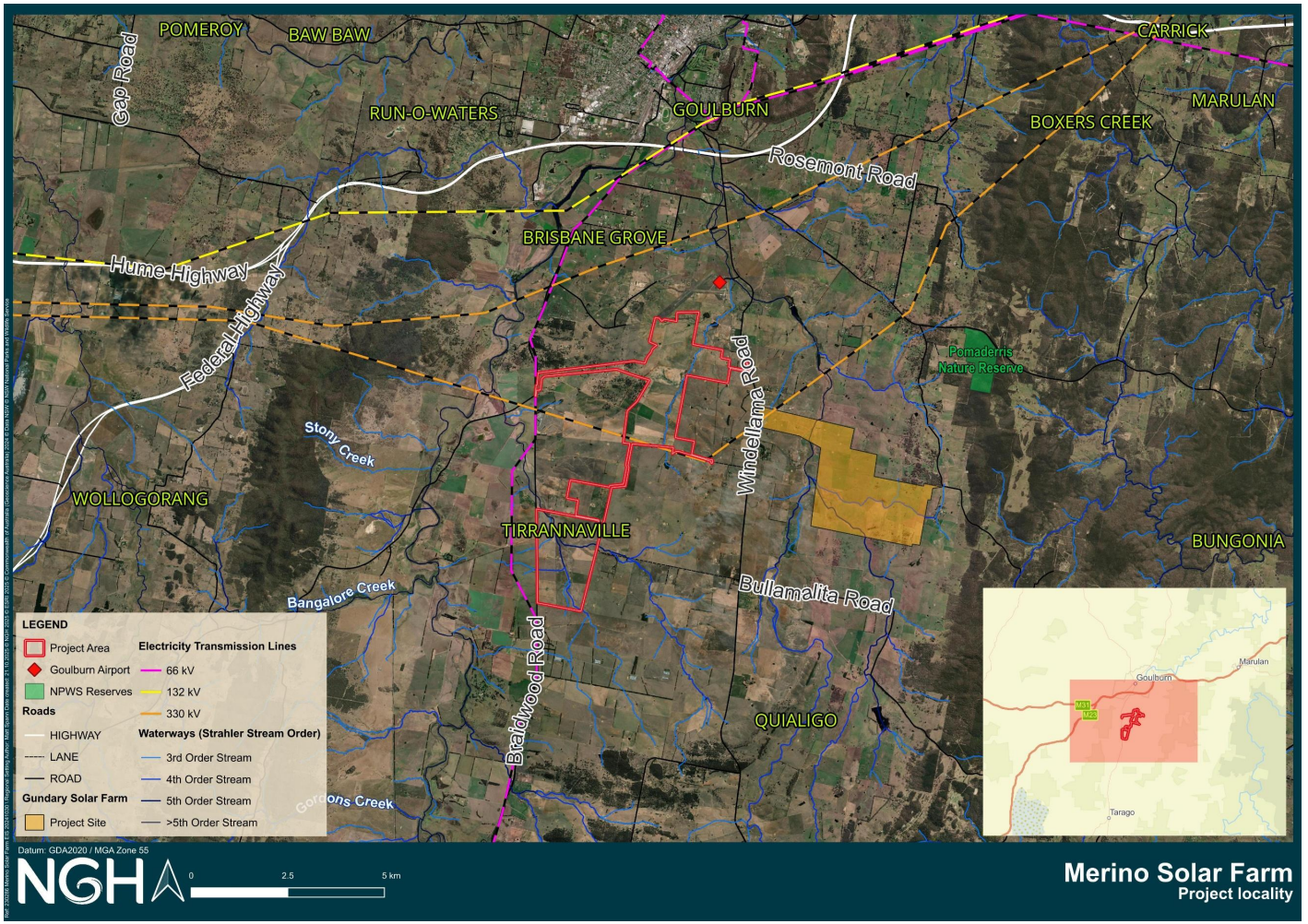


Figure A-1 Project locality

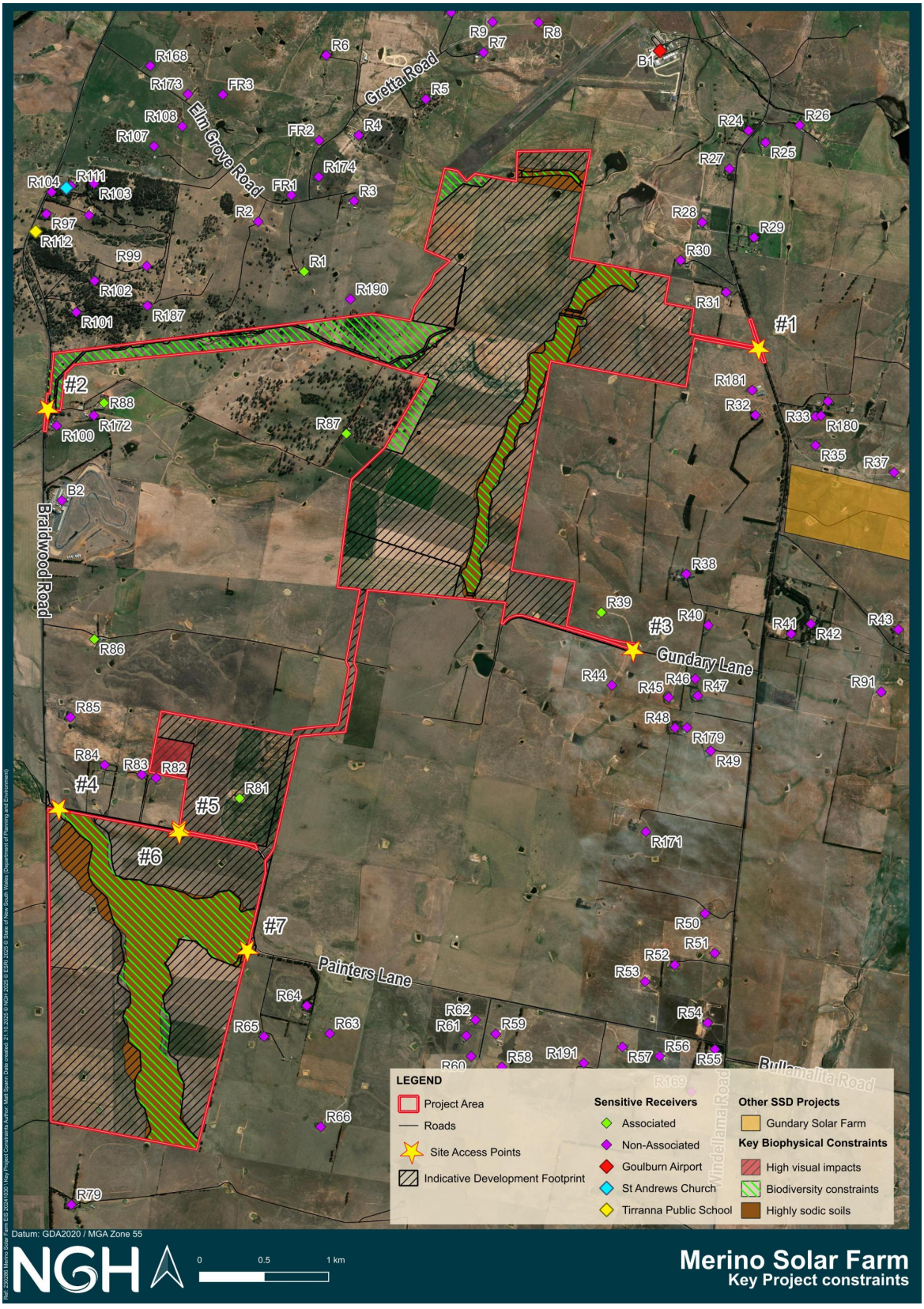


Figure A-2 Constraints map

Merino Solar Farm project summary

Table A-1 Key project parameters are summarised below.

Project summary	Description
Project infrastructure	• A solar generating capacity of 450MW (AC) with approximately 870,000 single axis tracker (east-west) solar panels, maximum height of 2.9m and inter row spacing up to 7m • Two 250MW inverter stations – 3.5m high • Substation and 450MW/1800MWhr (AC) BESS located in a designated area of approximately 32ha some components such as lightning rods up to 9m high • Up to two high voltage transformers • Site office approximately 4 m x 20m x 5 m (high) • Switch room approximately 4 m x 18 m x 4m (high) • Approximately 2.5km transmission line to connect the northern and southern sites (underground preferred but may be aboveground, pending outcome of geotechnical assessment) • Underground cabling to connect array modules • Security: CCTV security cameras, approximately 2.4m high security fencing around the property and individually around the BESS, night and security lighting.
Site access	• Primary accesses: o Northern section - Windellama Road; Southern section - Four access points from Painters Lane, via Braidwood Road • Other access requirements: Emergency access option - Braidwood Road (north of primary access); Over Size Over Mass access - Gundary Lane (limited movements).
Road upgrades	• Two locations on the OSOM haulage route from Port of Melbourne • Channelised Right Turn at the Windellama Road site access (access 1) • Short auxiliary left turn treatment at the Braidwood Road / Painters Lane intersection (access 2) • Rural driveway accesses to accommodate B-double vehicle access on additional Painters Lane accesses (accesses 4,5,6 & 7) • Widening of Painters Lane to minimum of 7m from Braidwood Road to the Painters Lane Site access 7.
Construction duration	The construction period is expected to take 24 months, with a peak period of ~ 12 months. Construction hours limited to Monday to Friday 7am to 6pm and Saturday 8am to 1pm.
Operation duration	The expected operational life of the Project is 35 years. However, components may be refurbished or replaced during this time and may extend the operational life.
Decommissioning and rehabilitation	At the end of the project life, all above ground infrastructure would be removed and disturbed areas of land rehabilitated. The exception to this is a portion of the substation which will be gifted to TransGrid and become part of the electricity network infrastructure and any tracks or buildings the landholders wish to retain.
Subdivision	Subdivision would be required for the onsite substation (which would become the property of TransGrid). The final subdivision area would be approximately 10ha subject to final detailed design.
Employment	Construction: Up to 500 full-time equivalent (FTE) jobs during construction Operation: 10-12 FTE staff once operational, with additional casual staff for maintenance
Estimated Development Cost (EDC)	Approximately $1,200,993,4480

Project responsiveness

Community engagement is a central aspect of the development of large scale solar projects and is becoming increasing important as the energy transition picks up pace and regional communities seek to be better informed and contribute more meaningfully to the assessment process, and so protect the local values in their communities.

The EIS phase consultation activities for the Project have focused on one-on-one meetings with those most affected by the Project. In addition, a drop-in session and pop up in Goulburn and follow up targeted stakeholder meetings were held to seek broader views and to communicate information about the Project during the preparation of the EIS. Newsletters and email follow-ups have also been used to communicate Project information.

The issues raised by the local community during engagement reflect strong concerns about the potential for adverse impacts on near neighbours. The Merino Solar Farm has sought to address these concerns by investigating them as part of this EIS, building in mitigation strategies specific to them (where appropriate), reflecting them in the Community Benefit Fund that will accompany the Project and communicating the results back to the community prior to the lodgement of the EIS.

Figure A-3 Community engagement events at Goulburn Soldiers Club and pop-up at Goulburn Marketplace

Table A-1 Key areas where the Project has been able to respond to community concerns

Concerns	Merino Solar Farm Project response
Traffic and road safety, dust	Local concerns, regarding the amenity value of local roads and concerns regarding potential cumulative impacts with Gundary Solar Farm, led to a traffic access option analysis to rationalise site access requirements. It was concluded that Painters Lane was not required to be sealed to facilitate anticipated vehicle volumes during construction.
Loss of agricultural land, soil/water impacts	Exclusion zones that appropriately buffer drainage lines have been incorporated into the layout to protect waterways and sensitive soils. Waterway crossings, where required, follow best practice design to ensure local hydrology is retained and negligible offsite changes to the volume or velocity of run off results from the Project. The loss of agricultural income from host properties has been shown to be non-significant to the local economy. However, commitments are made to maximise the ongoing agricultural use of the Project area. Additional soil remediation treatments and plantings will improve current conditions. Operational monitoring proposed will provide certainty and ensure that in decommissioning, the majority of the Project area will be returned to existing or better land capability.
Visual impacts	The Project layout has incorporated a setback to achieve a 'low visual impact' rating for all near neighbours, in accordance with the *NSW Large-Scale Solar Energy Guideline Technical Supplement – Landscape Character and Visual Impact Assessment* (DPHI, 2022). This means mitigation such as additional screening will not be required. Visual modelling and final montages have been shared with near neighbours to better understand the views of infrastructure. To address concerns regarding the accuracy of preliminary bare earth renders and photomontages, several double stacked hay bales with orange witches' hats (to match the maximum height of the panel array), were positioned at several locations across the proposed solar array area, to communicate the location and height of the Project in the vicinity of close neighbours. Cumulative impacts on scenic quality and landscape character have been assessed, assuming Gundary and Merino Solar Farms were both approved and developed. Overall the visual assessment has determined there would be a moderate-low cumulative landscape character impact on one Landscape Character Zone but that this impact would not be significant.
Noise impacts	The BESS and substation have been located to reduce noise impacts for all non-associated receivers. All construction and operational noise criteria will be met by the Project; no noise exceedances at any dwelling.
Hazards	Infrastructure siting, design and strategies to manage emergency response are built into the Project to ensure health and safety risks are managed appropriately and in consultation with relevant agencies.
Decommissioning and waste	The Project commits to strong recycling objectives. Waste management planning will begin in infrastructure procurement so maximise opportunities to reduce waste throughout the Project's life.

Assessment requirements and results

The Project is considered a State Significant Development because it is a private electricity generating project with a capital investment value greater than $30 million. It is permissible in accordance with State Environmental Panning Policy (Transport and Infrastructure) 2021 (TISEPP). Mandatory matters have been considered including biodiversity, hazards, drinking water, agriculture and mineral resources.

The *State Environmental Planning Policy (Planning Systems) 2021* (SEPP Planning Systems) dictates the environmental assessment must be undertaken in accordance with:

- Part 4 of the NSW *Environmental Planning and Assessment Act 1979.*
- Schedule 2 of the NSW *Environmental Planning and Assessment Regulation* 2021.
- The Project-specific Secretary's Environmental Assessment Requirements (refer to Appendix A to see where SEARs requirements are addressed in this EIS).

Specialist assessments have helped to shape the Project with the key results summarised below.

Traffic and access

Being located between two transport corridors, the Project area has numerous possible access points. However, it has several constraints that affect access. Hydrological modelling and community consultation identified the Project area has several low-lying areas that are flood affected and would be more appropriate to exclude from Project impacts. There were concerns about the potential for cumulative impacts of the construction traffic with nearby Gundary Solar Farm, if both projects are approved, and the loss of amenity of local lanes, should they become access points for the Project.

The number and location of project accesses and the type of waterway crossings have therefore been developed to minimise impacts on the environment and local community while still providing sufficient flexibility for the construction program. The following Project accesses are proposed:

- North section
    - One northern access off Windellama Road.
    - One emergency access option, solely to provide additional access and egress in an emergency.
- South section
    - Four access points off Painters Lane, accessed from Braidwood Road only; between 60m and 2.45 km east of Braidwood Road. No construction or operational traffic would be allowed to travel further east on Painters Lane while entering or exiting the Project.
- Substation
    - One limited use substation access off Gundary Lane, for Over Size Over Mass movements and then light vehicle operational access directly to the substation.

This requires limited road upgrades to meet Project requirements (refer to Section 3.2.10 and Section 6.7).

Amenity and safety for near neighbours

The lifestyle and amenity values for nearby rural residents are valued highly. As such the Project layout aimed to minimise impacts visual and noise impacts and has achieved:

- Visual amenity
    - Low visual impact for all non-associated dwellings; this means that mitigation, such as establishing vegetation screening, is not required as part of the Project. There will be no delay in waiting for screening to grow and reduce visual impacts over time. This does not preclude further mitigation; several discussions with near neighbours identified an interest in additional planting on their properties.
    - Low visual impacts from public viewpoints.
    - Low glare impacts to dwellings and public viewpoints.

- Noise amenity
  - No construction noise exceedances
  - Noise at all non-associated dwellings is expected to remain below 45dB(A) during the day and 35dB(A) during the night[2]
  - No operational noise exceedances under any modelled meteorological conditions; noise at all non-associated dwellings is expected to remain below 45dB(A) during the day and 35dB(A) during the night[3]
  - No road noise exceedances during construction or operation; noise at all non-associated dwellings is expected to remain below 37dB(A) at all times[4].

    The noise assessment is considered conservative which used the quietest rural background noise levels allowed rather than undertaking site-specific noise logging. Local road noise from Braidwood Road and Windellama Road, agricultural activities and aviation noise from the nearby Goulburn Airport are likely to have led to a higher existing background noise level than assumed by the modelling. Construction noise was modelled assuming up to three of the noisiest plant equipment is operating concurrently at the closest point to each receiver. Four key areas of risk were examined for the Project:
- Soil and water contamination from infrastructure components and Project activities.
  - Low level contamination risks are predicted from excavation activities and the installation and operation of Project infrastructure components.
  - A Preliminary Site Investigation will be conducted during the Project's submissions stage and prior to Project determination.
  - Standard protocols have been applied to address contamination 'unexpected finds' and manage the handling and storage of potential contaminants.
  - Operational monitoring will improve the certainty of assumptions made in the assessment to ensure decommissioning commitments can be met (such as to return the site to the existing or better land compatibility class).
- Battery and bushfire risks:
  - The detailed risk assessment for the battery concluded that the Project does not pose a significant off-site risk. The design of the Project would include appropriate setbacks and separation distances to ensure that fire risks would be limited to single BESS modules, with little risk of spreading to other BESS modules and subsequently offsite.
  - Bush Fire Emergency Management and Operations Plan (BFEMOP), NSW RFS and FRNSW would be consulted on the volume of water supplies, fire-fighting equipment maintained on-site, fire truck connectivity requirements, proposed APZ and access arrangements, communications, vegetation fuel levels and hazard reduction measures.
- Electric and magnetic fields (EMFs).
  - The key EMF producing infrastructure (substation, BESS and transmission lines) would follow Australian and industry standards and considered below safe thresholds set by the International Commission on Non-Ionizing Radiation Protection (ICNPR).

[2] These are the relevant noise trigger levels set by the NSW 'Interim Construction Noise Guideline' (ICNG – DECC, 2009). They allow for a 10dB(A) increase during the day and a 5dB(A) increase during the night.
[3] These are the relevant noise trigger levels set by the NSW 'Noise Policy for Industry' (NPfI – EPA, 2017). They allow for a 5dB(A) increase during the day and a 5dB(A) increase during the night.
[4] The Road Noise Policy (RNP – DECCW, 2011) states that for existing residences and other sensitive land uses, any increase in the total traffic noise level should be limited to 2 dB above the 'no build option'.

Land use and land compatibility

The predominant land use on the Project area and surrounding lots is grazing with limited cropping, although as stated above, the lifestyle and amenity values for rural residents is valued highly. The Project area is mapped as having a land capability of Class 4 (Moderate limitations for high impact land uses such as cropping 82%), except for land along Saltpetre Creek and its tributaries, which is mapped as Class 5 (high limitations 18%); no Biophysical Strategic Agricultural Land (BSAL) or State Significant Agricultural Land is mapped for the site. Soil surveys onsite however, demonstrated the site has much lower land capability than this. The soil sampling and classification investigation studies show that the site is mostly characterised by Class 5 soils (~82% - high limitations) and Class 6 (~18% - very high limitations). Soil remediation or avoidance of have been recommended in specific sodic areas, which are indicated in Figure 3-10.

The impact of the Project on agriculture at a regional scale would be minimal. When assessed in terms of loss of agricultural production, the Project could lead to the loss of 8% of the total *cropping* land, or only 0.75% of the total *agricultural land*, within the Goulburn Mulwaree LGA. However, considering the site-specific soil results, continued cropping of these sensitive soils is unlikely to be sustainable. The solar farms provide a way to maintain a compatible agricultural activity (grazing), with operational monitoring to ensure that soils and waterways are protected and the land is returned to this use, in decommissioning.

The Project is also compatible with other land uses, adjacent to the site:

- Rural residences have been assessed for amenity impacts, as stated above.
- Raceway and airport operations would not be impacted.
- There is no significant impact on the residential or commercial growth of Goulburn or its landscape character or visual amenity.

Hydrology, water quality and biodiversity

The Project area has low relief terrain, suitable to minimise construction costs and maximise solar yield, and minimal native vegetation, reducing impacts on native flora and fauna. However, it is located within the Sydney Drinking Water Catchment and discussions with near neighbours and hydrological modelling verified that many sections of the Project area and local road network are flood affected.

- Exclusion zones were identified early on in the Project to protect riparian areas. These areas provide a buffer along waterways and assist to maintain water quality and other habitat values.
- The type and location of water crossings have been considered in the development of the site layout and the location of site access points. Upgrades to Painters Lane and the installation of fish friendly waterway crossings may also reduce sediment loads into waterways compared to the existing situation.
- The local hydrology will be maintained; negligible offsite changes to the volume or velocity of run off results from the Project.
- Further hydrological modelling is progressing in tandem with Project design to inform the specific requirements to achieve a *neutral or beneficial impact* on water quality (as is required for projects in the catchment). This is expected to centre on enhancement of waterway vegetation.
- The native vegetation impacts are minimal; the Development Footprint avoided key biodiversity values in response to early constraints mapping. Residual impacts on biodiversity will be offset in accordance with the Biodiversity Conservation Acts Biodiversity Offset Scheme. This scheme delivers in perpetuity offsets for areas of native vegetation and habitat that are impacted by the Project.

Aboriginal cultural heritage and historic heritage

The Project area is in close proximity to the southern border of Gandangara country. The region has a complex Aboriginal history, with many recorded interactions between Ngunawal and other groups and significant Aboriginal sites occur locally. There are also several locally significant historic heritage items in proximity to the Project area.

No recorded sites of Aboriginal cultural heritage significance were identified within the Project area during surveys undertaken in collaboration with representatives of the Aboriginal community. Most of the Project area has been modelled of low or very low Aboriginal archaeological potential. No historic heritage sites occur within the areas of direct disturbance (Development Footprint) or would be affected by the Project. Strategies are included in the construction phase of the Project to address 'unexpected finds'.

Socio economic impacts

The Project area is well located between Goulburn and Canberra where existing workforce, accommodation, supporting services and materials can be managed within the region to maximise the local benefits of the Project, particularly during the construction phase of 24 months. However, the Draft *South East and Tablelands Regional Plan 2041* identifies, and several participants at the community engagement events noted, that regional issues such as housing shortages are being exacerbated by an influx of temporary workers during large scale projects.

In addition, concerns were raised regarding:

- Increases in road traffic, with potential impacts on recreational spaces, school bus routes, and road conditions
- Community wellbeing impacts, in relation to stress, anxiety, and division within the community
- Near neighbour impacts about noise, visual impacts, potential reductions in property values, and heightened fire risks
- Perceptions of procedural fairness and consultation fatigue
- Cumulative impacts, given the proximity of the Gundary Solar Farm, with potential overlap in visual, traffic, and noise impacts, as well as compounding effects on housing and community cohesion.

To identify possible accommodation constraints for the construction workforce, including potential cumulative impacts with other large-scale developments in the locality, an accommodation inventory was prepared. This inventory identified that there is sufficient accommodation stock within the region (within a one-hour drive of the Project) to accommodate workers and avoid increasing strain on local housing supply.

An Accommodation and Employment Strategy has been developed to further identify risks and enhance positive outcomes by outlining mitigation measures and management strategies for the sourcing of employment and the subsequently required accommodation.

A Community and Stakeholder Engagement Strategy will also be prepared prior to construction to ensure ongoing, transparent, and responsive dialogue with residents, local councils, service providers, and other stakeholders. Development of other specific strategies such as a Traffic and Access Management Plan, and Bushfire Emergency Operations Plan will help to maximise local participation and manage potential Project related outcomes.

Overall, the Social Impact Assessment concludes that the Project has the potential to deliver significant local and regional benefits. By maintaining proactive engagement and embedding cumulative impact considerations into planning and operations, and implementing appropriate accommodation and employment strategies, the Project can strengthen its social licence and contribute positively to the future of the Tirrannaville and Goulburn community and the surrounding region.

Cumulative impacts

Positive cumulative impacts have been identified as the Project's cumulative contribution to:

- Federal and state regional renewable energy policies
- Regional and local land use plans
- Reduction of energy costs
- Understanding and protecting the site's unique environmental and social context
- Community benefits.

The potential for adverse cumulative impacts is most likely to arise from interactions with the Gundary Solar Farm, if approved (currently under assessment and located approximately 1km to the east).

Greater than low level adverse cumulative impacts have been identified for the following:

- Agricultural activities – Low to moderate impacts on agricultural production. If solar grazing practices are implemented across both the Merino and Gundary Solar Farms, this impact would be reduced. Mitigation measures and guidance have been provided as part of this EIS to maximise the potential for ongoing solar grazing.
- Visual impacts - Both the Merino and Gundary Solar Farms are located within the Gundary undulating rural plains Landscape Character Zone and parts of the Mulwaree River and Gundary Creek rural valley Landscape Character Zone. Both impacted Landscape Character Zones are considered by the Landscape and Visual Impact Assessment to have a low sensitivity, and the cumulative impact of both projects would be low to moderate, as both sites are spatially and visually separated.

Potential cumulative social impact 'pain point's' where project specific measures are proposed have been identified as:

- Labour and skills shortages
- Pressure on social infrastructure, services and housing and accommodation
- Changes to the community feel of towns.

Impact management

The consolidated set of mitigation commitments is provided in Appendix B, and together with the Project as outlined in Section 3, constitute the Project's commitment to developing a best practice solar farm that can be supported by the local community. Environmental protection and management measures would be implemented via a series of Project and site-specific Environmental Management Plans. These plans would be prepared sequentially, prior to each stage of works (construction, operation and decommissioning). These management plans would incorporate all of the specific mitigation measures contained in this EIS and any additional applicable agency requirements, pending project approval. They would be developed in tandem with the detailed design of the facility, ensuring all setbacks and exclusion zones are properly applied.

Justification

The Project as presented in this EIS meets all relevant planning provisions and guidelines and is considered justifiable and acceptable.

The Project is considered appropriate to:

- State and Commonwealth policies aiming to increase renewable energy generation and improve the security, stability and resilience of the NEM; the Project will contribute a 450MW renewable generation with 1800MWhr of battery storage for approximately 35 years.
- Local and state planning instruments, with reference to the State Environmental Planning Policy (Transport and Infrastructure) 2021 Clause 2.42; the Project is not in an identified residential or commercial expansion zone and will not significantly affect landscape character or visual amenity.

The Project can make use of existing transmission and access infrastructure to supply nearby population centre. The low relief terrain also improves constructability costs, improving project viability.

The site's environmental values are reflected it the Project design and Project commitments, to ensure that underlaying values are protected. These centre on:

- Local traffic – access has been rationalised to restrict impacts on local traffic as much as possible
- Amenity impacts – assessments in accordance with appropriate industry standards demonstrate low noise and visual impacts from the Project
- Biodiversity and waterways – specialist advice has informed exclusion zones and micro-siting of the Braidwood Road emergency access, to avoid impacts on remnant vegetation and waterways
- Soil and water resources – in addition to waterway buffers, small areas of sodic soils would be avoided or remediated prior to disturbance and broader remediation and enhancement treatments and monitoring will ensure that decommissioning objectives can be met
- Hazards – risks of fire starting and spreading through the Project area are considered low, and suitable mitigation measures have been implemented into the design of the Project to minimise this risk.
- Flooding and water quality - The Project is not considered likely to adversely affect flood behaviours or hazards in the immediate catchment area, water supply or water quality
- Agricultural land capability will be protected and setbacks from horticultural/cropping areas applied where required.

The assessments have followed relevant guidance and best practice where available. The Project has demonstrated it has avoided impacts, as a first action, and then developed minimisation and mitigation strategies that are commitments of the Project, for impacts that cannot be avoided. The impacts have generally been assessed as low level and mitigation strategies with high confidence have been adopted to manage residual risks. To address inevitable areas of uncertainty, conservative approaches have been adopted.

With the effective implementation of mitigation measures proposed, including the Community Benefit Scheme which aims to spread the benefits to the local community and throughout the life of the Project, the Merio Solar Farm is considered justifiable and approvable.

Where to from here

During the public exhibition of this EIS, the community, local council and government agencies are invited to make informed submissions in relation to the Merino Solar Farm Project. The consent authority would consider any formal submissions made during the exhibition period. The Applicant's response to all matters raised in submissions will also be exhibited as the Department of Planning Housing and Industry commence preparation of their own assessment of the Project's impacts and its merits and make a recommendation regarding its ability to be approved.

Please take the opportunity to make a submission directly to the Department of Planning Housing and Industry.

01 Introduction

1. Introduction

1.1. Format of this Environmental Impact Statement

The purpose of this Environmental Impact Statement (EIS) is to assess the economic, environmental and social impacts of the Merino Solar Farm (the Project). The Project area is in the Goulburn Mulwaree Local Government Area (LGA). It is approximately:

- 6 km south of Goulburn
- 70 km northeast of Canberra
- 170 km southwest of Sydney

Refer to Figure 1-1 for the regional context of the Project area.

This EIS is structured to help the community, local council, government agencies and the consent authority get a better understanding of the Project. This EIS has been prepared in two parts:

1. The main report describes the Project, summarises the findings of the consultation activities and environmental assessments including all mitigation measures proposed to manage the impacts of the Project.
2. The supporting appendices include:
    a. The Project specific Secretary's Environmental Assessment Requirements (SEARs) which prescribe the structure and content of this EIS
    b. A consolidated table of proposed mitigation measures which form commitments of the Project, if approved
    c. Community engagement activities relevant to the Project
    d. Detailed supporting specialist assessments, which have helped to shape the Project now presented and its mitigation commitments.

The public exhibition of this EIS is the key phase of the Project when the community, local council and government agencies are invited to make informed submissions directly to the NSW Department of Planning, Housing and Infrastructure (DPHI). The assessment process, from EIS to Project determination, is shown in Figure 1-2.

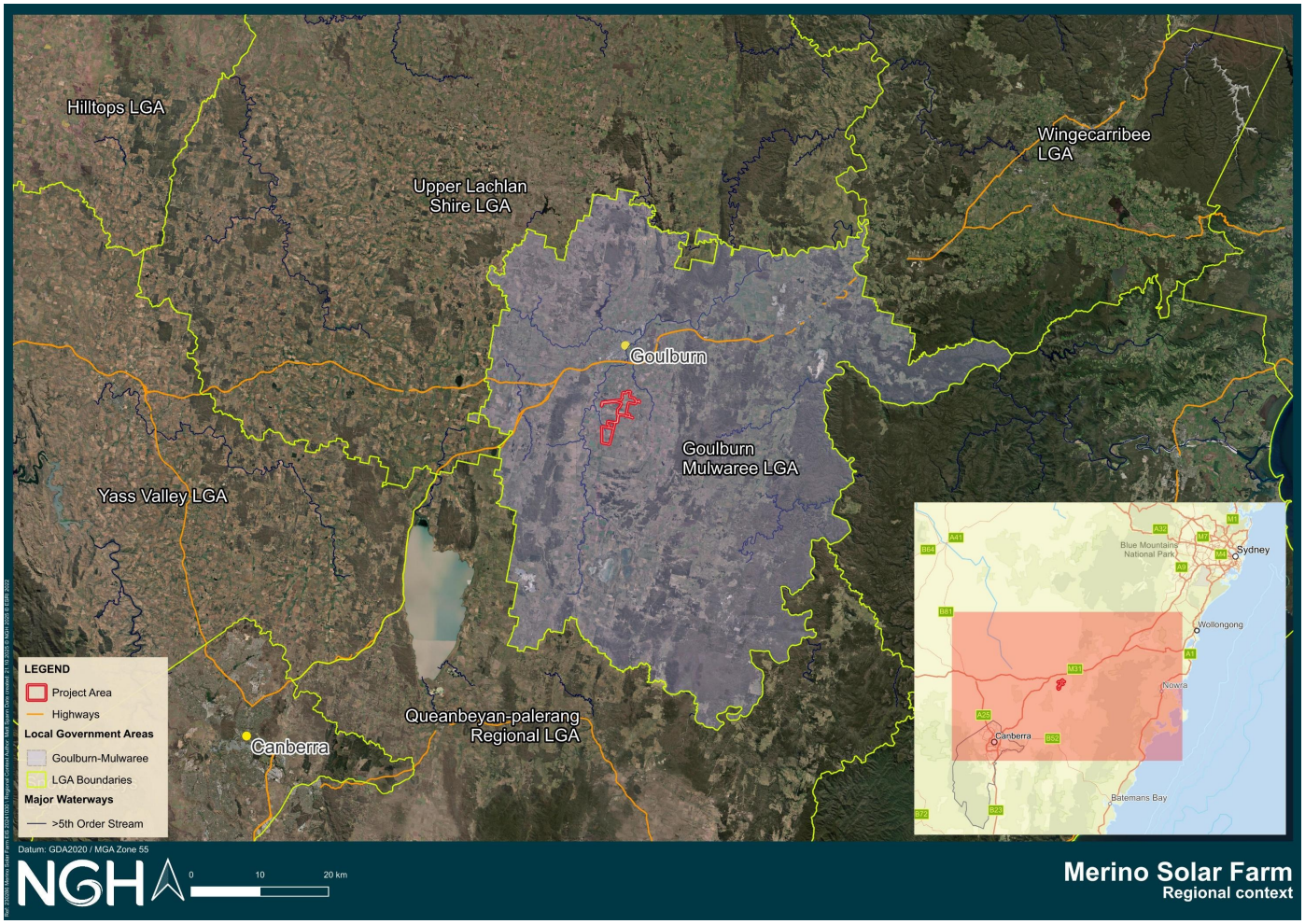


Figure 1-1 Regional context

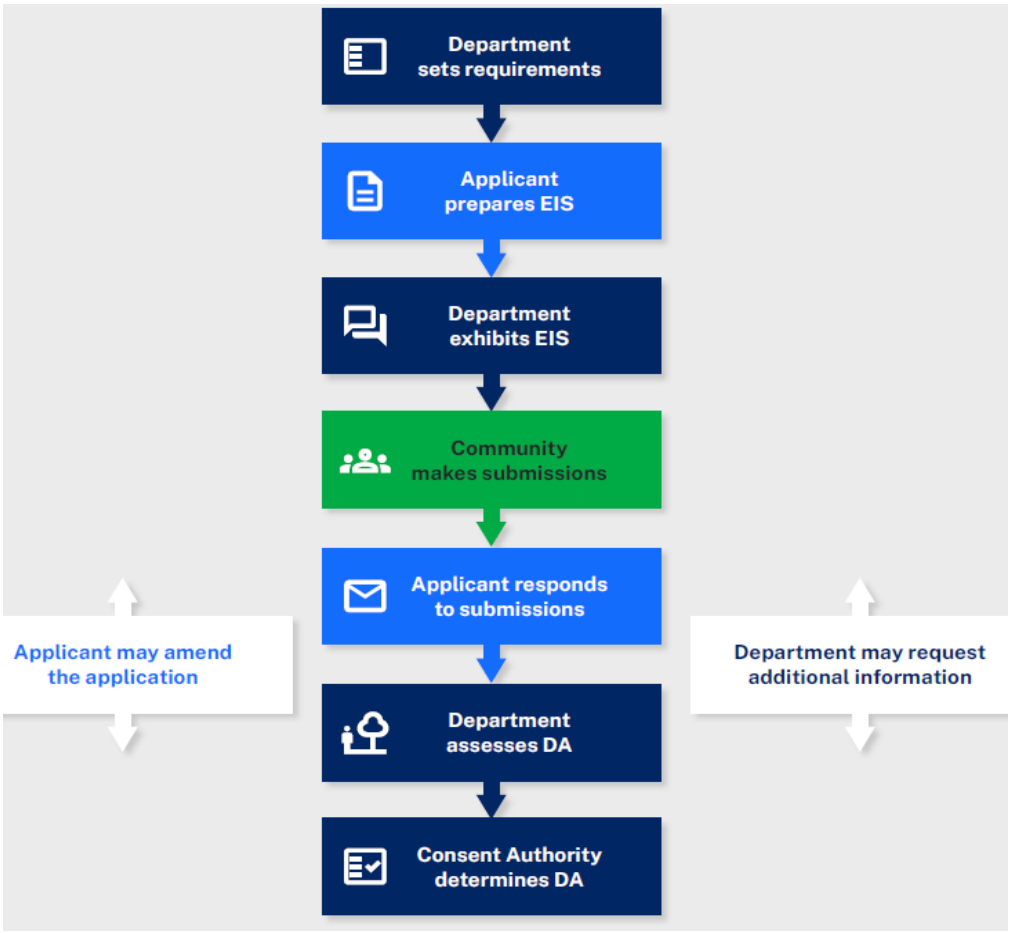


Figure 1-2 State significant development assessment and approval process (NSW DPE August 2022)

1.2. The Applicant

The Merino Solar Farm is being proposed by EDPR Australia under the Special Purpose Vehicle (SPV) Merino Solar Farm Pty Ltd (the Applicant).

EDPR is a global leader in the renewables space. In November 2023, EDPR acquired ITP Development in Australia – who previously was responsible for the Merino Solar Farm proposal – and the company became EDPR Australia, part of EDPR Asia-Pacific (EDPR APAC). EDPR APAC has over 1.5 Gigawatts (GW) of pipeline in wind and solar projects at various stages of development, with a particular focus in Australia on the eastern seaboard, particularly in NSW and QLD.

EDPR APAC is headquartered in Singapore and EDP Group is EDPR's main shareholder.

EDP Group is a Portuguese electric utilities company that is headquartered in Lisbon. Founded in 1976, the company is now organised into five regions (Iberia, Europe, North America, South America, and Asia Pacific) and has more than nine million energy customers. EDP aims to drive transformation through the power of wind, sun and water on a global scale to accelerate the race to decarbonisation.

Contact and business information for the Applicant is listed in Table 1-1

Table 1-1 Applicant details

Merino Solar Farm Pty Ltd	
ABN	95 648 376 934
Postal Address	Level 4 54 Marcus Clarke Street Canberra, ACT 2601

1.3. Project overview

1.3.1. Project objectives

The objective of the Project is to generate and store renewable electricity for use throughout the state and eastern seaboard electricity grid. The Project would provide significant additional renewable energy into the National Energy Market (NEM).

The Project would:

- Increase renewable energy generation and improve the security, stability and resilience of the NEM
- Be responsive to the local environmental and social context
- Provide community benefits developed in consultation with neighbours and Goulburn Mulwaree Council.

Key to achieving these objectives, the Applicant would:

- Take advantage of existing grid and transport infrastructure
- Demonstrate the principles of 'avoid first and secondly minimise and mitigate impacts' in relation to site values
- Proactively seek opportunities to maximise Project benefits for the environment and to the surrounding communities.

1.3.2. Infrastructure proposed

The Project proposed includes the construction, operation and eventual decommissioning of a solar farm that would be connected into the electricity grid. During its operational life of approximately 35 years, it would provide electricity generation and storage, assisting the grid's transition to renewable energy sources, as fossil fuel electricity generation is reduced.

The Project would incorporate the following permanent infrastructure components (which are detailed in Section 3):

- Approximately 870,000 photovoltaic solar panel modules:
  - Using Crystalline silicon technology
  - Mounted on an east-west orientated tracking system
  - With a total capacity of 450MW AC.
- An array of inverters and transformers together with an AC collection system consisting of underground 33 kV sub-transmission lines to connect the solar farm and BESS to the site substation
- A BESS:
  - 450MW / 1800MWhr of lithium-ion batteries AC coupled
- 4-hour storage duration
- An enclosed site substation including a transformer to increase voltage to 330kV connection to existing TransGrid power lines to the south of the northern site

- Underground cabling to connect solar modules, Power Conversion Units (PCUs) and batteries, data services and communications
- Operations and maintenance buildings including a site office, switchgear, protection and control facilities, maintenance facilities, storage and staff amenities
- Internal tracks
- Perimeter security fencing (where required), closed-circuit television (CCTV) and security lighting at the switching station, BESS and operations and maintenance building.

No landscaping / tree planting is proposed for visual impact mitigation[5]. However, riparian enhancement may be considered to improve water quality outcomes. This would be subject to further modelling[6].

At this stage, no dams will be removed as part of the development. Further assessment of impacts (specifically biodiversity) and modelling (specifically hydrology) would be required to support the removal of dams. If removed, the intention would be to reinstate them within the Development Footprint, to retain the same surface water collection volume, stock watering capacity and hydraulic function.

Except for the substation and any access tracks and water way crossings that the host landholder wishes to retain, all other above ground infrastructure would be removed during decommissioning. The Project would be responsible for ensuring that the Project area is returned to its existing land capability, for continued agricultural or alternative appropriate uses.

The Project will also require temporary construction facilities and permanent improvements to site access. During the construction phase, temporary facilities would include a laydown area with a secure compound, construction site offices and amenities and car and bus parking areas for construction staff.

Primary construction access would be obtained from:

- Windellama Road, for the northern section of the site
- Painters Lane via Braidwood Road, for the southern section of the site.

Additional access would be required from:

- Gundary Lane, for limited Over Size Over Mass vehicles, directly to the proposed substation
- Braidwood Road, for an emergency access to the northern section of the site.

The detailed Project description is set out in Section 3.

1.4. Site selection background

The site proposed for the Merino Solar Farm was selected following a desktop review of the region which considered:

- Suitable connection capacity to the grid and proximity to demand centre (Goulburn)
- Serviceability by the existing road network (with limited upgrades)
- Suitable terrain and access to keep costs of construction low
- Ability to avoid or manage key environmental values of the site

[5] All assessed private and public viewpoints have low visual impact and acceptable levels of glint and glare such that vegetation screening as a mitigation strategy is not required. This does not preclude consideration of some plantings in agreement with near neighbours, either on their properties or within areas of the assessed Development Footprint.
[6] Hydrological modelling is progressing in tandem with Project design to inform the specific requirements to achieve a *neutral or beneficial impact* on water quality (as is required for projects in the catchment). This is expected to centre on groundcover management and enhancement of waterway vegetation.

The Merino Solar Farm is not located within a Renewable Energy Zone (REZ) but is located along an existing 330kV transmission line with available capacity and can be serviced by the existing road network. As such it is well located to make us of existing infrastructure and in line with State and regional policies regarding the location of renewable energy projects.

The initial Project area was then delineated based on conversations with interested landholders. Some areas were removed in consultation with the airport owner to allow for potential airport redevelopment works. . Since the Scoping report was submitted to DPHI, the Applicant has identified some additional investigation areas. These included areas required for access and transmission works, as well as additional array areas. Figure 1-3 shows the areas included in the Scoping Report, submitted in June 2023, and the additional areas requested in the Addendum Scoping Report, submitted in January 2025.

Further refinements to the Project occurred during the EIS, in response to community consultation and detailed environmental investigations.

- Traffic access – specialist advice has reduced the number of Project access points to minimise impacts on local traffic. The areas required to be disturbed for upgrades are included in the environmental assessment.
- Amenity for near neighbours – the extent of the Project has been finalised based on visual and noise assessments. Using conservative assumptions, they show that low visual impact and full compliance with construction and operational noise criteria can be achieved.
- Biodiversity and waterways – specialist advice has informed exclusion zones and micro-siting of the Braidwood Road emergency access, to avoid impacts on remnant vegetation and waterways.
- Hydrology – specialist advice has informed the type and location of water crossings likely to be required and verified that the water way exclusion zones are appropriate to maintain the local hydrology, negligible offsite impacts to local hydrology.
- Sodic soils – small areas of sodic soils would be avoided or remediated prior to disturbance.

The resulting Project, as assessed in this EIS, demonstrates that it is appropriate to its location with specific reference to the following items.

- Proximity to Goulburn, a regional city under the clause 2.42 of the TISEPP - The Project area is located to the south of areas identified by Council future residential development and thus does not inhibit the capacity for growth of the city of Goulburn. The Project's impact on scenic quality and landscape character is not considered significant.
- Renewable Energy Zoning (REZ) – while not within a REZ, the Project is well located to make use of existing infrastructure and is in line with State and regional policies regarding the location of renewable energy projects.
- Sydney Drinking Water Catchment - The commitments to establish, monitor and retain groundcover through operation have been developed with input from specialists and soil surveys. Further hydrological modelling is progressing in tandem with Project design to inform the specific requirements to achieve a *neutral or beneficial impact* on water quality (as is required for projects in the catchment). This will centre on enhancement of waterway vegetation.

The residual impacts on biodiversity will be offset in accordance with the Biodiversity Conservation Acts Biodiversity Offset Scheme.

The Project assessed in this EIS is shown in Figure 3-1 and Figure 3-2 and is described in Section 3.

1.5. Related development and restrictions

No related developments have been identified. There are no Crown lands or other restrictions relevant to the Project.

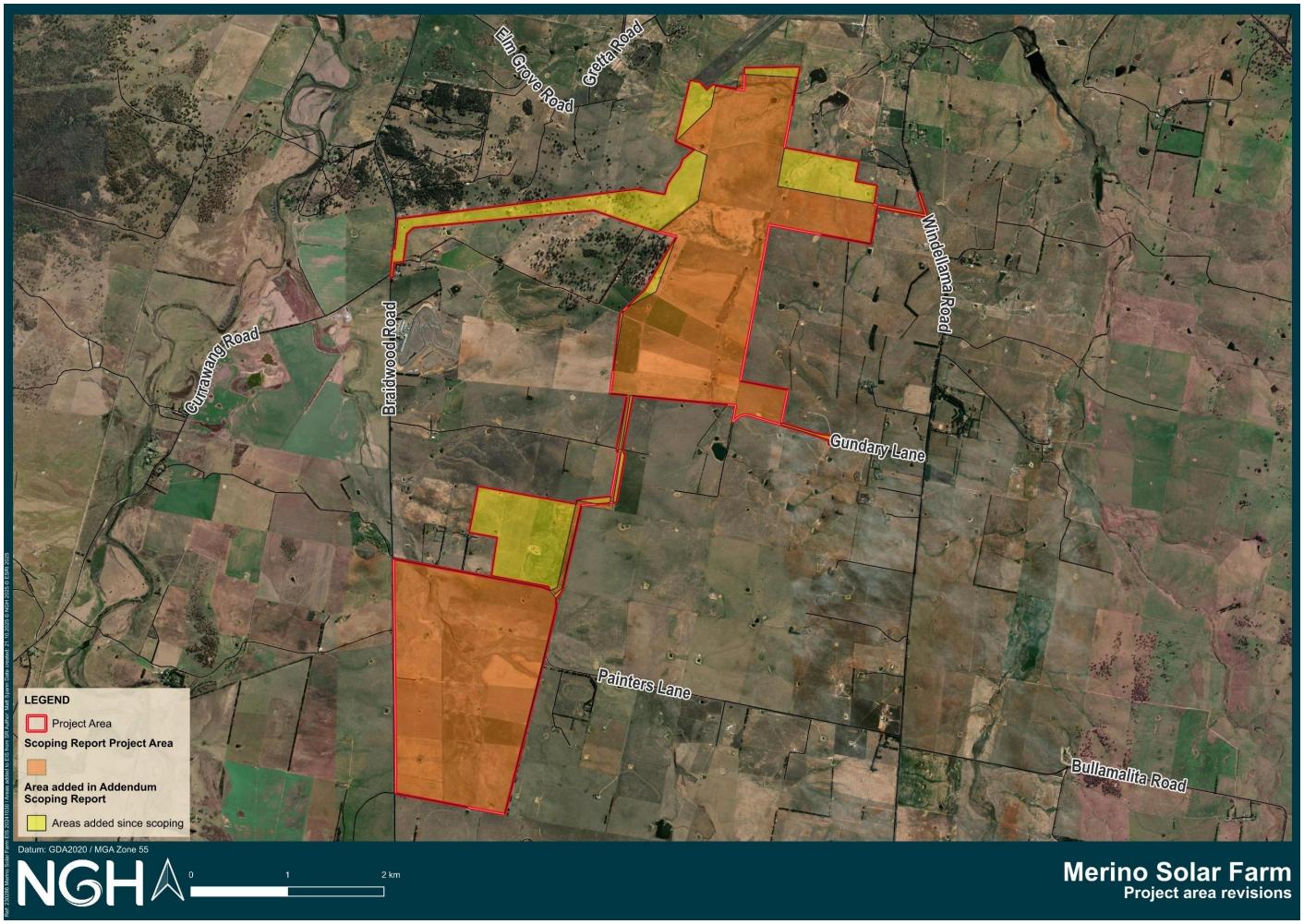


Figure 1-3 Areas added after the Scoping Report (added via an Addendum Scoping Report); both areas are now addressed in this EIS

02 Strategic context

2. Strategic context

The strategic context of the Project is set out below. It demonstrates how the Merino Solar Farm is an important part of the renewable energy transition, bringing solar generation and battery storage benefits to the grid to displace fossil fuel generation as coal power plants are scheduled for closure. This section shows how the Project achieves the following:

- Aligns with federal, state and regional renewable energy policies
- Aligns with regional and local land use plans.

It also presents a high-level summary of the Project area's unique environmental and social context.

2.1. Energy policies

2.1.1. Paris Agreement

The Paris Agreement is a legally binding international treaty on climate change adopted by 196 Parties (including Australia) at Conference of Parties 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016 (United Nations Climate Change, 2018). Australia proposed to reduce emissions by 26–28% below 2005 levels by 2030.

The Project assists in this reduction through the generation of electricity from renewables to replace fossil fuel generation.

2.1.2. Climate Change Act 2022 and Nationally Determined Contribution

Australia's long term emissions reduction plan and the Nationally determined contribution to the UN via the Paris Agreement (developed during United Nations Framework Convention on Climate Change (UNFCC) COP21) sets the nations goals towards zero emissions by 2050 and 43% below 2005 levels by 2030 (Department of Industry, Science, Energy and Resources, 2021). This was set to achieve the goal of avoiding a 1.5oC rise (from pre-industrial levels) in temperature by the end of the 21st century. The Project assists in this reduction through the production of renewable energy via solar, not fossil under the forecasted energy transition. The latest outcomes from COP28 highlighted the need to triple global renewable energy capacity globally to meet the goals of the Paris agreement.

The Commonwealth Climate Change Act 2022 enshrines into law an emissions reduction target of 43 percent from 2005 levels by 2030, and net zero emissions by 2050. In addition, the Act ensures a whole-of government approach to drive towards the target. The government has formally lodged this target as an enhanced Nationally Determined Contribution under the Paris Agreement. The Act supports the Government's Powering Australia Plan, which is focused on creating jobs, cutting power bills and reducing emissions by boosting renewable energy.

The Project would form part of the Australian effort to help meet the above targets and is an important contribution to the following.

- Providing for further reductions in Green House Gas (GHG) emission intensity for generation in the National Energy Market (NEM), by supporting renewable energy projects.
- Supporting the Government's Renewable Target (RET) of 20 percent renewable energy by 2020. While the Large-scale RET target was met in 2019/20, the scheme will continue to require high-energy users to meet their obligations under the policy until 2030.

2.1.3. Australian Government Renewable Energy Target

The RET scheme was developed to achieve large-scale renewable generation (LRET) of 33,000GWh in 2020, by encouraging additional generation of electricity from renewable sources, thus reducing emissions of GHG in the electricity sector. The LRET of 33,000GWh target was met in September 2019, however, the scheme will continue to require high-energy users to meet their obligations under the policy until 2030 and is frequently used as a mechanism to prove voluntary emission reduction. This Project would assist in meeting this requirement for high-energy users required to purchase 'large-scale generation certificates' from large renewable energy power stations (such as the Merino Solar Farm).

2.1.4. Australian Energy Market Operator – Integrated systems plan

The 2024 Integrated System Plan sets out how the Australian Energy Market Operator (AEMO) has identified the optimal development path for the NEM and is a roadmap through the energy transition. The NEM services five regions – Queensland, NSW, Victoria, South Australia, and Tasmania. The plan aims to guide industry and government in the investments needed for an affordable, secure and reliable energy future, while meeting prescribed emissions trajectories. The 2024 Integrated System Plan acknowledges that Australia's traditional energy supply system has been based on large-scale power stations with large-scale transmission systems and centralised asset hubs.

The need for renewable energy has been revised to 6GW of new energy per year compared to 4GW in the 2022 Integrated System Plan to replace the coal generation. In response to the accelerated timeline for the closure of coal fired energy plants, the optimal development path requires significant additional utility-scale generation is required to replace the loss of coal-fired generation. The AEMO states that there will be a demand for 82GW of utility-scale wind and solar in the NEM by 2034-35, and 126GW by 2049-50. 34GW of this energy would need to come from NSW.

The Project would contribute 450MW AC with a 450MW / 1800MWhr (4 hour) storage capacity towards meeting this demand.

2.1.5. NSW Climate Change (NET Zero Future) Act 2023

The NSW Climate Change (Net Zero Future) Act 2023 aims to '*set objectives for New South Wales to be more resilient to a changing climate; and to establish the Net Zero Commission to monitor, review and report on progress towards the 2030 and 2050 targets and the objective and to exercise other related functions*'.

The Act commits the NSW government to effective action on climate change to ensure a sustainable and fair future for the people, economy and environment of NSW by legislating:

- Guiding principles for action to address climate change that consider the impacts, opportunities and need for action in NSW
- Emission reduction targets for NSW:
    - 50% reduction of 2005 levels by 2030
    - 70% reduction on 2005 levels by 2035
    - Net zero by 2050
- Establishing an independent, expert Net Zero Commission to monitor, review, report on and advise on progress towards these targets (NSW Government, 2023).

The Project would contribute 450MW AC with a 450MW / 1800MWhr (4 hour) storage capacity towards these targets.

2.1.6. Net Zero Plan

In March 2020, the NSW Government released the NSW Net Zero Plan. This plan sets out how the NSW Government will deliver on these objectives over the next decade. The Net Zero Priorities include the following.

- Drive uptake of proven emissions reduction technologies that grow the economy, create new jobs or reduce the cost of living.
- Empower consumers and businesses to make sustainable choices.
- Invest in the next wave of emissions reduction innovation to ensure economic prosperity from decarbonisation beyond 2030.
- Ensure the NSW Government leads by example.

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. The proposed Project aligns with this goal.

The Project would assist in reaching these targets by providing a source of renewable energy generation. The local economic benefits are centred on construction and will include economic stimulus for associated service providers as set out in Section 6.10 of this EIS.

2.1.7. NSW Electricity Strategy

The three objectives of the NSW Government for the state's electricity system, as stated in the NSW Electricity Strategy, are:

1. Reliability
2. Affordability
3. Sustainability

The NSW Government's Electricity Strategy will:

- Improve the efficiency and competitiveness of the NSW electricity market by reducing risk, cost, Government caused delays and by encouraging investment in new price-reducing generation and energy saving technology.
- Prompt Government to act if there is a forecast breach of the Energy Security Target which private sector Projects are unlikely to address. This should be done in a way that minimises costs to consumers and taxpayers and does not give rise to moral hazard risk.
- Ensure that there are appropriate powers available for Government to analyse and respond to electricity supply emergencies, should they arise.

The Project would contribute to the NSW government's plan to achieve the objectives for the electricity system which include reliability, affordability and economic growth and sustainability. The contribution to local employment and the economy is set out in Section 4.1 of this EIS.

2.1.8. Electricity Infrastructure Roadmap (2020)

The NSW Electricity Infrastructure Roadmap ('The Roadmap') aims to redefine NSW as a modern, global energy superpower by delivering the electricity infrastructure needed to support a modern prosperous economy (NSW DPIE, 2020). The roadmap sets out a plan to transition the electricity sector from the existing power sources that are coming to the end of their lives, to cleaner, cheaper and more reliable energy sources including wind, solar, batteries and pumped hydro.

The electricity sector in NSW would be underpinned by five foundational pillars outlined in The Roadmap:

1. Driving investment in regional NSW: supporting our regions as the State's economic and energy powerhouse.
2. Delivering energy storage infrastructure: supporting stable, long-term energy storage in NSW.
3. Delivering Renewable Energy Zones (REZs): coordinating regional transmission and renewable generation in the right places for local communities.
4. Keeping the grid secure and reliable: backing the system with gas, batteries or other reliable sources as needed.
5. Harnessing opportunities for industry: empowering new and revitalised industries with cheap, reliable and low emissions electricity.

The Roadmap shows the need to act now given four of the five coal fired power stations in NSW are anticipated to close within 15 years, starting with the Liddell power station which announced decommissioning in April 2023. These power stations provide, as of 2020 power mix generation, around three quarters of NSW's electricity supply and two thirds of the firm capacity needed during summer heat waves, and as they age, tend to fail more frequently resulting in reliability problems. The infrastructure needed to replace coal fired power stations has long lead times, further justifying the need for action to coordinate and unlock investment before they close.

The key benefits of The Roadmap are shown in Figure 2-1.

Figure 2-1 Benefits of The Roadmap (Source: NSW Electricity Infrastructure Roadmap).

The Project would contribute directly to three of these five pillars by:

- Increasing the State's renewable energy generation
- Increasing economic activity during construction and through economic agreements with council and local contractors
- Contributing 1800MWhr (4 hours) of stored dispatchable energy to the grid network by adding in a battery storage system.

2.2. Land use planning

2.2.1. Draft South East and Tablelands Regional Plan 2041

The Draft South East and Tablelands Regional Plan 2041 (the Plan) was re-released as a draft plan on 9 December 2022. As of August 2025, it has not yet been finalised. The Plan covers the South East and Tablelands region of NSW which is inclusive of nine LGA's (Hilltops, Upper Lachlan Shire, Wingecarribee, Yass Valley, Goulburn–Mulwaree, Queanbeyan–Palerang Regional, Eurobodalla, Snowy Monaro Regional, and the Bega Valley).

The plan has set the following core vision for the region:

> *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. Country is widely recognised, with Aboriginal people providing valued strategic input into the region's future. The provision of quality, safe and fit for purpose housing, infrastructure and services attracts and retains people within our communities, with the natural environment being embedded at the heart of planning and decision-making.*

The vision is supported by the below five themes, which are in turn supported by a number of objectives:

- Theme 1 – Recognising Country, people and place
- Theme 2 – Enhancing sustainable and resilient environments
- Theme 3 – Leveraging diverse economic identities
- Theme 4 – Planning for fit for purpose housing and services
- Theme 5 – Supporting a connected and active region.

The following objectives are relevant to the Merino Solar Farm.

Table 2-1 Relevant objectives of the Regional Plan

Regional objectives	Merino Solar Farm Project response
Objective 8 – *Plan for a net zero region by 2050*	The Plan notes the region does not have its own renewable energy zone; however, identifies the existing renewable energy network, coupled with increased renewable energy into the NSW electricity grid would benefit the region and reduce emissions, as per the vision to be a net zero region by 2050. The Plan states that renewable energy initiatives are therefore supported. The proposed development is consistent with Objective 8 as it seeks to enable electricity generation from renewable sources, which will contribute to a net zero region by 2050. The Plan also directs that local planning is to consider opportunities to *encourage the co-location of renewable energy generation and storage*

Regional objectives	Merino Solar Farm Project response
	infrastructure, in proximity to the current and proposed future electricity transmission network, but also to minimise any cumulative adverse effects on the natural environment.
Objective 11 *Realise economic benefits from a connection regional economy*	The Plan notes the region's diverse economy, its connections to Canberra and Sydney and being a hub for renewable energy generation. The Plan notes the Electricity Infrastructure Roadmap for NSW including major projects in the region like Hume Link and Energy Connect. Importantly, these will increase the capacity of electrical infrastructure in the region to further support increased renewable energy. The Project would further this objective through building the economic potential of renewable energy as identified in the Plan.
Objective 18 *Plan for more affordable, low-cost and social housing*	The Plan forecasts that the region's population characteristics will undergo change and a sustainable housing pipeline is essential for the region. The Plan notes that the region has benefited from significant investments; however, housing stress in some towns and villages is evident from an influx of temporary workers during the construction of large-scale developments, such as renewable energy projects. The Plan recommends SSD projects demonstrate how the temporary housing needs would be met, the impact on the local market and any cumulative impacts. Section 6.10 addresses housing and cumulative Project impacts; an Accommodation and Employment Strategy would be prepared in consultation with the local council, as a commitment of the Merino Solar Farm Project.

2.2.2. Goulburn Mulwaree Local Strategic Planning Statement

Council adopted the Goulburn Mulwaree Local Strategic Planning Statement (LSPS) in August 2020. The LSPS The Local Strategic Planning Statement (LSPS) sets out the 20-year vision for land-use in the local area with visions, objectives and planning priorities providing the rationale for how land-use decisions will be made to achieve the community's broader goals. The LSPS works in concert with regional plans to set out the community's long-term vision and aspirations for all Council's planning activities.

Planning priorities are relevant to the Merino Solar Farm Project are set out below.

Table 2-2 Relevant regional planning priorities

Planning priorities	Merino Solar Farm Project response
Planning Priority 1: *Infrastructure*	The Project seeks to provide infrastructure (electricity and battery storage) that is critical to the region and State, whilst drawing on minimal infrastructure itself due to the relatively benign nature of the use once operational.
Planning Priority 4: *Housing*	The Project does not come into conflict with any areas prioritised for urban growth and housing. More specifically the Project area is outside the areas under consideration for additional precincts and dwellings in the Council's Urban and Fringe Housing Strategy (refer to Section 2.2.3). It is located south of the airport, which is

Planning priorities	Merino Solar Farm Project response
	itself south of the growth areas.
Planning Priority 5: *Primary Industry*	The principles under this priority include Council's aim to promote renewable energy projects and co-locate projects where possible. The planning priority notes that renewable energy and extractive industries are growing sectors in Goulburn Mulwaree however, that prime crop and pasture land should be avoided. The Project seeks to deliver a renewable energy project while maintaining the agricultural viability of the land (refer to Section 6.4). The Project has avoided Land Capability Classes 1-3; being the most suitable for ongoing cultivation. It will retain pastures during operation, to protect water quality and soil fertility. The Project would be responsible for ensuring that the Project area is returned to its existing land capability, for continued agricultural or alternative appropriate uses, during the decommissioning stage.
Planning Priority 6: *Industry and Economy*	The project seeks to leverage local industry and provide flow on benefits to the local and regional economy by creating employment opportunities during both the construction and operation phase (refer to Section 6.10).
Planning Priority 7: *Sustainability*	The project seeks to contribute to sustainability by improving availability of electricity from renewable sources, as opposed to finite resources. This is achieved whilst drawing on minimal infrastructure itself and with an understanding of the expected water usage and management (refer to Section 6.8).
Planning Priority 8: *Natural Hazards*	The project seeks to mitigate risks posed by natural hazards such as fire (refer to Section 6.9) and flood (refer to Section 6.8) through design (including avoidance) and detailed management planning in consultation with relevant agencies.
Planning Priority 9: *Heritage*	The project recognises the heritage values of the site and area. Impacts on these values are considered acceptable and will be managed in consultation with relevant agencies and the Registered Aboriginal Parties for the Project (refer to Section 6.2 and Section 6.3).
Planning Priority 10: *Natural Environment*	The project has been assessed to have acceptable residual impacts on the environmental assets of the Project area including water resources (refer to Section 6.8) and biodiversity, habitats and the connections between them (refer to Section 6.1). The mitigation developed in consultation with specialists addresses uncertainty.

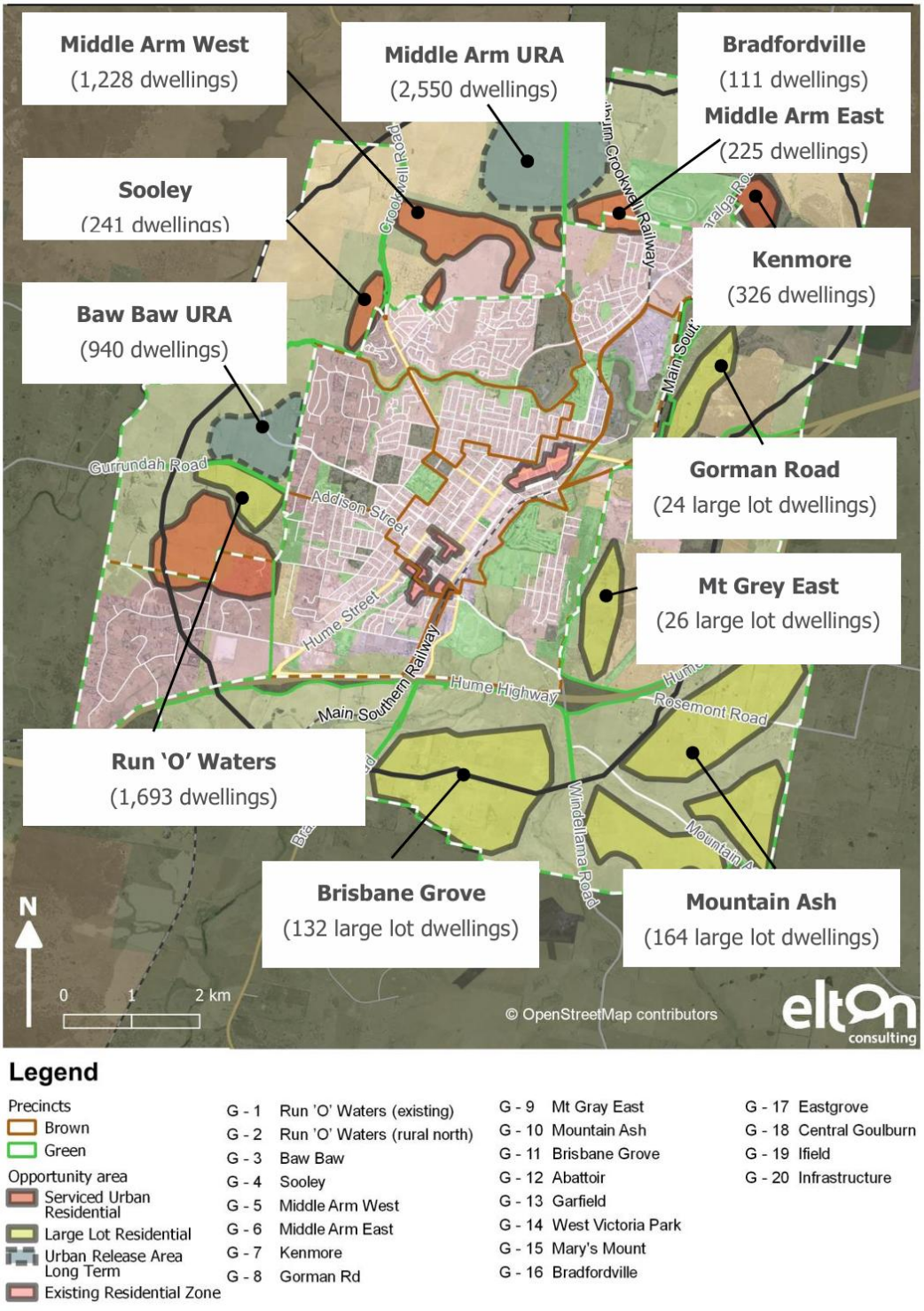


Figure 2-2 Precincts and Opportunities for Development – Goulburn (Source: *Figure C of the Draft Urban and Fringe Housing Strategy - Summary Report* (Elton Consulting, 2019)

2.2.3. Goulburn Mulwaree Urban Fringe and Housing Strategy (2020)

The *Urban and Fringe Housing Strategy* outlines Goulburn Mulwaree Council's approach to identifying areas suitable for future residential development in response to sustained population growth. The Strategy addresses the limited availability of residentially zoned land and aligns with the objectives of the *South East and Tablelands Regional Plan 2036*. It focuses on the urban centres of Goulburn and Marulan and recommends planning for approximately 3,500 additional dwellings (195 dwellings per year) to meet the projected demand for housing over the 18-year period to 2036.

To meet the projected demand for 3,500 additional dwellings by 2036, the Strategy focuses on identifying land that is suitable for future development. It responds to a range of local challenges, including limited available residential land, infrastructure servicing constraints, and environmental sensitivities. The proposed approach includes a mix of greenfield development, urban infill, and large-lot residential areas. Priority is given to locations that avoid environmentally sensitive land, reduce the risk of land use conflict, and preserve high-value agricultural areas.

Most of the recent growth has occurred through residential subdivisions in Goulburn and Marulan, primarily providing R2 Low Density Residential zoned land with minimum lot sizes of 700m^2. These subdivisions have been well received by the market, and as much of the currently zoned land approaches full utilisation, demand for additional land is increasing.

In consideration of the Merino Solar Farm's location, the Strategy does not place significant focus on the southern parts of the LGA, such as Tirrannaville, for future housing development. Instead, the Strategy prioritises areas to the north, west, and south-west of Goulburn's existing urban footprint, where land is better serviced, less constrained, and more suitable for residential expansion (there is also an explanation that both the Goulburn Airport and One Raceway provide constraints to housing development, including creating noise which could disrupt resident's amenity). While some of these precincts are located to the south-east of Goulburn, none extend as far south as Tirrannaville.

While the Strategy is primarily focused on housing supply, it highlights the importance of integrating land use planning with infrastructure delivery and environmental protection, particularly in areas within the Sydney Drinking Water Catchment.

2.2.4. Goulburn Mulwaree Community Strategic Plan

The Goulburn Mulwaree Community Strategic Plan 2042 (CSP) identifies the community's main priorities and aspirations for the future. The strategic vision of the plan is to build and maintain sustainable communities while recognising and respecting the region's environment and heritage.

The Merino Solar Farm Project is underpinned by community engagement activities and specialist assessments such that it aims to incorporate specific measures to protect the natural and cultural values of the region and promote community benefits and initiatives. As a renewable energy generation project, it is strategically aligned with the plan in addressing climate change and supporting local actions which address this global problem.

2.3. Environmental and social context

2.3.1. Key regional features

Goulburn is the nearest population centre, 6km north of the Project. It is a major regional centre accommodating industrial and employment area in the south and north-east, a full range of housing options, a base hospital, primary, secondary and tertiary education opportunities and a network of open space along the Wollondilly River that runs east-west through the town. The size and range of offerings available is commensurate with the city's location as an important regional city midway between Sydney and Canberra.

Goulburn is also a 'regional city' for the purposes of the State Environmental Planning Policy (Transport and Infrastructure) 2021; Clause 2.42 requires that solar projects within 10km of the site demonstrate they are located to avoid significant conflict with existing or approved residential or commercial uses of the land surrounding the development and do not have a significantly adverse impact on the regional city's capacity for growth, or scenic quality and landscape character.

The development of Goulburn is focused on areas north of the Hume Highway, with development to the south of the highway limited by the Goulburn Airport[7], One Raceway (previously Wakefield Park) and a number of areas of large lot residential developments. Tirrannaville and Gundary are both rural areas used for grazing of modified pastures to the south of the Hume Highway.

Major road corridors include the Hume Highway, Braidwood Road and Windellama Road. Braidwood Road crosses the Hume Highway via an underpass and Windellama Road crosses the Hume Highway via a road bridge, approximately 4km to the north of the northern edge of the Project area. Goulburn is serviced by rail; the Main South Line connects Sydney to Albury.

The project area is located within the Sydney Drinking Water Catchment.

The Project is not located within a Renewable Energy Zone (REZ).

The Merino Solar Farm is located along an existing 330kV transmission line with available capacity and can be serviced by the existing road network (with limited upgrades at the Project area entrances).

The Gundary Solar Farm is currently under assessment and is located approximately 1km to the east.

The Project locality and key features are shown in Figure 2-3.

[7] The airport has a paved runway and secondary grass runway and services many different aircraft types; it does not accept larger commercial flights from Sydney or Canberra.

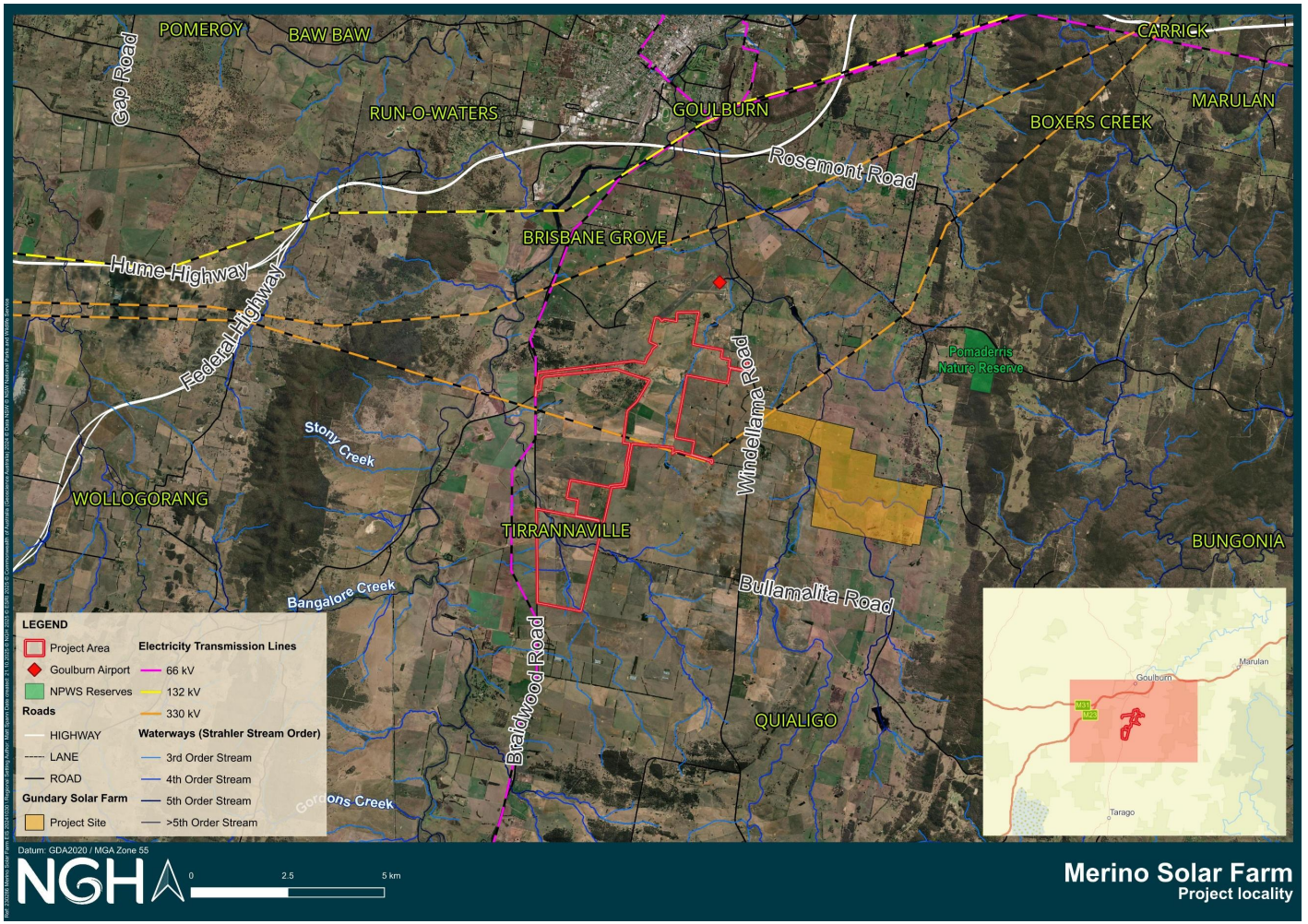


Figure 2-3 Project locality

2.3.2. The Project area

The Project area is defined as the full extent of the site investigated for the Merino Solar Farm Project, prior to any exclusion zones or setbacks being incorporated. It includes road and reserves and a 330kV TransGrid transmission line and easement as well as seven private landholdings. It is approximately 986 hectares (ha).

It is situated predominantly in the locality of Tirrannaville and partly in the locality of Gundary. It is generally located between Braidwood Road to the west and Windellama Road to the east. Both roads are administered by Goulburn Mulwaree Council (GMRC). It has a north and a southern portion, which would be connected by a proposed transmission corridor. A single mining exploration licence applies to the site, being EL9048, held by Aurum Metals Pty Ltd until 15 February 2026 unless renewed prior.

It is approximately:

- 6 km south of Goulburn
- 70 km northeast of Canberra
- 170 km southwest of Sydney

Considering smaller towns, it is approximately

- 50km north of Braidwood
- 70km north of Tarago.

The Involved Lots are all used for agriculture. They include 38 farm dams (16 within the Development Footprint) and sheds and one dwelling. One dwelling within the Development Footprint and five other dwellings on adjacent land which are owned by host landholders are considered 'Project-associated' and are not required to be assessed for impacts.

Table 2-3 provides a breakdown of the landholdings and the infrastructure proposed by the Project for each lot. Figure 2-4 shows the distribution of these lots within the Project area.

Note: The NSW cadastre shows the neighbouring Lot1 DP807719 intersects the Project area. Following a title search on Lot1 DP807719 it was determined the lot boundaries do not align with the physical boundaries on the ground and the accurate surveying, which will be required as part of the detailed design phase, will show the existing access north of Lot1 DP807719 is a dedicated right of carriageway easement under the administration of GMRC. A close up of this area is shown in the Figure 2-4.

Table 2-3 Involved Lots

Landowner	Lots	Purpose for the project
Landowner 1	1//DP791958 2//DP1140024 4842//DP1145918 X//DP38377	Northern project area Northern site access
Landowner 2	1//DP877935	Southern project area Southern site access
Landowner 3	1//DP593528	Southern project area Transmission corridor
Landowner 4	7//DP172130	Northern project area Northern site secondary access (Windellama Road)
Landowner 5	2//DP1052351	Southern project area
Landowner 6	5//DP1124660	Northern project area and Northern site secondary access (Gundary Lane)

Landowner	Lots	Purpose for the project
Landowner 7	12//DP631837	Transmission corridor
TransGrid 330KV easement		Cut-in into the existing 330kV line 5 (Yass-Marulan)
GMRC road easements	Braidwood Road Gundary Lane Painters Lane Windellama Road	Site access

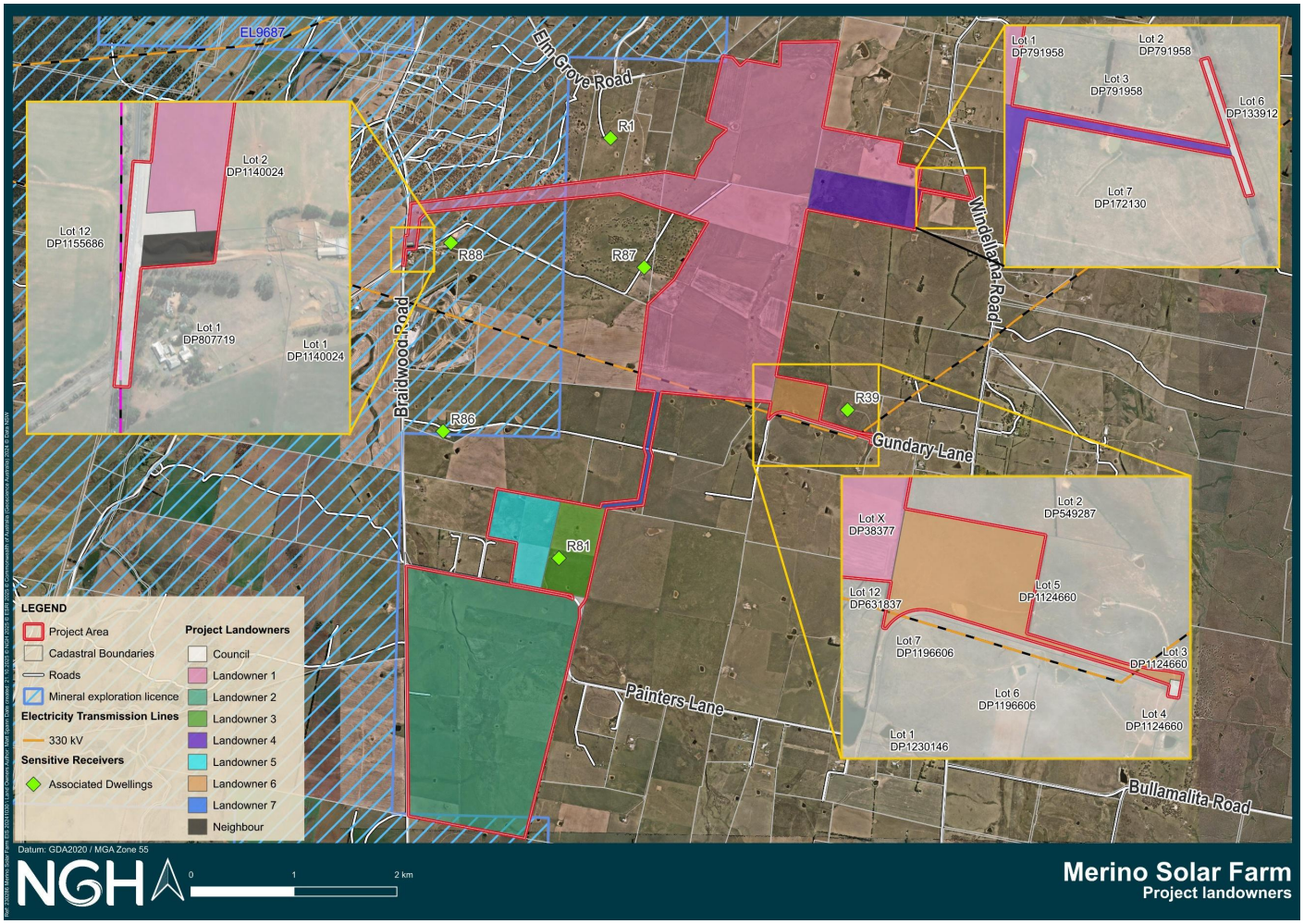


Figure 2-4 Involved Lots showing cadastre misalignment with one neighbouring lot

2.3.3. Community profile and nearby receivers

A profile of the social landscape of the Southern Tablelands Region is detailed in the Social Impact Assessment included in Appendix F.11. The region has a total population of 57,863 (Department of Regional NSW, 2023), with the Goulburn Mulwaree LGA being the most populous, with 32,053 residents. The region is also experiencing population growth and an increase in the proportion of residents ages 55 and older (Department of Regional NSW, 2023).

Receivers have been mapped and identified throughout the Scoping and EIS phases of the Project, via both desktop analysis using satellite imagery and publicly available property data and refined further through the community engagement process. Overall, 188 non-associated receivers and 6 associated receivers were identified within 4km of the Project Site (Figure 2-5). The six Project-associated dwellings (receivers) are:

- R1 at Lot 12 DP1011058
- R39 at Lot 5 DP1124660
- R81 at Lot 1 DP593528
- R86 at Lot 12 DP631837
- R87 and R88 at Lot 2 DP1140024.

Visual impacts are considered in Chapter 6.5, however impacts to all identified receivers have been identified as ‘low visual impact’. This is contingent upon one set back area, now reflected in the Development Footprint. In summary:

- There were 22 dwellings near the northern section of the Project area and nine dwellings near the southern section that required intermediate assessment.
- The intermediate assessment determined that six dwellings (3 to the north and 3 to the south) had potential for a moderate visual impact. As a result, they proceeded to a detailed assessment.
- The assessment was iterative in that a setback was applied to R5 to reduce the impact level to low. On this basis, no further mitigation, such as the planting of vegetation screening, was required. The residual visual impacts of the Project are low for all private viewpoints.

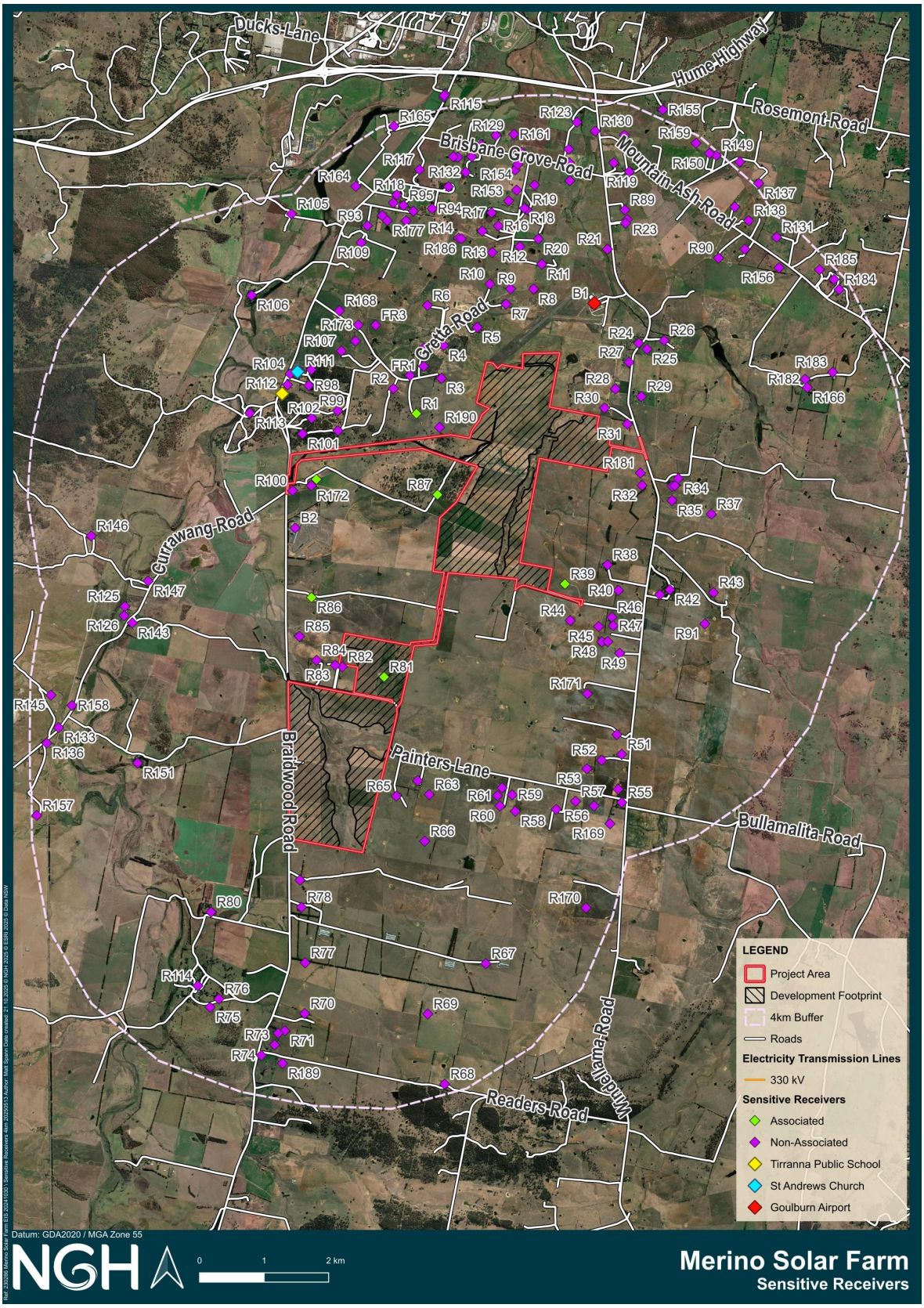


Figure 2-5 Local receivers, including project-associated dwellings

2.3.4. Natural and cultural values

Topography, soil and water

The northern section of the project area has undulating terrain, including a central waterway and several dams, while the southern section is flatter, generally more low lying and subject to greater areas of flooding. The Project area includes one 3rd Strahler order stream, which is classified as Key Fish Habitat, and numerous first and second order streams.

Flooding on both Braidwood Road and Windellama Road have been noted through consultation with Council and local community members. The flood modelling shows that inundation may be relatively long lasting when floods occur. The overall hazard presented during floods is low however, due to the low average velocity, owing to the site's lack of steep topography.

Table 2-4 Topography

	High point (m)	Low point (m)	Range (m)
Northern portion	684	643	41
Southern portion	655 (668 local rise)	644	11

There are no groundwater bores located within the Development Footprint. However, 62 registered bores are located within 3km of the site with an average drill depth of 39.5m.

The Land and Soil Capability Assessment Scheme (OEH, 2012) defines eight capability classes, considering the biophysical properties of the land, associated hazards and the ability to manage the hazards.

The eight classes range from:

- Class 1 extremely high capability land: The land has no limitations and no special land management practices are required.
- Class 8 extremely low capability land: The limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation.

The state-based desktop resources show the Project area as having a land capability of Class 4 (moderate capability), except for land along Saltpetre Creek and its tributaries, which is mapped as Class 5 (moderate-low capability). The land is not mapped as Biophysical Strategic Agricultural Land (BSAL) or State Significant Agricultural Land. The soil sampling and classification investigation studies specific to the Project area, however, show that the site has much lower capability. In terms of the area of each class within the Project area, the relative proportions are:

- Class 4 (moderate capability): 0%
- Class 5 (moderate-low capability): 82%
- Class 6 (low capability): 17%.

Soil remediation and / or avoidance of highly sodic soils (as shown in Figure 3-10) has been recommended where these occur onsite. Remediation should be done as per Mitigation Measure LC6 in Section 6.4.6.

Land use is mapped via the Landuse Mapping for NSW 2017 spatial dataset as being used for grazing of modified pastures, although site visits and discussions with landowners confirm some cropping occurs.

Biodiversity

While both the northern and southern areas of the site are largely cleared of overstorey vegetation, stands of vegetation occur along fence lines, roads, creeks, hill tops and ridges. Aerial imagery indicates the presence of scattered paddock trees throughout the Project area. This includes native and exotic (non-native) species.

The Project area is mapped as predominantly exotic grassland under State Vegetation Type Mapping (SVTM) with several small patches of Southern Tableland Red Grass-Spear Grassland mapped as occurring along Saltpetre Creek, while the entirety of the southern site and parts of the northern site are mapped as Sensitive Biodiversity under the LEP.

705.2 ha of land were identified as Category 1 – exempt from most aspects of the biodiversity assessment due to a history of regular cultivation. Habitat within the assessment area is highly disconnected given the historical clearing associated with agriculture and other land uses in the region. No 'species credit' flora or fauna were identified in the Development Footprint during the targeted survey program.

Cultural heritage values

The Project area is near the southern border of Gandangara country. The region has a complex Aboriginal history, with many recorded interactions between Ngunawal and other groups. This is reflected in the presence of three significant Aboriginal sites locally:

- A breastplate, or gorget, belonging to a 'King John Cry Chief of the Duedolgong Tribe
- A burial site of the Kuegolgong or 'Wollondilly Tribe', located on the 'hill above Landsdown bridge'
- A corroboree site, now occupied by the Goulburn Railway Station.

No recorded sites of Aboriginal cultural heritage significance were identified during site surveys and most of the Project area has been modelled of low or very low Aboriginal archaeological potential.

There are several locally significant heritage items in proximity to the Project area, including:

- I599 "Pelican Homestead and Shearing Shed" at 4840 Braidwood Road – the land being adjacent to the site but the listed buildings being approximately 2 km distant
- I596 "Tirranna Public School" at 4986 Braidwood Road – located approximately 3 km from the site
- I595 ""Tirranna" homestead, gardens, Gibson family cemetery and veterans allotments" at 4971–5071 Braidwood Road – located approximately 2 km from the site
- I597 "St Andrew's Anglican Church and Cemetery" at 13 Tirranna Lane – located approximately 3km from the site.

No recorded sites occur within the Development Footprint pf the {Project.

Bushfire hazard

Considering bush fire risk, Category 1 vegetation is considered to be the highest risk for bush fire and includes areas of forest, woodlands, heaths (tall and short), forested wetlands and timber plantations. Category 3 refers to medium bush fire risk vegetation. It is higher in bush fire risk than category 2 but lower than Category 1. This category consists of grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.

The entirety of the project area is mapped as Vegetation Category 3 on the Bushfire Prone Land Map, except for some minor areas in the northeast of the northern section the of Project area, which is mapped as Vegetation Category 1.

Cumulative impact potential

Cumulative impacts are the additional impacts arising from other planned or foreseeable future developments, in combination with the impacts of the proposal. The most relevant development is the proposed Gundary Solar Farm, located approximately 1km east of the Project area. The key adverse cumulative impacts that could occur were identified as:

- Amenity impacts for dwellings located between the two project areas or motorists driving between the two projects (potential for increased traffic, visual and noise impacts)
- Increased social impacts, should the construction stages of the projects overlap, including increased pressure on local workforce, accommodation, goods and services.

Positive cumulative impacts can also result. The most relevant include the alignment of the project with federal and state regional renewable energy policies, regional and local land use plans and reduction in energy prices that increased renewable energy generation project will bring. As well, the community benefit schemes related to the projects may be used to boost local initiatives.

2.4. Project alternatives

In considering the development of utility scale solar energy generation and energy storage in the local area, feasible alternatives that were considered included alternative sites and scale of development, alternative generation and storage technologies. The consequences of not developing a utility scale solar energy generation and energy storage were also considered (opportunity costs).

2.4.1. Site location, scale and suitability

The scale of the Project has been influenced by:

- The connection capacity in the existing TransGrid 330kV transmission line
- Land available from interested landowners willing to enter into lease agreements
- Exclusion zones and setbacks, identified during the assessment to minimise the impacts of the Project (primarily biodiversity and waterways)
- Commercial investment and viability considerations.

The design of the Project is the result of an iterative process and has been adapted progressively as information regarding site constraints, and the potential impacts and risks associated with the development of the Project have become available. The Project area's evaluation in terms of *the Large-Scale Solar Energy Guideline* (DPHI, 2022) is described below in Table 2-5.

Table 2-5 Site evaluation

Criterion / constraint	Relevance to the Project
Preferable site condition	
Optimal solar resources	Adequate mean solar exposure, between 2.2kWh/m^2 (June) 6.9kWh/m^2 (December) (between 1990 and August 2024) (Bureau of Meteorology , 2024).
Suitable land	Gently undulating terrain, predominantly clear of native vegetation. Compatible with existing adjacent agricultural land uses.
Capacity to rehabilitate	Construction methods selected to generate minimal soil disturbance and with some grazing during operation. Baseline soil

Criterion / constraint	Relevance to the Project
	data would be referenced when used when remediating the site to its pre-existing condition after decommissioning.
Proximity to electrical network	Existing 330kV infrastructure transmission line crosses the Project area.
Connection capacity	Capacity for the electricity grid to accommodate the electricity generated from the Project has been confirmed by TransGrid. The Applicant signed a Connection Process Agreement for the Merino Project with TransGrid on the 28th of June 2024.
Constraints	
Development restrictions	The Subject land is not within a Renewable Energy Zone (REZ). While the REZs will play a critical role, the NSW Government's revised Large Scale Solar Guidelines recognise that to meet state and national clean energy targets, renewable energy projects are also required outside of the REZ areas. The NSW Government has noted development outside of the REZ must occur if it is to meet its emission reduction targets and about 70% of existing solar development is outside the REZ. Goulburn is deemed a regional city for the purpose of section 2.42 of the TISEPP. Consideration of this SEPP has demonstrated the Project: a) is located to avoid significant conflict with existing or approved residential or commercial uses of land surrounding the development, b) is unlikely to have a significant adverse impact on the regional city's capacity for growth, or scenic quality and landscape character. A detailed visual impact and land use conflict risk analysis (LUCRA) has been undertaken considering potential compatibility issues and impacts on scenic quality and landscape character (refer to Section 6.4 and Section 6.5). Impacts are not considered significant. The Project is defined as electricity generating works, which are permitted with consent in the RU1 zone under the provisions of the LEP.
Important agricultural land	The land is not mapped as Biophysical Strategic Agricultural Land (BSAL) or State Significant Agricultural Land (SSAL). No high capability land will be affected i.e. Classes 1- 3 or above, with reference to the Land and Soil Capability Assessment Scheme (OEH, 2012).
Visibility and topography	The Project area is relatively low relief although some elevated views are achieved from nearby dwellings. All nearby non associated receivers were assessed to have low visual impact, driven by existing plantings or the distance from the infrastructure.

Criterion / constraint	Relevance to the Project
Aboriginal cultural heritage	Limited areas of moderate potential occur; most of the Project area is modelled as low to very low Aboriginal archaeological potential. No sites were identified during field surveys.
Biodiversity	The Project area is predominantly clear of native vegetation. No 'species credit' flora or fauna were identified in the Development Footprint during the targeted survey program. No Serious or Irreversible Impacts are relevant to the Project.
Natural hazards	Flooding and bushfire hazards can be managed. Design of accesses and crossings and commitments to enhance riparian vegetation will ensure that the Project would not impact local hydrological function or exacerbate erosion or flooding. Best practice setbacks and construction methods to management impacts on waterways are included as part of the Project. Design and emergency management planning can address the risks in the event of a fire.

2.4.2. Alternative technologies

Photovoltaic, or PV solar technology, is one solar option. It was chosen for electricity generation because it is cost-effective, low profile (less visible), durable and flexible regarding layout and siting. It is a proven and mature technology which is readily available for broad scale deployment at the site.

PV solar generation is well suited to the characteristics of the Project area which include:

- Slightly undulating land
- Limited numbers of trees, shrubs of other structures which may affect solar yield or increase environmental impacts (as required through clearing)
- Grazing, which may continue to some extent within the proposed development areas.

Given the selection of PV solar technology, the additional technology options considered for the Project include:

- The type of PV panels, piling and mounting systems
- The type of BESS technology.

Solar panels

Solar panel technology has been evolving rapidly. Specification of the exact make of the solar panels would be defined during the detailed design phase under competitive tender processes. However, the maximum expected dimensions have been assessed to provide a conservative assessment.

Solar panels can be fixed on a specific angle or incorporate a mechanism that enables the modules to track the path of the sun. Single axis tracking systems enable the modules to track the sun from east to west, following the path of the sun. The tilt/angle of the module is fixed. For this Project it has been determined to use the single axis tracking system because it significantly increases the efficiency and energy yield of the solar panels. By continuously adjusting the position of the panels to follow the sun's position in the sky, single axis tracking systems maximize the exposure to sunlight throughout the day. This results in higher electricity generation compared to fixed-tilt systems, which only capture optimal sunlight during limited periods of the day.

Piling or drilling will be used to secure the panel mounts into the ground. This causes minimal soil disturbance in comparison to concrete footings. No soil leveling would be required under the array areas. The intention is to retain a stable pasture groundcover beneath the array, so minimising disturbance during construction. This will have soil conservation and water quality benefits to the alternative.

Energy storage technology

There are several alternative technologies that could be used for the proposed BESS. Battery technology was selected over mechanical or physical storage methods (flywheel, pumped hydro, liquid air, compressed air) or thermal storage (such as hot water or molten salt) because it enables modular installation without major infrastructure or specialised landform features. Batteries generally have lower weight and physical volume and have better scalability compared to other technologies.

The lithium-ion ('Li-ion') battery is currently the preferred technology for storing energy generated from wind and solar sources and is likely to dominate battery chemistry for the next 20 years (as of 2016) (Randell Environmental Consultancy, 2016). The shift to Li-ion batteries is due to their greater energy density (which means they are smaller and lighter), expected longer life spans and are able to undergo deeper discharges, reducing the capacity required (Lewis, 2016). Li-ion batteries have a very long lifetime compared to other battery technologies, with 5,000 or more charge cycles (Finkel et al. 2017).

Alternative battery technologies include lead acid and relatively new technologies such as hydrogen, molten-state, sodium-ion, flow (vanadium redox, hydrogen bromide or zinc bromide) and saltwater batteries. Many of the competing technologies are either still in technical or commercial development, environmentally unfriendly or offer low energy and power density compared to Li-ion.

Li-ion battery cells were selected for the Project because they provided the optimal combination of:

- Proven ability to complement solar generation developments
- Ability to support the network to increase renewable energy penetration
- Ability to provide fast frequency support
- Ability to provide energy during periods of peak demands
- Minimal environmental impact
- Safety and ease of integration
- Demonstration and maturity of technology
- Value for money.

Li-ion technology is established and proven, compact, lightweight, highly efficient, very high energy density, economically attractive, commercially available and easily installed with low maintenance requirements.

Energy storage configuration

Battery storage can be located centrally or distributed throughout the array areas. It is proposed to use an AC coupled BESS, located next to the substation and connection to the existing transmission line, rather than distributed throughout the array. This is preferred because centralising the battery storage system next to the substation simplifies the integration with the existing transmission infrastructure, reducing the complexity and cost of additional cabling and connections. Additionally, it reduces the visual and physical impact of the infrastructure, as the storage units are concentrated in a single location rather than spread across the project area.

2.4.3. Do nothing and opportunity costs

The 'do nothing' option must always be considered in any evaluation of options. It represents the status quo situation or the opportunity loss of other potential developments or land uses. It avoids the specific environmental and social impacts of the Project proposed but also avoids realising the Project's benefits.

Other potential uses for the Project area might include:

- Continuation of current grazing and periodic cropping regime. The Project area has average capability soils, with high limitations regarding continued cropping. It will be more profitable as a solar electricity generating site.
- Rural residential development. The Project area could be used for subdivision for rural residences. Impacts of intensified residential development may include noise, loss of agricultural, biodiversity and heritage values and rural scenic character.
- More intensive agricultural use, such as for horses, cattle, chicken farms, or animal boarding facilities. Impacts of intensified agricultural development may include noise, loss of biodiversity and heritage values as well as soil and water quality risks.
- Environmental conservation and restoration. While there would be benefits to enhancing tree recruitment and restoring riparian vegetation, the highly modified nature of the site suggests this would only be worthwhile in limited areas of the Project area and would negate the broader economic benefits of hosting a solar farm.

The continuation of the current grazing and fodder cropping regime is likely to represent the least impact on the community, environment, and maintain the economic status quo, but it would forgo the benefits of the Project, outlined in Section 8.2.

2.5. Project agreements

2.5.1. Voluntary planning agreements / Community Benefit Scheme

The Applicant has discussed the structure and likely initiatives appropriate to the Project's Community Benefit Scheme (CBS) with the Goulburn Mulwaree Council and will continue its consultation with the Council throughout the development, construction and operation of the Project.

Responding to local feedback, the Applicant discussed their offer to direct a specific proportion of the CBS directly to near neighbours, subject to landholders' agreement with terms including not lodging an objection to the Project. These are not impact agreements but are a way to share the benefits of the Project more locally. The Applicant proposes that the moneys will revert to the Council if the agreements are not reached. As of September 2025, restrictions regarding timing and not lodging an objection to the Project have been lifted; the Applicant will endeavour to maximise the local spend as a proportion of the CBS.

The Merino Solar Farm CBS that has been proposed to Council is consistent with the *Benefit-Sharing Guideline 2024* (DPHI 2024) of $850 per megawatt per annum for solar energy development. While final details and breakdowns are being developed, it is currently proposed to be divided between:

- Neighbourhood benefit fund, to share the benefits with those located closest to the Project
- A Voluntary Planning Agreement contribution directly to Council
- Community group contribution
    - As shown below, a sum will be provided to 'The Goulburn Group', which is a community action group with a focus on fostering and promoting sustainable living in the Goulburn region. The yearly payments would be used by the Group to fund their existing or future initiatives.
- Soil restoration research project.

- This project, undertaken by the Cooperative Research Centres Program, aims to research into Agrisolar practices and demonstrate how energy production, commercial food products and Indigenous knowledge can blended on the same land.
- Specific research would be undertaken to focus on the improvement and remediation of sodic and dispersive soils. In addition, the growing of Indigenous Food as part of the Agrisolar initiative will also be explored.
- The project aims to improve local resilience to extreme weather events, and beneficial outcomes of research would be extended to other landholders and the wider community though Local Land Services communications and Landcare networks.

The proposal presented to Council is as follows:

Table 2-6 Proposed distribution of Project community funds

Investment	Description	Contribution Type	Contribution (%)	Annual Payment (+CPI)
Neighbourhood Benefit Fund	Annual payments paid directly to most impacted neighbours	Annual Payment	41.8%	$ 160,000
VPA contribution to Goulburn Mulwaree Council	Annual payment to council	Annual Payment	46.4%	$ 177,500
Community Group contribution	Annual payment to local Goulburn community group to fund initiatives	Annual Payment	5.2%	$ 20,000
Soil improvement on project land & Indigenous Food Growing	Research Project - Improve soil quality of sodic and dispersive soils in Goulburn	Annual Payment	6.5%	$ 25,000
			TOTAL	**$382,500**
			Guideline amount (35 years)	**$382,500**

2.5.2. Host landowner agreements

Agreements to host infrastructure are in place with seven landholders. They are considered 'Project-associated' and as such impacts are not required to be assessed for the six host-owned dwellings (associated receivers).

The agreements consider access to the Project area during operation, including provision for some continued agricultural use, and how the infrastructure will be removed from the site, during decommissioning and other arrangements to ensure the existing land capability will be maintained at the end of the Project's life.

2.5.3. Negotiated landowner agreements

Negotiated agreements are established where a receiver agrees to become 'Project-associated' and accept specific Project impacts. No receivers will be exposed to greater than low amenity impacts from the Merino Solar Farm Project. Refer to Section 6.5 and Section 6.6. As such, there are no negotiated landowner agreements in place for this Project.

03 Project description

3. Project description

3.1. Addressing uncertainty for State Significant Developments

A high-level *indicative* infrastructure layout is provided in this section however, for utility solar farm developments, it is noted that the detailed design stage commences only *after approval has been granted*. Detailed design will be informed by further topographic and geotechnical surveys and will be subject to commercial tendering and procurement processes to arrive at the final design and construction program. This will ensure the Project is optimised in terms of yield and efficiency, within the parameters of the approval.

To address the uncertainty that this brings to the assessment and approval process, the Applicant seeks to gain consent for a maximum 'Development Footprint' (all areas that may be subject to disturbance to construct and operate the Merino Solar Farm). The Applicant will then work within this area as the Project progresses into detailed design. After the siting of perimeter fencing, APZ and perimeter roads, the final array area is likely be smaller and further from receivers than shown and assessed in this document. This provides conservatism in the assessment of Project impacts and allows for necessary flexibility in detailed design. It is noted that:

1. Submission of the final detailed design to DPHI *prior to construction* is a standard feature of approved State Significant Development (SSD) consent conditions. This provides the final check that the detailed design is consistent with the EIS's assumptions and consented Development Footprint.
2. As the final specifications and location of infrastructure are subject to change during detailed design, the impact assessment documented in this EIS considers a realistic 'worst case', for example:
   - The largest Development Footprint that may be impacted – in terms of clearing and soil disturbance that may be required.
   - The noisiest machinery during construction, with assumptions regarding concurrent operation.
   - The tallest block of infrastructure that may be installed – in terms of modelling how visible the Project will be to near neighbours.

The Project description described and assessed in this EIS is therefore intended to *over-estimate impacts* and *over-scope mitigation strategies.* It is a conservative strategy to address uncertainty. Areas of uncertainty are clearly identified, and specific strategies are included to address these in the later stages of the Project, where required. This approach is consistent with the *State Significant Development Guidelines – Preparing an Environmental Impact Statement* (DPHI, 2022) which states:

> *… with some large, complex Projects this flexibility is often essential as it is difficult, if not impossible, to deal with all aspects of the design of these Projects at the EIS stage.*

3.2. Permanent infrastructure components

3.2.1. Overview

The Project would consist of solar panels, mounted within an array area and associated ancillary infrastructure. Ancillary infrastructure is taken to include all supporting inverters, transformers, BESS, substation and switching station, electrical connections and cabling, onsite buildings, access roads and parking, fencing and lighting. In addition, road upgrades will be required to access the site from public roads.

The Indicative Development Footprint is shown below in Figure 3-1. Table 3-1 below presents a summary of the Project's key components and Figure 3-2 provides a mapped representation of the Project's indicative infrastructure layout.

Table 3-1 Project summary

Aspect	Description
Project area	Project area = 986ha Development Footprint = 767 ha
Project infrastructure	• A solar generating capacity of 450MW (AC) with approximately 870,000 single axis tracker (east-west) solar panels, maximum height of 2.9m and inter row spacing up to 7m • Two 250MW inverter stations – 3.5m high • Substation and 450MW/1800MWhr (AC) BESS located in a designated area of approximately 32ha some components such as lightning rods up to 9m high • Up to two high voltage transformers • Site office approximately 4 m x 20m x 5 m (high) • Switch room approximately 4 m x 18 m x 4m (high) • Approximately 2.5km transmission line to connect the northern and southern sites (underground or aboveground; however, underground is the preferred option, subject to geotechnical results). • Underground cabling to connect array modules • Security: CCTV security cameras, approximately 2.4m high security fencing around the property and individually around the BESS, night and security lighting

Site access	• Primary access: Northern section - Windellama Road; Southern section - Four access points from Painters Lane, via Braidwood Road
	• Other access requirements:
	  ○ Emergency access option - Braidwood Road (north of primary access)
	  ○ Over Size Over Mass access and Transgrid access to new substation - Gundary Lane (limited movements)

Road upgrades	• Two locations on the OSOM haulage route from Port of Melbourne • Channelised Right Turn at the Windellama Road site access (access 1) • Short auxiliary left turn treatment at the Braidwood Road / Painters Lane intersection (access 2) • Rural driveway accesses to accommodate B-double vehicle access on additional Painters Lane accesses (accesses 5,6 & 7) • Widening of Painters Lane to minimum of 7m from Braidwood Road to the Painters Lane Site access 7
Construction duration	• The construction period is expected to take 24 months, with a peak period of approximately 12 months • Construction hours limited to Monday to Friday 7am to 6pm and Saturday 8am to 1pm
Operation duration	• The expected operational life of the Project is 35 years. • Components may be refurbished or replaced during this time and may extend the operational life
Decommissioning and rehabilitation	• At the end of the project life, all above ground infrastructure would be removed and disturbed areas of land rehabilitated. The exception to this is the substation which will be gifted to TransGrid and become part of the electricity network infrastructure and any tracks or buildings the landholders wish to retain
Subdivision	• Subdivision would be required for the onsite substation (which would become the property of Transgrid). The final subdivision area would be approximately 10h subject to final detailed design.
Employment	• Construction: Up to 500 full-time equivalent (FTE) jobs during construction • Operation: 10-12 FTE staff once operational, with additional casual staff for maintenance
Estimated Development Cost (EDC)	Approximately $1,200,993,4480

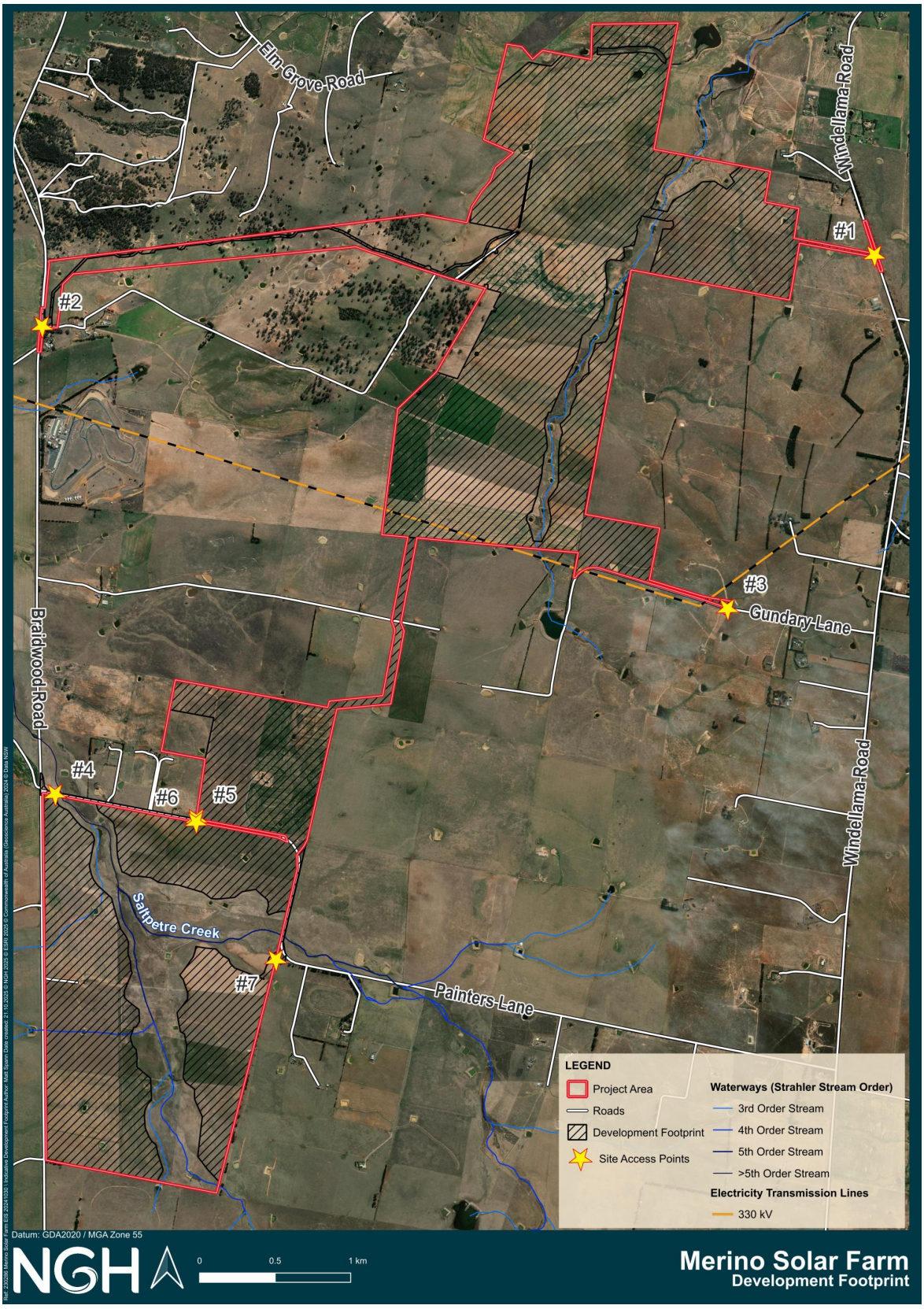


Figure 3-1 Development Footprint

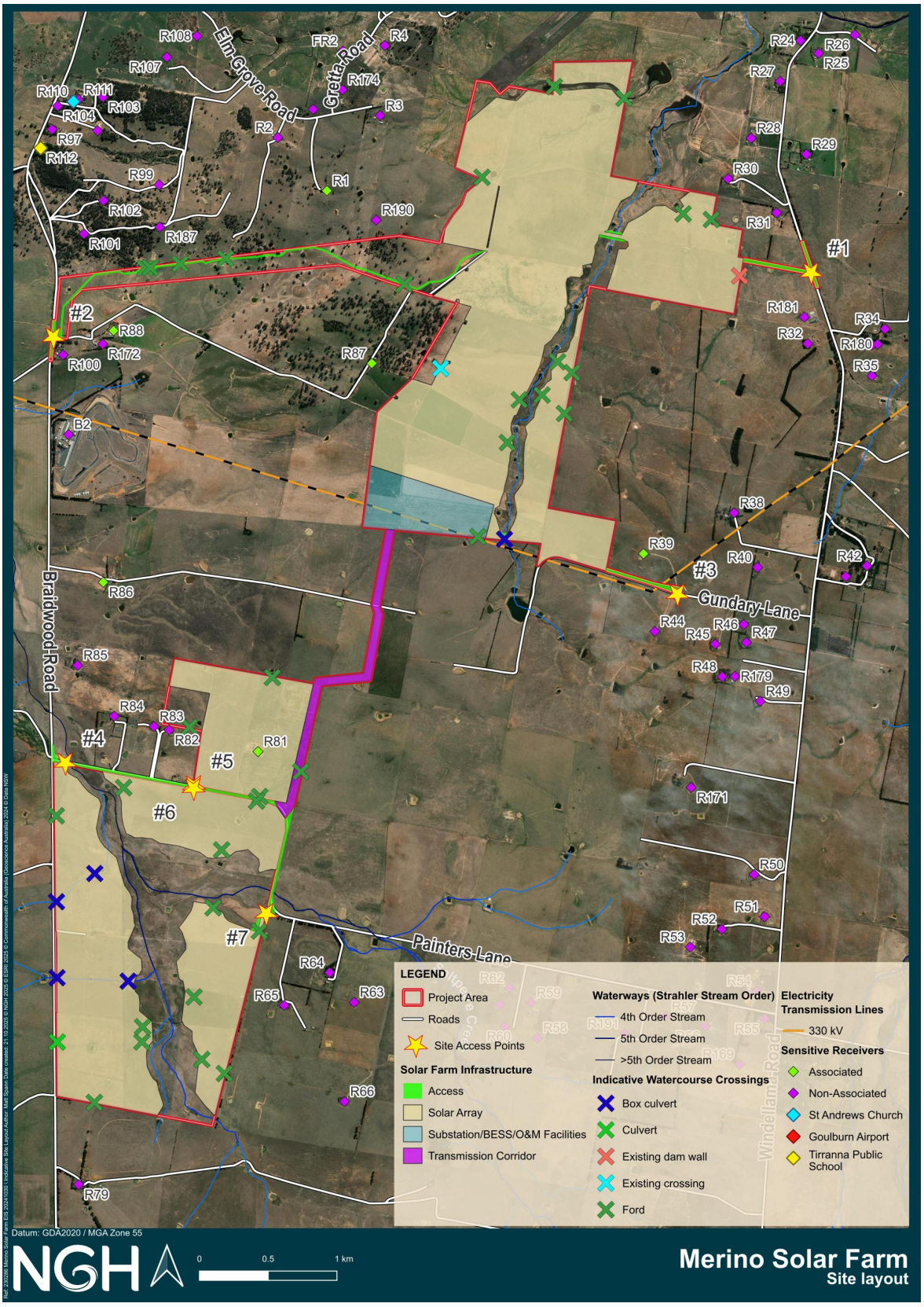


Figure 3-2 Indicative site layout

3.2.2. Solar arrays

Steel piles are used to support the tracker structures where solar modules are mounted. Drive pile foundations would be used to support the solar modules and the mounting systems. driven-pile foundations are preferred as they minimise the soil disturbance and can be installed quickly. Helical or screw piles may be used in locations where the soil is incompatible with driven piles. If bedrock is encountered, this may require additional processes such as pre-drilling and grouting.

Solar photovoltaic (PV) technology will be crystalline silicon. The solar PV modules will be connected together via a direct current (DC) collection system consisting of cables mounted on the module support structure. The support structure will be east-west tracking. A tracking system tracks the daily movement of the sun, and a motorised system rotates the panels constantly to maximise energy output performance.

The combined solar arrays will have a total generating capacity of approximately 450MW(AC).

The Project will utilise ground-mounted solar PV single portrait solar arrays which will be mounted on a single-axis tracking system. This will include:

- Approximately 870,000 solar modules
- Row spacing between modules, up to 7m
- Clear space between panels, approximately 3–5 m or greater (spacing may increase between rows to respond to local topography)
- The maximum (estimated) height from the ground to the highest point (when the panels are at maximum tilt) is ~2.9m. This would be the height at the highest point on the land.

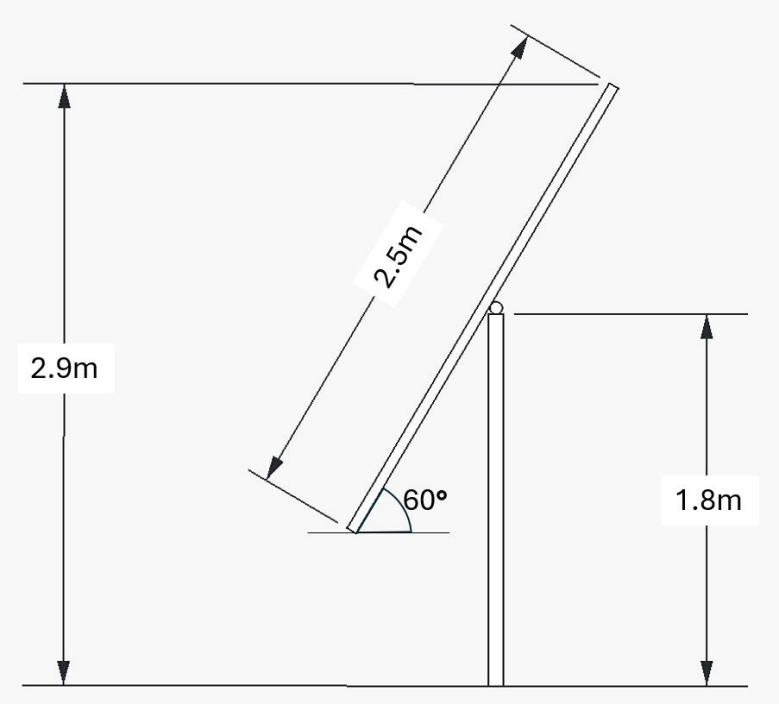


Figure 3-3 Typical array dimensions

Figure 3-4 Solar arrays, single portrait arrangement, indicative photograph

3.2.3. Inverters and transformers

The purpose of the inverters / transformer stations (also known as power conversion units) is to convert direct current (DC) electricity, generated by the solar panels and BESS, to alternate current (AC) which the National Electricity Grid uses, and to increase the voltage of the power before transferring it to the substation. For this Project, the inverters and transformers will be co-located together in single, container-style buildings (stations) and will be distributed throughout the array area, for power conversion separately from the array.

The AC collection system will consist of underground cabling at 33kV to each inverter assembly and deliver the electricity to the site substation. The site substation will consist of two transformers to increase voltage to 330 kV. The site sub-station will be enclosed securely and would be located within the boundary of the proposed Merino SF within Lot X DP38377. These transformers would be approximately 3.5m tall, but it should be noted that the area would also include lightning rods could extend up to 9m tall.

3.2.4. Battery Energy Storage System

A BESS is proposed to store power generated by the Project, providing a more reliable release of energy to the grid or an option to export energy to the grid to meet demand outside of sunlight hours. Lithium-ion ('Li-ion') is currently the preferred technology for storing energy generated from solar sources and is likely to dominate battery chemistry for the next 20 years.

A 450MW/ 1800MWhr AC coupled BESS would be established in conjunction with the Solar Farm to regulate the supply of electricity to the grid. The BESS configuration would be approximately as indicated in Figure 3-6.

Risk mitigation strategies considered in siting the BESS include:

- Adequate space of provision of an APZ
- Provision of fire safety separation distances

- Proximate to site entry for expedient access
- Fire detection and alarms
- Emergency shut down response
- Emergency response plan.

The climate-controlled battery storage units (anticipated to be containerised) would be constructed on concrete footings approximately 300mm above ground level. Ventilation and cooling units are built into the BESS containers.

The BESS would be monitored on a constant basis, utilising NEM compliant metering arrangements that are automated and with individualised control and diagnosis of individual battery modules. The BESS would incorporate a Battery Management System for control and safety purposes. The operation of the BESS would primarily occur remotely; however regular site checks would be undertaken by permanent site staff during operation.

It is anticipated that the battery modules would have secondary containment to ensure that any one battery module failure (e.g., any battery fires or thermal runaway event) is contained. This is an integral design feature of the system's architecture with one of the applicant's key suppliers.

Figure 3-5 Associated infrastructure, indicative photographs from projects in NSW (fencing, substation) and 3D modeled images (BESS and inverter and substation)

3.2.5. Onsite substation and switch room

The solar farm would connect via the TransGrid 330kV (Line 5: Yass-Marulan) feeder, approximately 30km from the Marulan substation as per Figure 3-7. Connection to the grid is assessed in this EIS.

To connect the Project to the National Electricity Grid, the Project will require a substation and switching station to be constructed within the Development Footprint. The substation would have a nominal transfer capacity of approximately 500 MVA (2x250MVA transformers) and host up to two transformers with a

maximum height of 3.5m. Within the substation some components such as lightning rods would be up to 9m high.

The substation would be constructed to the west of the BESS, as indicatively shown in Figure 3-6 below. The substation would occupy and area of approximately 10ha, subject to final detailed design. Overhead cabling would connect the switching station to the 330 kV transmission line. National Energy Market metering equipment would be on-site within the substation compound.

Part of the substation compound, including the substation and the power transformers, would be owned by the Transmission Network Service Provider (TransGrid), to be managed as part of their network. To ensure that TransGrid can manage their own assets, a subdivision will be sought through Council post approval, to delineate areas required for permanent TransGrid assets within the Development Footprint, as required by Transgrid.

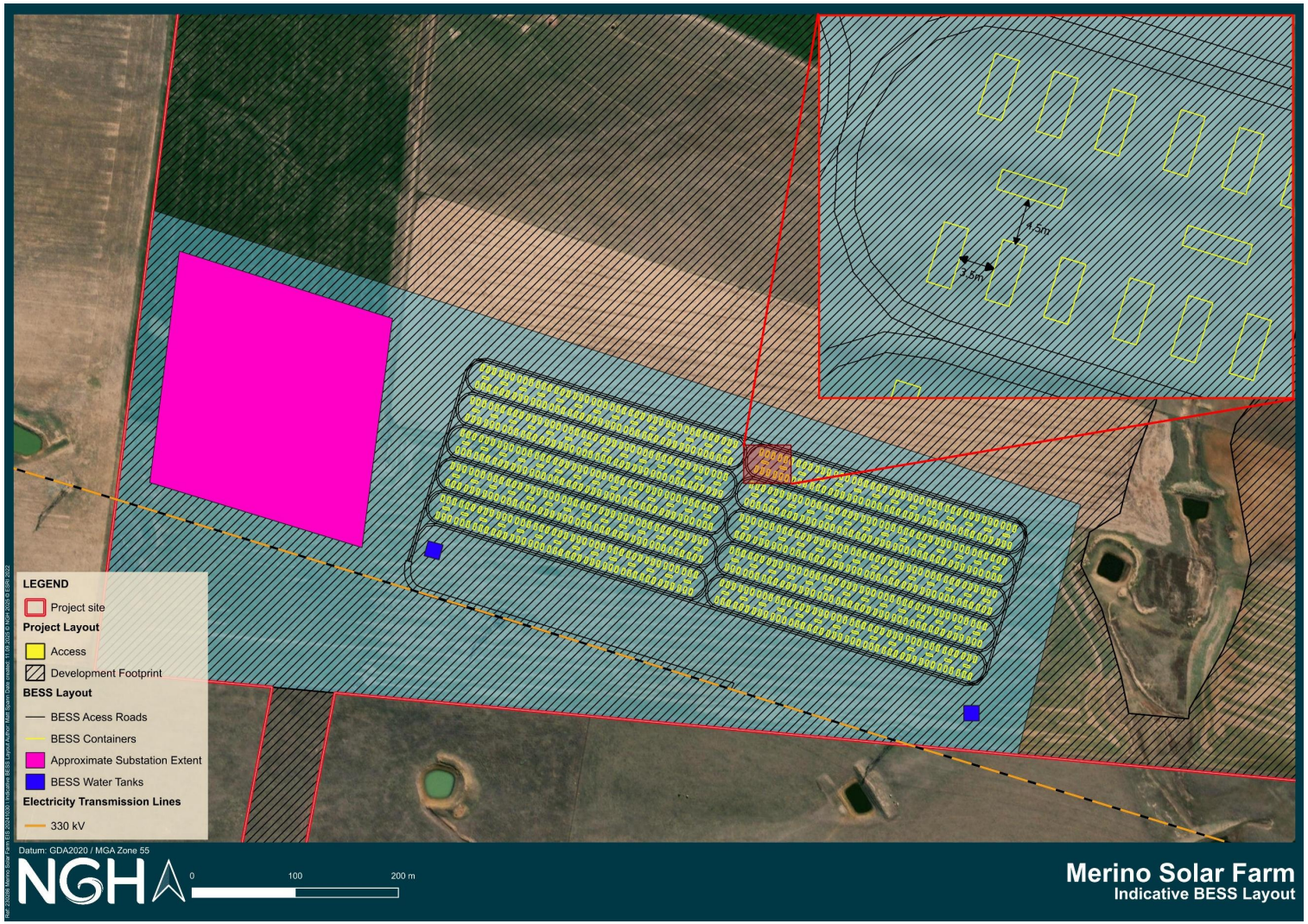


Figure 3-6 Areas designated to the substation, BESS and ancillary infrastructure; showing indicative BESS layout

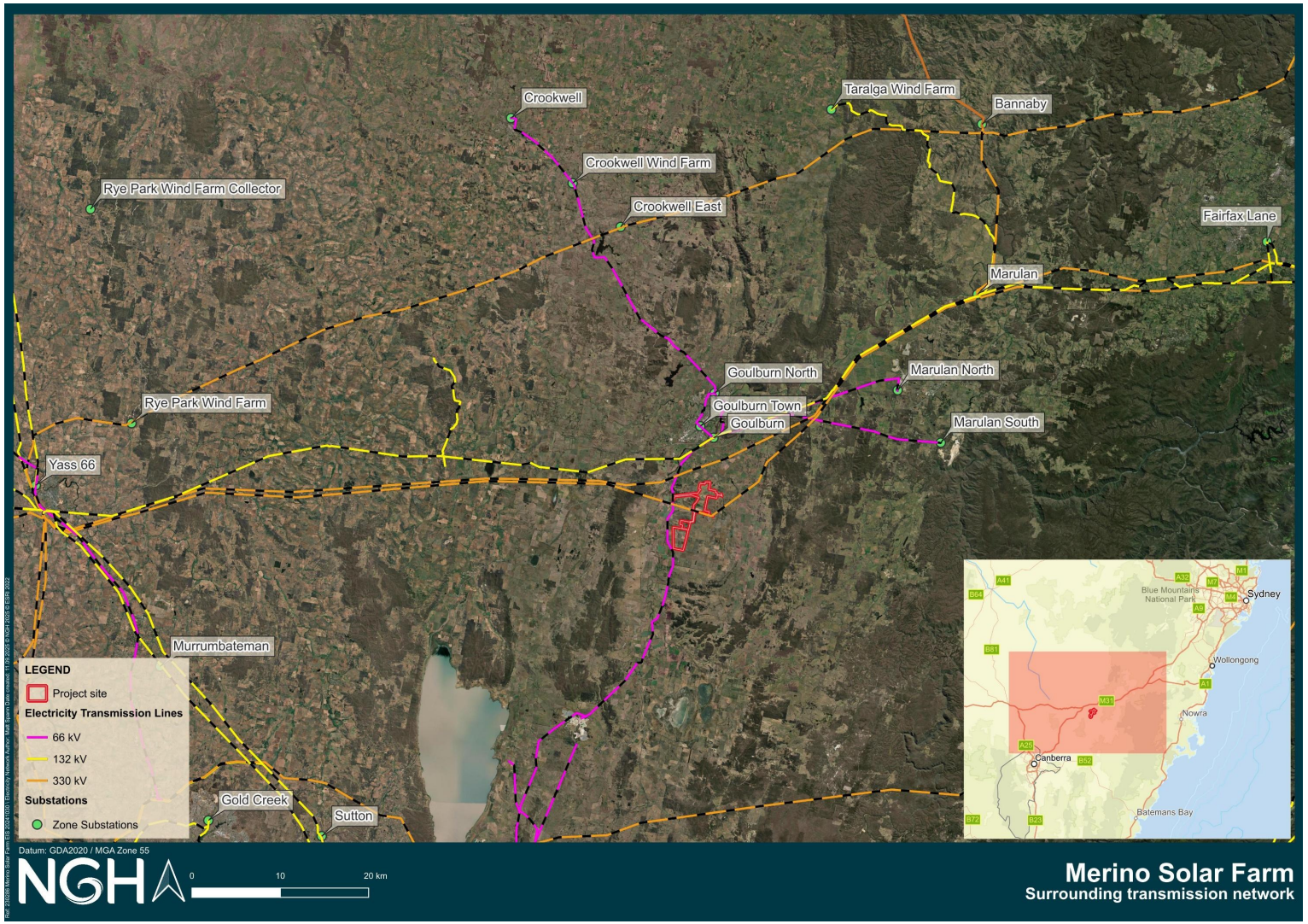


Figure 3-7 Surrounding transmission network

3.2.6. Transmission connection from north to south site

An approximately 2.5km transmission line will connect the northern and southern sites, generally following the alignment depicted in Figure 3-1. A decision on whether the transmission would be underground or aboveground would be made as design progresses and based on the outcome of detailed geotechnical analysis, including the project visual assessment. Underground is preferred.

3.2.7. Underground cabling within the solar farm

Underground cabling would be designed in accordance with Australian and International standards with the goal of minimising ground disturbance. Both AC and DC cables are required.

Underground cabling at the reticulation voltage would be installed at a depth of at least 500 mm with the electrical reticulation typically buried to either 600 mm (low voltage) or 800 mm (high voltage) depth, following the relevant Australian Standard.

Prior to excavating the cable trench, the topsoil would be stripped and stockpiled for use in rehabilitating the trench line. Depending on the quality of the excavated material, sand may be used in the trench to create a cable bed (the site overlies a considerable sand deposit). If the natural sand is unsuitable, imported sand may be required. Once the cables are installed another layer of sand may be placed above the cable prior to covers and markers being installed. The trench would later be backfilled with excavated material. Finally, topsoil would be replaced and sown with perennial grasses to assist the revegetation of the disturbed areas.

Cables would be protected in accordance with *Australian Standard (AS) 3000:2007 Electrical Installations.*

3.2.8. Onsite buildings

Operations and maintenance buildings

The operations compound would comprise Operations & Maintenance building and a storage shed and would be located within the ancillary infrastructure area shown in Figure 3-1. the operations and maintenance building would contain essential fire safety equipment, including smoke detectors, fire extinguishers and hose reels, and would have an approximate size of 150-200 m^2. It would be constructed on small pier footings, most likely 0.5-1.0 m above ground and would contain the PV plant control room, a kitchenette and bathroom, some meeting rooms and a server room.

The storage shed (approximately 200-300 m^2) would be used for storage of spare parts and would be fitted with smoke detectors and fire extinguishers.

The switch room would be a separate building with approximate dimensions 4.1 m x 17.9 m x 4 m (high).

Fencing

The security fencing installed around the site would be approximately 2.4 m high, providing adequate access points for project maintenance, land management purposes and for emergency egress. An example of the security fencing installed is shown in Figure 3-8 and Figure 3-9.

Security fencing would be installed surrounding and within the substation in accordance with TransGrid's *Substation Primary Design Standard*.

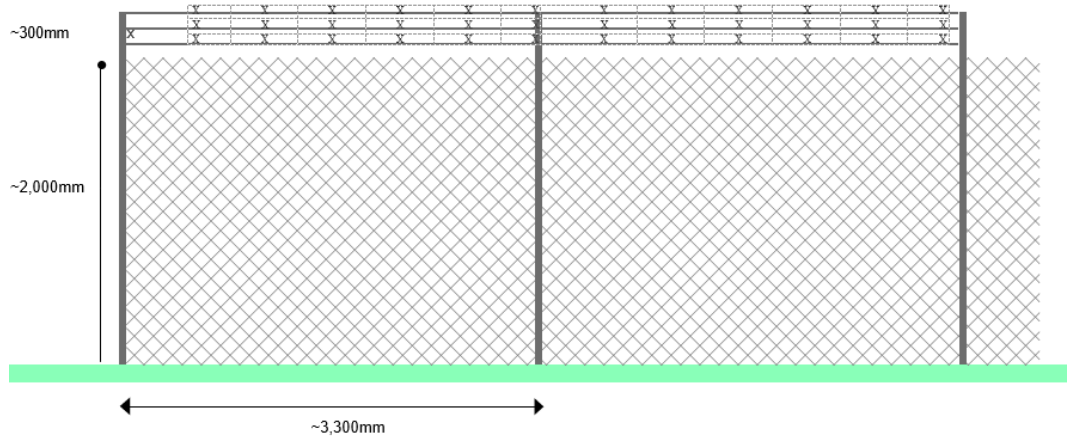


Figure 3-8 Security fencing schematic

Figure 3-9 Example of security fencing with barbed wire

Fencing the substation / battery area

The substation area would be enclosed by a security fence in accordance with TransGrid requirements. This is expected to be a steel security fence approximately 2 m high with barbed wire topping, or similar. Where necessary, fencing both perimeter and internal fencing will be devoid of barbed wire to protect entanglement of endangered species.

Lighting and monitoring

Lighting would be reactive to prevent disrupting the rural nightscape largely devoid of light pollution and would be limited to the office building and other critical infrastructure. Lighting is expected to arise mainly

from staff working in offices after nightfall, vehicles entering and leaving the Project and external motion-sensing lighting provided for safety.

Lighting at the substation would be in accordance with TransGrid's *Substation Primary Design Standard*, which requires lights for:

- Walking in open areas likely to be accessed
- Walking in closed or constrained areas (e.g., stairs)
- The substation security fence in areas unlikely to be accessed as a deterrent.

The Applicant would procure a closed-circuit television (CCTV) system that would deliver both high quality video surveillance as well as early detection of unauthorized entry to the solar farm-associated compound area. Cameras would be installed alongside the perimeter monitoring the area between the fence line and the solar panels. If movement is detected, a relay would be activated, communicating to the 24-hour offsite security control room.

Along with this system, cameras and access controls would be installed at the office building and entry gate to protect against unauthorised access and provide video surveillance. All cameras that cover the perimeter would be internet protocol (IP) rated and mounted on a 4m high CCTV pole spaced between 200m to 300m apart and for every change of direction of fencing.

3.2.9. Temporary construction facilities

Temporary facilities established at the site during the construction phase may include:

- Material laydown areas
- Temporary construction site office
- Temporary car and bus parking areas for construction workers
- Staff amenities (kitchen and toilet/s)
- Temporary security lighting and CCTV at construction compound
- Containers for the use of subcontractors
- Bunded area for refuelling
- Storage area
- Generator for construction compound power supply
- Skips with wind shield and lid.

A hardstand area in the compound site/s would provide a clean, firm, level and free draining surface suitable for cabins and heavy traffic.

Temporary staff amenities would be designed to accommodate the number of workers at the peak of the construction period.

3.2.10. Access requirements

Haulage route

All plant that can be transported on vehicles up to B-Doubles is expected to be delivered from the Port of Newcastle. Oversize/Overmass (OSOM) vehicles may travel from the Port of Melbourne or the Port of Newcastle for the delivery of larger components including the transformer.

Materials and equipment will generally be sourced from within Goulburn or the surrounding area where practicable.

Site access

The following primary access points are proposed:

- Northern portion: Windellama Road (access 1)
- Southern portion: Four access points from Painters Lane, Braidwood Road (access 4 and 7)

Additional access points include:

- Emergency access option: Braidwood Road (access 2)
- Over Size Over Mass access and Transgrid Substation access: Gundary Lane (access 3; limited movements)

The schedule of road upgrades required is as follows:

- Road upgrades are proposed at two locations to accommodate OSOM vehicles on the Port of Melbourne route, both located in the Victorian part of the route
- Upgrade to the Braidwood Road / Painters Lane intersection to provide a short auxiliary left turn lane (AUL)
- Construction of a short channelised right turn treatment at the Windellama Road site access (1)
- Widening of Painters Lane to minimum of 7m from Braidwood Road to the Painters Lane site access 7.

The site access locations are shown on Figure 3-1.

Vehicle type breakdown

Construction traffic can broadly be separated into the following categories:

Light Vehicles: Light vehicles would be associated with workers travelling to/from the site. All light vehicles are expected to approach the Project area from the north before equally splitting to the north or southern Project portion (North Area / South Area).

Rigid Trucks: These vehicles would predominantly be water trucks and vehicles transporting materials such as concrete and fencing supplies which would generally be sourced within the surrounding area. Trips would be split evenly to the North Area and the South Area with all vehicles approaching from the north.

Truck and Dog: These vehicles would transport quarry material from the local area. Trips would be split evenly to the North Area and the South Area with all vehicles approaching from the north.

Semitrailers, B-Doubles and Non-High-Risk OSOM: Plant would be transported from the Port of Newcastle to the site, equally split to the North Area and the South Area, with all vehicles expected to reach the Project areas from the north.

Restricted Access Vehicles / Oversized and Over Mass (OSOM) vehicles: These will be required for the delivery of larger plant to the site such as the substation transformer and are subject to separate permit applications and regulations.

It is anticipated that during peak construction the Project could generate up to 670 light and 64 heavy vehicle trips per day. Construction of the solar farm and BESS is expected to generate approximately 344 vehicles per hour in the morning and evening peak hours during the peak construction period, which would reduce to 174 vehicles per hour during the average construction periods. The vehicles would be distributed between the north and south accesses as shown below in Table 3-2.

Table 3-2 Site access distribution

Project area	Access number	Access type	Proportion of Project traffic
North	1	Primary	49%
	2	Emergency only	0%
	3	Secondary – TransGrid and OSOM only	1%
South	4	Primary	20%
	5	Primary	10%
	6	Primary	10%
	7	Primary	10%

During operation the project is expected to generate up to 20 vehicle trips per day associated with 10 maintenance personnel accessing the Project area.

Decommissioning is anticipated to generate a similar level of traffic to the construction stage.

Internal access tracks

The internal roads would be approximately 3.5 m to 5 m wide. The crossovers are proposed to be designed in accordance with Council's standard drawing for a typical rural driveway. Accordingly, the access will be able to accommodate the largest design vehicle.

Site access points and all internal tracks would be maintained throughout the construction and operation of the solar farm. If required, water trucks would be used to suppress dust on unsealed access roads and tracks during construction. Additional stabilising techniques and/or environmentally acceptable dust control would also be applied where required to suppress dust.

The final location and design for new access tracks and new parts of existing access tracks will be subject to detailed design following the approval.

Access tracks would be clearly marked on the Operational Environmental Management Plan (OEMP) and passing lanes and turning circles would be provided to internal tracks in line with the Bushfire Management Plan (BMP).

3.2.11. Setbacks

Setbacks within the Development Footprint will be accommodated as follows:

Bushfire

Appropriate APZs would be provided in line with the Bushfire Assessment Report (NGH, 2025), in accordance with Planning for Bushfire Protection guidelines (NSW RFS, 2019), including a minimum 10m would be maintained surrounding solar farm infrastructure.

The APZ surrounding the proposed BESS unit, substation, and associated ancillary infrastructure would be a minimum of 12m to the southeast and northwest, and 10m in all other directions.

Horticulture / cropping setback

Specific to horticultural and cropping operations, the Large-Scale Solar Energy Guideline (DPHI, 2022) recommends a 30m setback to mitigate any heat island effect on neighbouring operations. While the intermittent winter cropping on adjacent land is unlikely to meet this definition, the Applicant would incorporate this 30m set back from panels, where such operations are demonstrated to be present prior to Project approval.

It is noted that a visual set back (near R82) and waterway and biodiversity setbacks/exclusion zones are already reflected in the Development Footprint; these were excised from the Development Footprint in response to specialist advice as the assessments were in progress.

3.2.12. Project stages

Timeline

An indicative timeline for the Project is outlined in Table 3-3 below.

Table 3-3 Indicative timeline

Stage	Approximate commencement	Approximate duration
Detailed design	Q3 2026	6 months
Construction & commissioning	Q1 2027	approximately 24 months (with a 12-month peak)
Operation	Q4 2029-Q4 2064	35 years
Decommissioning	TBC	12 months

These timelines are indicative only and the Project could be re-powered and, as such, the operational life could be longer.

Design

The detailed design phase of the Project will only occur pending Project approval.

An indicative infrastructure layout is provided in lieu of the detailed design at this stage; refer to Figure 3-2.

Detailed design will be informed by further topographic and geotechnical surveys and will be subject to commercial tendering and procurement processes to arrive at the final design and construction program. This will ensure the Project is optimised in terms of yield and efficiency, within the parameters of the approval.

Construction

Site preparation and earthworks

Ground disturbance resulting from earthworks associated with the Project would be minimal and limited to:

- The installation of the piles supporting the solar panels, which would be driven or screwed into the ground to a depth of 1.5 m – 3 m
- Construction of internal access tracks and access points and associated drainage
- Substation bench preparation
- Concrete or steel pile foundations for the inverter stations, substation and operations and maintenance buildings and storage facilities

- Cable trenches up to 1,500 mm deep
- Establishment of temporary staff amenities and offices for construction
- Construction of perimeter security fencing and CCTV.

Topsoil under the footprint of the array area would remain in-situ during the construction of the solar farm. Topsoil salvaged from the construction of the access tracks and other works would be securely stored for use in site rehabilitation.

Establishing native perennial groundcover prior to construction would reduce the risk of erosion and would also benefit local biodiversity. If required, weed treatments would be undertaken prior to earthworks commencing to reduce the potential spread of these species within the Development Footprint.

Construction activities

The construction phase is expected to last approximately 24 months with a peak construction period of 12 months. The main construction activities would include:

- Site establishment and preparation for construction - fencing, ground preparation, construction of the internal track system, upgrade of existing access points/intersections, preliminary civil works and drainage
- Installation of steel post and framing system for the solar panels
- Installation of underground cabling (trenching) and installation of inverter stations
- Installation of PV panels
- Construction of office building and control room
- Construction of the substation and connections
- Removal of temporary construction facilities and rehabilitation of disturbed areas.

Pending the finalisation of the construction schedule, it is expected some stages of construction would occur concurrently.

Labour machinery and equipment

It is anticipated that approximately 500 construction personnel would be required onsite during the peak construction period. It is anticipated that a significant number of workers would be local, and those who are not would use existing accommodation within Goulburn and the surrounding region.

Equipment used during construction would include:

- Earth-moving equipment for civil works (excavators, graders)
- Small piling or drilling rigs for installation of the posts of the solar arrays
- Diesel generators
- Trucks
- Light vehicles
- Large transit vehicles, including delivery and waste removal vehicles.
- Forklifts
- Cable trencher or excavator
- Cable laying equipment
- Cranes including 50 T mobile crane.

Materials

Construction materials would be sourced from local suppliers where practical and possible. Goulburn is a large population centre and a likely place to source of the bulk of aggregate material required for construction such as gravel, sand, and concrete; followed by Sydney and Canberra.

The final material quantities and plant used will be determined through a competitive tender process to maximise innovation and efficiency. However, for the purposes of traffic planning, the Project has assumed

that sand, water, concrete and gravel will be sourced from local suppliers within Goulburn. Additionally, a small amount of potable water would be required which would be delivered to site and stored in a temporary tank.

Approximately 63,000m^3 of gravel would be required to surface the access road and internal service track network, inverter areas and substation hardstand. Loam mix may be required for the bedding of underground cables, depending on electrical design and ground conditions. Concrete may be required for most infrastructure footings, including containers hosting the battery and inverters, the substation and CCTV footings, fencepost fittings and the site office.

The solar arrays would be constructed primarily of panels (comprising glass, graphite, with small amounts of safe metals such as copper and zinc) on steel frames. Operations and maintenance and amenity buildings would be standard 'kit" buildings fabricated from corrugated iron, plastic panelling etc.

Prefabricated buildings and solar arrays would be reusable after a project life of 35-years and/or recyclable. Table 3-4 provides a summary of the main materials volumes required for the construction phase.

Table 3-4 Estimated materials volumes required for construction

Resource	Estimated Quantity
Non-potable water for road construction and dust suppression for the construction period	60ML
Potable water for the construction period	60ML
Bedding sand for cables	64,000m^3
Gravel for Road Capping, laydown pad	192,000m^3
Concrete for inverter pads, transformer pads, bed level water crossings	400m^3

Water for dust suppression would be obtained primarily from surface water allocations onsite (the 16 dams within the Development Footprint could supply an estimated 42% of the non-potable construction water requirement). Where water requirements cannot be met from onsite surface water stocks, non-potable water may also be supplied by water contractors or council facilities. This would be organised by the Project engineering procurement and construction contractors.

A small amount of potable (drinking) water would be used onsite during the construction period on an as needs basis and stored within temporary water tanks at the staff amenities area.

Work hours

Construction activities would predominantly be undertaken during standard daytime construction hours (7.00 am to 6.00 pm Monday to Friday and 8.00 am to 1.00 pm on Saturdays).

Any construction outside of these normal or agreed working hours, if required, would only be undertaken with prior approval from relevant authorities, or unless in emergency circumstances e.g. to make work safe.

Operation

Operational activities

Operation activities would include:

- Routine visual inspections general maintenance and cleaning operations of the solar arrays as required
- Routine visual inspections general maintenance and cleaning operations of the substation as required
- Vegetation management, likely using sheep to control grass growth beneath the panels. Groundcover vegetation would be maintained over the site to minimise erosion, dust and weeds. Groundcover would be monitored and remediation (such as reseeding, soil protection or destocking) undertaken as required
- Site security response (24 hr), if required
- Site operational response (24 hr), if required
- Replacement of equipment and infrastructure as required
- Pest plant and animal control as required.

Materials and resources

During operation, potable water would be required for cleaning panels and watering livestock. Around 10ML per year would be required for cleaning, sourced from council standpipes/ delivered by contractor.

A steel or concrete tank would be installed at the site to store water for bushfire protection and other non-potable water uses, with a minimum of 20,000 L reserved for fire-fighting purposes. Potable water would be required for staff using imported supplies or rainwater collected from tanks beside site buildings.

Personnel and work hours

The solar farm would operate on the 24/7 basis however operational activities would predominantly be undertaken during standard daytime construction hours (7.00 am to 6.00 pm Monday to Friday and 8.00 am to 1.00 pm on Saturdays). Most operation activities would be minor such as inspecting equipment.

Any operation activities outside of these normal or agreed working hours, that have the potential to be intrusive such as slashing firebreaks, or noisy maintenance works would be undertaken with approval from relevant authorities, except for emergency circumstances.

The solar farm would be monitored and operated by approximately 12 full time equivalent (FTE) employees. TransGrid would operate and maintain their substation separately.

Most plant maintenance including inverter station, transformer and HV switchgear, PV arrays, ground and vegetation and the trackers would be conducted by site staff on a rolling basis with activities scheduled consistently throughout the year.

Transport and access

Staff and service contractors would primarily use light vehicles (4WD) during the operation phase. During operation the project is expected to generate up to 20 vehicle trips per day associated with 10 maintenance personnel accessing the Project area. Heavy vehicles would be infrequent.

Refurbishment and upgrading

The type of lithium batteries proposed for the BESS currently have a life of approximately 15-20 years. As such the BESS would require a complete refurbishment once, approximately mid-way through the project's initial 35-year life. The Applicant may also replace or upgrade solar panels or other infrastructure within the existing Development Footprint during the projected 35-year life of the Project

Decommissioning

At the end of its operational life, the solar farm would be decommissioned. At this stage, the Project commits only to the objectives of the below decommissioning measures which describes, at a high level, how key project infrastructure will be removed and the methodology to return the site to a safe, stable and non-polluting state, capable of sustaining the pre solar farm agricultural land uses or other preferred land use.

What will be removed and what will be retained

The substation is intended to remain. After construction, it will become the permanent asset of TransGrid. If required, it will be the subject of a small subdivision to reflect TransGrid's ownership of this asset and would not be decommissioned as part of the Project.

Certain other infrastructure may be retained by mutual agreement with the landowner at the time of decommissioning, as they may be of value to future onsite activities. This may include tracks, site fencing and ancillary buildings.

However, unless specifically requested by the landowner, all above ground infrastructure would be removed as part of decommissioning. In addition, all below ground cabling buried up to 500 mm below ground level would be removed. Removal of cabling lower than this is not proposed; the land is not subject to cropping, and the soils are sensitive to disturbance.

How will decommissioning proceed

Decommissioning is expected to proceed in the reverse order of construction:

- The solar arrays would be removed, including the foundation posts. Materials would be sorted and packaged for removal from the site for recycling or reuse where practicable
- Site amenities and equipment would be removed including buildings, inverter modules and materials recycled or reused wherever possible
- Posts and cabling would be removed and recycled
- Fencing would be removed including small concrete footings
- Any gravel pavement materials would be recovered and reused as general fill in an appropriate location
- Soil remediation treatments would be applied as required, for example, sodic soil would be treated as necessary with lime or gypsum. Areas subject to compaction would have the topsoil ripped to a depth suitable for seeding, if appropriate
- Ground cover vegetation would be restored with disturbed areas seeded, as agreed with the landowners.

The decommissioning plan would reference the updated equivalent of:

- The Australian Soil and Land Survey Handbook (CSIRO, 2009)
- The Guidelines for Surveying Soil and Land Resources (CSIRO, 2008)
- The Land and Soil Capability Assessment Scheme: Second Approximation (OEH, 2012).

Traffic requirements would be similar in type but of shorter duration (approximately 12 months) than that required for the construction phase.

Recycling commitments

Recycling is a commitment of the Project. This is captured in mitigation measure WM2, which states:

> *Solar panel arrays would be recycled at a facility with the capacity to recover a large proportion of the end-of-life solar PV modules and all associated materials.*

3.3. Subdivision

The areas required for the operational solar farm will be leased for the life of the Project. The Applicant will lease the approximately 767 ha Development Footprint area and the lease boundary will be registered on the title of the Project area, under the Lease of Premises as set out in the Registrar General's Guidelines.

A formal subdivision is expected to be limited to delineating areas for TransGrid assets within the substation area. This area is approximately 10 ha and is indicatively shown in Figure 3-6.

3.4. Project's consideration of key features

The following features have been identified during consultation activities and in specialist investigations and will be avoided (refer to Figure 3-10).

- Native vegetation and waterways, including:
  - Patches of Critically Endangered Threatened Ecological Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion.
  - Patches of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)-listed Critically Endangered Threatened Ecological Community White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland which is associated with the Biodiversity Conservation Act 2016 (NSW) (BC Act)-listed Critically Endangered Threatened Ecological Community 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.
  - At least 34 scattered native trees (including 13 large hollow bearing trees) that were identified during preliminary surveys along the proposed northern access laneway from Braidwood Road before the Development Footprint was modified.
  - The large central seasonal wetland area and Saltpetre Creek in the southern site and mapped biodiversity values in relation to Saltpetre Creek.
  - Riparian areas of the main unnamed creek in the northern site (except for unavoidable crossings) for access.
  - The Development Footprint has been reduced by 225ha from approximately 986ha to 767ha via avoiding key biodiversity and riparian areas.
- Specific areas of sodic soils requiring remediation and / or avoidance have been identified. The high-risk soils would be more susceptible to structural failure and erosion during construction. Unless remediation actions are successful, they would be avoided. Specific mitigation measures have been outlined in Section 6.4.6 to manage potential impacts.
  - The use of these soils is considered justifiable as:
    - Most areas have been avoided by the Project
    - The largest area of impact is for solar arrays; construction of solar arrays would use driven piles, which minimise the impact on soils
    - Use of specific areas of highly sodic soils would only proceed where remediation has been shown to be successful and would not lead to unacceptable structural damage or pollution risks.
- Waterway crossings have also been located to avoid these areas where possible.
- Visual set back from R82:
  - Early visual modelling identified this setback was required to ensure all near neighbour visual impacts would be reduced to low without mitigation (screen planting). This provides high confidence in the ability to manage visual impacts. It does not preclude further mitigation.

In addition, the Project:

- Avoids significant conflict with existing or approved residential or commercial uses of the land surrounding the development - refer to Section 6.4.
- Avoids significant impacts on scenic character and scenic quality and landscape character – refer Section 6.5.
- Commits to further modelling in tandem with Project design to inform the specific requirements to achieve a *neutral or beneficial impact* on water quality and protect the Sydney Drinking Water Catchment – refer to Section 6.8.

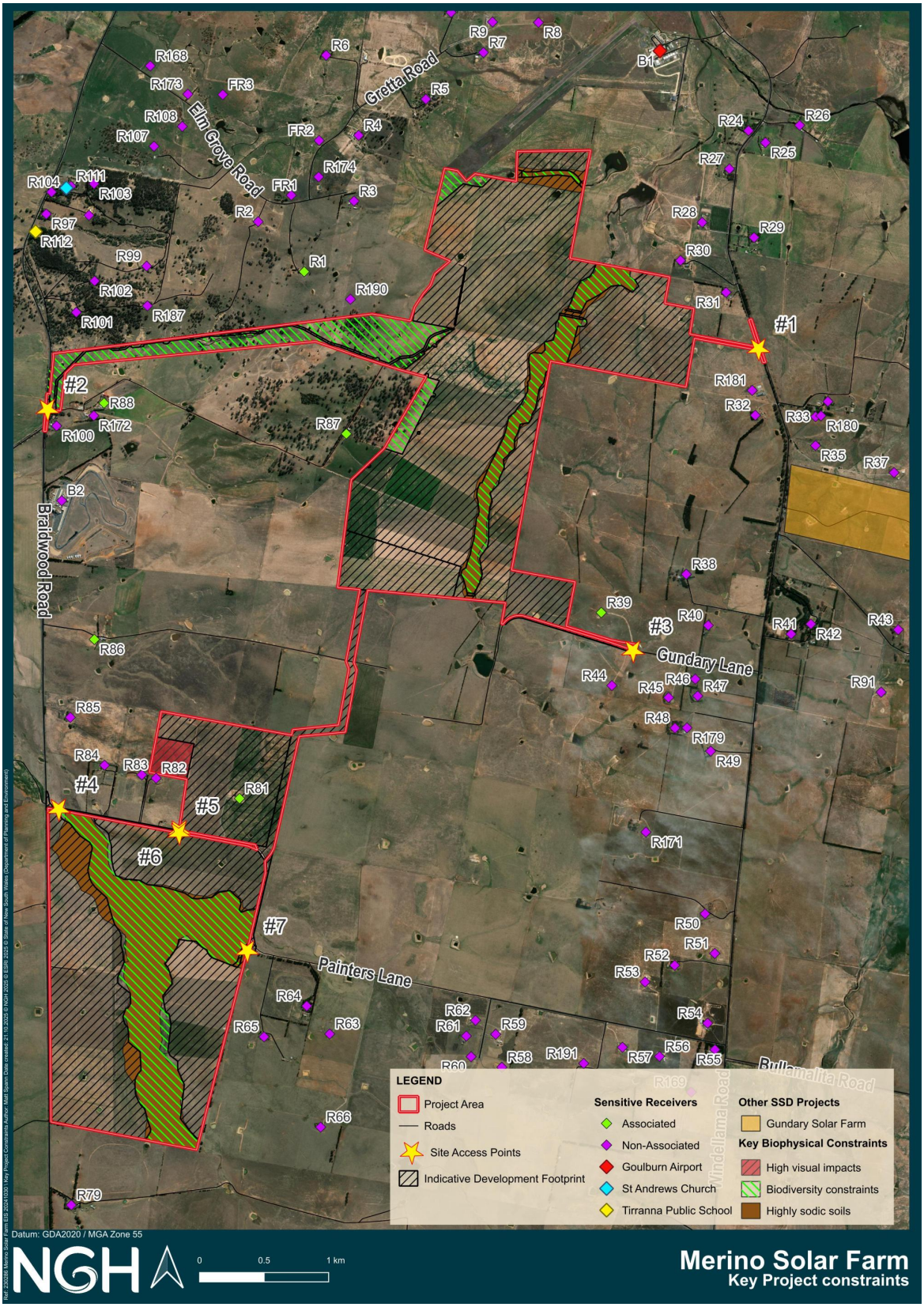


Figure 3-10 Key constraints

3.4.1. Cumulative impact considerations

Cumulative impacts associated with the Project have been given consideration in Section 6.12 of this report and assessed in alignment with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2022c). Cumulative impacts can be split into two broad groupings as below:

Strategic-level Cumulative Impact Assessment (CIA) - important beneficial cumulative impacts

- Alignment with federal and state regional renewable energy policies
- Alignment with regional and local land use plans
- Responds to the site's unique environmental and social context
- Reduction of energy costs.

Project-level CIA – risks of exacerbating adverse impacts

Being located in a region with growing interest in renewables and storage projects, local cumulative impacts anticipated from nearby utility scale renewable facilities include:

- Visual and landscape character impacts
- Noise impacts
- Traffic impacts
- Pressure on local facilities, goods and services.

This report considers that Project-Level cumulative impacts are readily manageable, and when considering Strategic-level cumulative impacts, the Project is highly supportable, aligning with strategic planning goals as outlined in Section 2 without generating substantive negative cumulative impacts. All environmental and social impact factors are assessed in Section 6 with a targeted discussion and assessment of cumulative impacts covered in Section 6.12

04 Statutory context

4. Statutory context

The following tables set out the statutory requirements of the Project, categorised in accordance with the Table 2 of the DPHI EIS guidelines (DPE, 2021):

Table 4-1 sets out the key statutory requirements relevant to the Project, Table 4-2 sets out the preconditions to exercising the power to grant consent for the Project and Table 4-3 sets out the mandatory matters for consideration prior to development consent.

Table 4-1 Statutory context

Statutory requirements	Relevance to Project
Power to grant consent Environmental *Planning and Assessment Act 1979* (EP&A Act). State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)	Consent is sought for the proposed development under section 4.2 of the EP&A Act. Pursuant to section 4.36 of the Act, a State environmental planning policy may declare any development to be State significant development (SSD). The Project is declared SSD by the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) Schedule 1 Section 20 states the following: *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:* *(a) has an estimated development cost of more than $30 million, or* *(b) has an estimated development cost of more than $10 million and is located in an environmentally sensitive area of State significance.* The Project would have an EDC of more than $30 million, therefore it is classified as SSD. The Minister for Planning and Public Spaces is the consent authority for SSD, and SSD applications are assessed by DPHI. In certain circumstances, the application may be referred to the Independent Planning Commission to determine. Section 4.38(2) of the EP&A Act also allows SSD Projects to be granted consent, even if the development is partially prohibited by an environmental planning instrument.
Permissibility Goulburn Mulwaree Local Environmental Plan 2009 (LEP)	The Project area is on land zoned RU1 Primary Production under the Goulburn Mulwaree Local Environmental Plan 2009. The Project is defined as electricity generating works, which are permitted with consent in the RU1 zone under the provisions of the LEP.
Other approvals	
Environment Protection and	Under the EPBC Act, if the Minister determines that an action is a 'controlled action' which would have

Statutory requirements	Relevance to Project
Biodiversity Conservation Act 1999	or is likely to have a significant impact on a Matter of National Environmental Significance (MNES) or Commonwealth land, then the action may not be undertaken without prior approval of the Minster. The BDAR and Biodiversity section have not identified any potential impacts of the Project on any MNES entity. As such an EPBC referral is not required to be undertaken.
EP&A Act section 4.41 Approvals etc legislation that does not apply	At this stage, the authorisations referred to under section 4.41 are not relevant to this Project. • A Fisheries permit under the Section 201 and 219 of the Fisheries Management Act 1994 • An excavation permit for details heritage surveys under Section 139 of the Heritage Act 1977 • An Aboriginal heritage impact permit under Section 90 of the National Parks and Wildlife Act 19747F • The Project would not require a bushfire safety authority under Section 100B of the Rural Fires Act 1997 A water use approval (Section 89), a water management work approval (Section 90) and an activity approval (Section 91) under the Water Management Act 2000 would not be required.
EP&A Act section 4.42 Approvals etc legislation that must be applied consistently	The Project would require consent under section 138 of the *Roads Act 1993* for road upgrades to the public road network. The authorisation cannot be refused if it is consistent with a development consent issued for SSD. At this stage, other authorisations referred to under section 4.42 are not relevant to this Project.
Crown Lands Management Act 2016 (CLM Act),	There are no Crown Land parcels or paper roads throughout the Project area.

Table 4-2 Preconditions to exercising the power to grant consent

Instrument	Requirement	Relevant
State Environmental Planning Policy (Transport and Infrastructure) 2021	**Section 2.42 Determination of development applications for solar or wind electricity generating works on certain land** The consent authority must not grant consent unless it is satisfied that the development is located to avoid significant conflict with existing or approved residential or commercial uses of land surrounding the development and is unlikely to have a significant adverse impact on Goulburn's capacity for growth, or scenic quality and landscape character. The consent authority must consider measures proposed to be included in the development to avoid or mitigate conflicts or adverse impacts referred to above.	Part of the subject land is located on the regional city map for Goulburn as prescribed under this section of the SEPP. The Project area is located to the south of areas identified by Council for future residential development and thus does not inhibit the capacity for growth of the city of Goulburn. Therefore, conflicts with the future growth plans of Goulburn are not significant. The Project's impact on scenic quality and landscape character is provided in Section 6.5; impacts are localised and not considered significant.
	Section 2.48 Determination of development applications—other development Before determining an application for development to which this section applies, the consent authority must give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and take into consideration any response received.	Noted.
	Section 2.122 Traffic-generating development Before determining an application for development to which this section applies, the consent authority must give written notice to TfNSW and take into consideration any submission in response. The consent authority must also consider the accessibility of the site concerned and any potential traffic safety implications of the development.	The Project would result in the generation of additional vehicles on the transport network. As such traffic impacts assessment has been completed. TfNSW have been consulted throughout the development of the Traffic Impact Assessment and will be able to provide a submission during the EIS submission phase. Refer to Section 6.7 and Appendix E.6
	Section 3.12 of the SEPP Resilience and Hazards requires the consent authority to consider	Results of the assessment are

Instrument	Requirement	Relevant
State Environmental Planning Policy (Resilience and Hazards) 2021	the Project's Preliminary Hazards Assessment. The Project includes a BESS which requires preparation of such an assessment. Consideration must be given to current circulars or guidelines published by DPE as follows: • Hazard Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use and Safety Planning, • Hazard Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis, and • Multi-level Risk Assessment A Preliminary Hazard Analysis has been completed that addresses Section 3.7 of the State Environmental Planning Policy (Resilience and Hazards) 2021 for energy storage systems.	discussed in Section 6.9.3, and the Assessment is included in Appendix 6.
	Section 4.6 of the SEPP Resilience and Hazards requires the contamination and remediation of land to be considered by a consent authority, when determining a DA.	A search of contaminated sites listed under the EPA's Section 50 and 60 Registers was undertaken, and results are included in Section 6.9.1. As agreed with the DPHI, a Preliminary Site Investigation will be conducted during the Submissions stage and prior to Project determination.

Table 4-3 Mandatory matters for consideration

Statutory reference	Mandatory consideration	Section in EIS
Consideration under the EP&A Act and EP&A Regulation		
Section 1.3 Relevant objects of the Act: • 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 • To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment • To promote the orderly and economic use and development of land • To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.		In order: Section 6.1 Section 7.6 Section 6.3 Section 6.1
Section 4.15 of the Act: • Relevant environmental planning instruments and any proposed instruments: • Likely impacts of the development (environmental, social and economic) • Suitability of the site for development • Submissions made in accordance with the Act or regulations • Public interest		• Table 4-1, Biodiversity Conservation Regulation 2017 addressed in Appendix F.1 • Summarised in the Executive summary of this EIS and provided in detail in Section 6. • Section 2.4 • The consent authority would exhibit the application and consider any submissions as relevant. • Strategic context, specifically alignment with Commonwealth NSW and Section 7.2
Considerations under other legislation		
Biodiversity Conservation Act 2016 – Section 7.14	The Minister for Planning is to consider the likely impact of the proposed development on biodiversity values as assessed in the biodiversity development assessment report. The Minister for Planning may (but is not required to) further consider under that Act the likely impact of the proposed development on biodiversity values. The Project has completed a Biodiversity Development Assessment Report (BDAR) under Section 7.9 of the	Section 6.1e

Statutory reference	Mandatory consideration	Section in EIS
	BC Act. The BDAR has been undertaken in consultation with Biodiversity Conservation and Science (BCS)	
Mandatory relevant considerations under NSW EPIs		
State Environmental Planning Policy (Resilience and Hazards) 2021 – Section 3.7	Section 3.12 of the SEPP Resilience and Hazards requires the consent authority to consider the Project's preliminary hazard analysis. The Project includes a BESS which requires preparation of a Preliminary Hazards Assessment. Consideration must be given to current circulars or guidelines published by DPE as follows: • Hazard Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use and Safety Planning, • Hazard Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis, and • Multi-level Risk Assessment • A Preliminary Hazard Assessment has been completed that addresses Section 3.7 of the State Environmental Planning Policy (Resilience and Hazards) 2021 for energy storage systems.	Section 6.9 Appendix F.9
	Section 4.6 of the SEPP Resilience and Hazards requires the contamination and remediation of land to be considered by a consent authority, when determining a DA.	Section 6.9
State Environmental Planning Policy (Biodiversity and Conservation) 2021	Chapter 3 of the Biodiversity and Conservation SEPP applies to each LGA listed in Schedule 2 of this SEPP, where Goulburn Mulwaree LGA is listed. Before a consent can be granted to a development application to carry out an activity on land to which this Part applies, the planning authority must be satisfied as to whether or not the land is a potential koala habitat. Koalas were not identified as part of the biodiversity assessment and the land is not considered potential koala habitat.	Section 6.1 and Appendix F.1
	Part 6.5 of the Biodiversity and Conservation SEPP	Section 6.1

Statutory reference	Mandatory consideration	Section in EIS
	applies to areas within the Sydney drinking water catchment. The provision of the Part requires that development in the Sydney Drinking Water Catchment must provide a neutral or beneficial effect on water quality.	Appendix E.8
State Environmental Planning Policy (Primary Production and Rural Development) 2021	The State Environmental Planning Policy (Primary Production and Rural Development) 2021 provides provisions to balance between rural needs and facilitate the orderly economic use and development of lands for primary production, to reduce land use conflict and sterilisation of rural land and to identify State significant agricultural land. An Agricultural Impact Assessment was undertaken that addresses the provisions of this SEPP.	Section 6.4 Appendix F.3
State Environmental Planning Policy (Transport and Infrastructure) 2021	Goulburn is also a 'regional city' for the purposes of the State Environmental Planning Policy (Transport and Infrastructure) 2021. Clause 2.42 requires that solar projects within 10km of the city demonstrate they are located to avoid significant conflict with existing or approved residential or commercial uses of the land surrounding the development and do not have a significantly adverse impact on the regional city's capacity for growth, or scenic quality and landscape character.	Section 4.2.2 Section 6.4 (residential and commercial land use development) Section 6.5 (visual impacts)
Goulburn Mulwaree Local Environmental Plan 2009	Objectives and land uses for zone RU1 Primary Production	Section 4.1
	In accordance with Section 5.21 Flood planning, development consent must not be granted unless the consent authority is satisfied of certain flood matters such as compatibility of the development with flood behaviour, the occupation and evacuation arrangements, risk to life and to the environment.	Section 6.8
	In accordance with Section 7.1A Earthworks the development must consider any detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.	Section 6.3, Section 6.4 and Section 6.8.

Statutory reference	Mandatory consideration	Section in EIS
	In accordance with Section 7.2 the Development must consider impacts to terrestrial biodiversity.	Section 6.1
	In accordance with Section 7.4 Restrictions on development adjoining mineral resource areas, development consent must not be granted unless the consent authority is satisfied that the development would have any adverse impact on the availability of mineral or extractive resources. This clause applies to land adjoining, or in the vicinity of, land that is identified as "Mineral resources" on the Mineral Resource Area Map.	Section 6.4
Development Control Plan provisions (DCPs)	DCP provisions do not apply to SSDs in accordance with Section 2.10 of the Planning Systems SEPP	N/A

4.1. Goulburn Mulwaree Local Environmental Plan 2009

4.1.1. Land zoning objectives

The Project area is zoned RU1 Primary Production under the Goulburn Mulwaree Local Environmental Plan 2009 (The LEP) (refer to Figure 4-1). Land use objectives in this zone include:

- *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*

The solar farm has been evaluated as having highly manageable soil and water resource risks. By resting the shaded areas beneath the arrays in operation and the commitment to maintain soil capability after decommissioning, the Project will address these risks. By committing to planting and best practice water crossing design and rehabilitation, the natural resource base is likely to be enhanced.

- *To encourage diversity in primary industry enterprises and systems appropriate for the area.*

The solar farm would be highly reversable with no adverse impact on land capability and therefore primary industry enterprises, after it is decommissioned. The impact of the Project on offsite agricultural activities, agricultural value and agricultural support infrastructure has been evaluated in Section 6.3 as negligible.

- *To minimise the fragmentation and alienation of resource lands.*

The Project area is small in comparison to similar agricultural land in the region. No fragmentation or alienation would result. The Project is also highly reversible and could be returned to agricultural use after decommissioning if the Project is not repowered. The only permanent fragmentation that would occur would be the lot subdivided and gifted to TransGrid that contains the Project substation.

- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*

Adjoining zones are also RU1 but include low density residential development in addition to agricultural activities. The LUCRA included in Section 6.3 demonstrates low impact on these land uses.

- *To maintain the rural and scenic character of the land.*

The impact on scenic character and nearby receivers has been evaluated in Section 6.5 and found to be low, with no mitigation measures, aside from existing setbacks, required.

- *To provide for a range of compatible land uses that are in keeping with the rural character of the locality, do not unnecessarily convert rural land resources to non-agricultural land uses, minimise impacts on the environmental qualities of the land and avoid land use conflicts.*

The LUCRA included in Section 6.4 demonstrates, relevant to the existing land uses, low impact on agricultural capability, infrastructure and the agricultural local economy, low impact on rural residential land use, regional growth and transport corridors and low impact on aviation.

Pursuant to Section 2.36 of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP), electricity generating works are permitted with consent in a prescribed rural zone, including the RU1 zone. The TISEPP prevails over the LEP to the extent of any inconsistency and thus the developed is permissible with consent.

Lot size restrictions - subdivision

The proposal includes subdivision of the land to provide create a lot of the project switching station and create a residue lot. Subdivision is permissible within the RU1 and RU2 zones pursuant to clause 2.6 of the LEP, subject to satisfying the applicable minimum lot size, pursuant to LEP clause 4.2.

In this instance, the applicable minimum lot size in the RU1 zone is 100ha. The proposed subdivision lot would be below this area and would be located within the northern project area (refer to Section 3.3). Due to the small size of the lot, this is therefore inconsistent with the minimum lot size.

As a SSD however, the subdivision is permissible pursuant to Section 4.38(3) of the EP&A Act despite being partly prohibited by local provisions. The subdivision would be able to be administered by Goulburn Mulwaree Council.

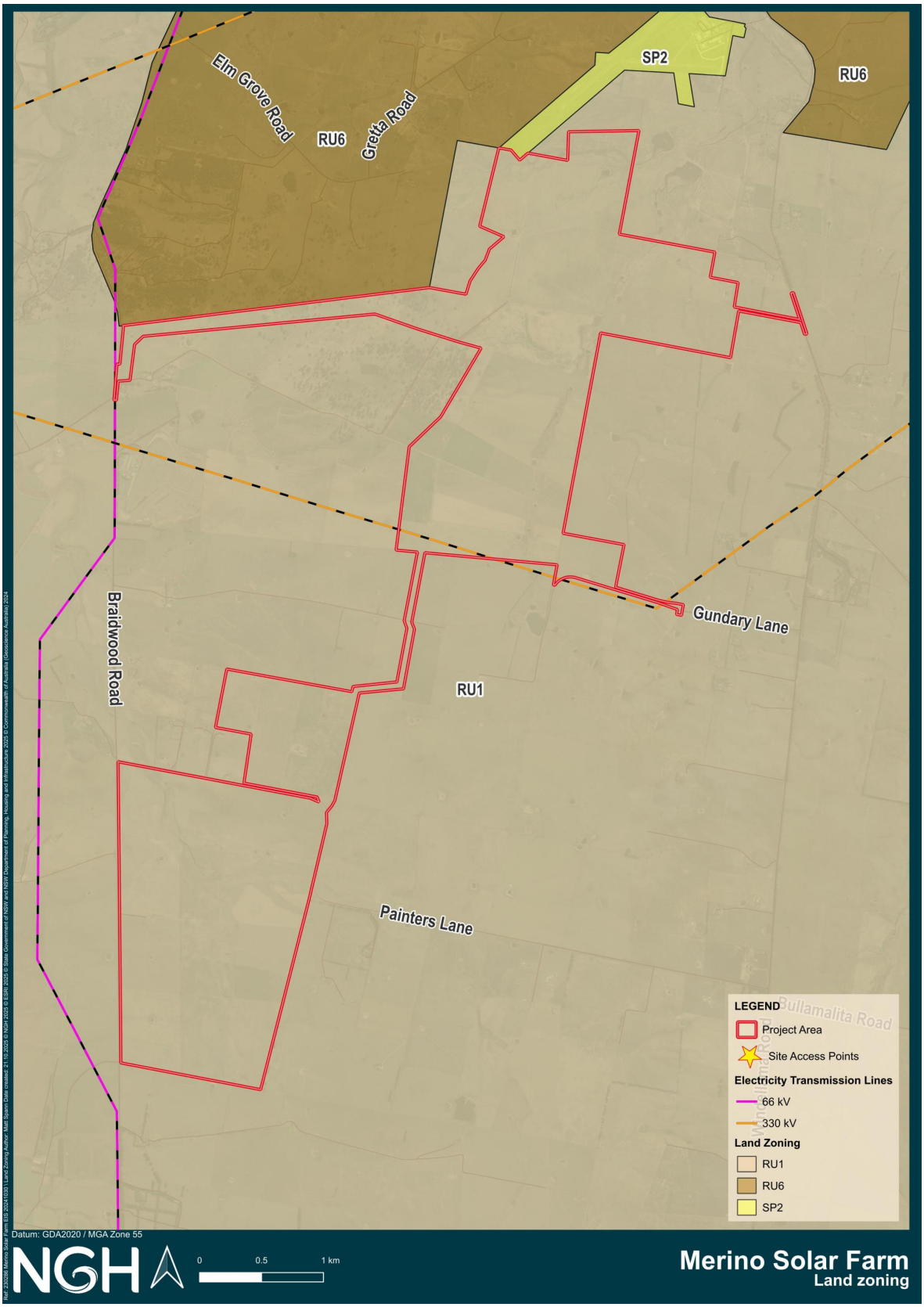


Figure 4-1 Land zoning

4.2. Renewable Energy and Regional Cities, TISEPP

The NSW Government's regional plans identify cities that are strategically important to the ongoing growth and development of regional NSW. Section 2.42 of the TISEPP provides for the specific consideration of renewable energy proposals in regional cities, which includes Goulburn. While these provisions do not prohibit solar development in these areas, a consent authority must not grant development consent unless it is satisfied that the development:

> *(a) is located to avoid significant conflict with existing or approved residential or commercial uses of land surrounding the development, and*
>
> *(b) is unlikely to have a significant adverse impact on the regional city's—*
>
> > *(i) capacity for growth, or*
> >
> > *(ii) scenic quality and landscape character.*

The Project would be located within the mapped area (Figure 4-3) and therefore the additional provisions do apply. These provisions are addressed below.

4.2.1. Conflict with existing or approved residential or commercial uses of land surrounding the development

The LUCRA, included in Section 6.4, demonstrates the Project is unlikely to conflict with residential or commercial uses of land in the vicinity of the Project area.

Consultation with CASA and the Goulburn Airport has been undertaken; the results of low glint and glare impacts communicated. CASA advised that while the location is near Goulburn Aerodrome, that a solar installation at that distance is unlikely to pose a hazard to aircraft operations and that if the Goulburn Airport operator has concerns about glare, they should request a solar glare analysis. The Applicant has forwarded the glare analysis to the operator demonstrating low impacts; 7 August 2025).

4.2.2. Capacity for growth

As outlined in Sections 2.2.3 and 2.3.1, priority areas for the growth of Goulburn are located to the north, west, and south-west of Goulburn's existing urban footprint, as per the *Urban and Fringe Housing Strategy*. Suburbs targeted for growth – to the scale of up to 3,500 additional dwellings by 2036 – are Mary's Mount, Middle Arm, Run O Waters, Kenmore, Mountain Ash, Brisbane Grove, Gorman Road and Mt Gray (refer to Figure 2-2). These areas are better serviced, less constrained and is overall more suited for residential development.

Furthermore, land to the south of Goulburn, around Tirrannaville, is less suitable for residential development due to existing land uses such as One Raceway and the Goulburn Airport which provide constraints to residential infill and may cause amenity impacts.

As such, it is unlikely that the Project would reduce the capacity for growth of the wider Goulburn urban area.

4.2.3. Scenic quality and landscape character

The visual assessment summarised in Section 6.5 states that there is the potential for a cumulative landscape character and visual impact with the Gundary Solar Farm, if both projects are approved and constructed.

Landscape scale impacts

The projects would affect the Gundary undulating rural plains Landscape Character Zone and parts of the Mulwaree River and Gundary Creek rural valley Landscape Character Zone. Together these projects would

alter parts of the rural plains and rural valley, within two separate valleys. These projects both avoid the more sensitive Tirrannaville and Gundary forested hills Landscape Character Zone.

Overall, the visual assessment has determined there would be a moderate-low cumulative landscape character impact on one Landscape Character Zone (Gundary undulating rural plains) but that this impact would not be significant. Other zones were assessed as having a low impact. The assessment is summarised in provided in Section 6.5 and provided in full in Appendix F.5.

Individual view points

The Merino Solar Farm and Gundary Solar Farm projects are unlikely to both be visible from any dwelling within the study area. This is due to landforms and intervening vegetation. These projects may, however, be seen sequentially from vehicles travelling along Windellama Road, and when travelling around the surrounding areas. The Merino Solar Farm project has limited visibility from Windellama Road and is not prominent in views from most roads within the study area. As such, there is unlikely to be a cumulative visual impact caused by these two projects. Individual residential and public view point assessments are provided in Section 6.5.

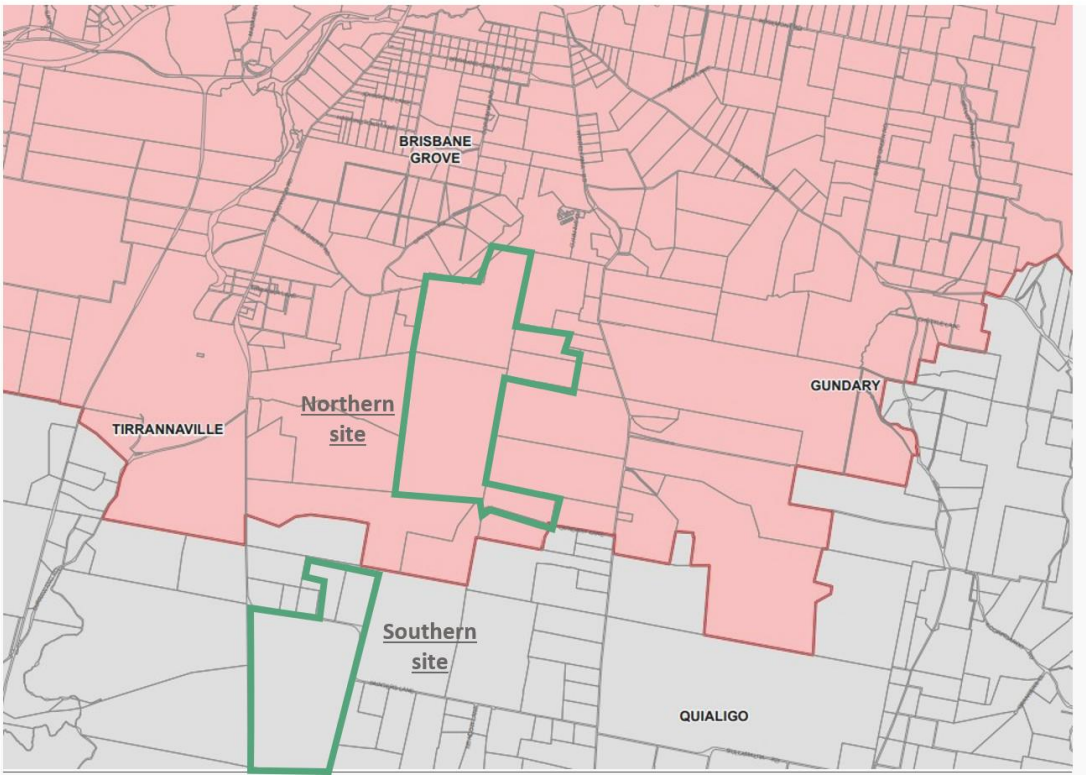


Figure 4-2 Regional cities close up showing northern and southern sections of the Project

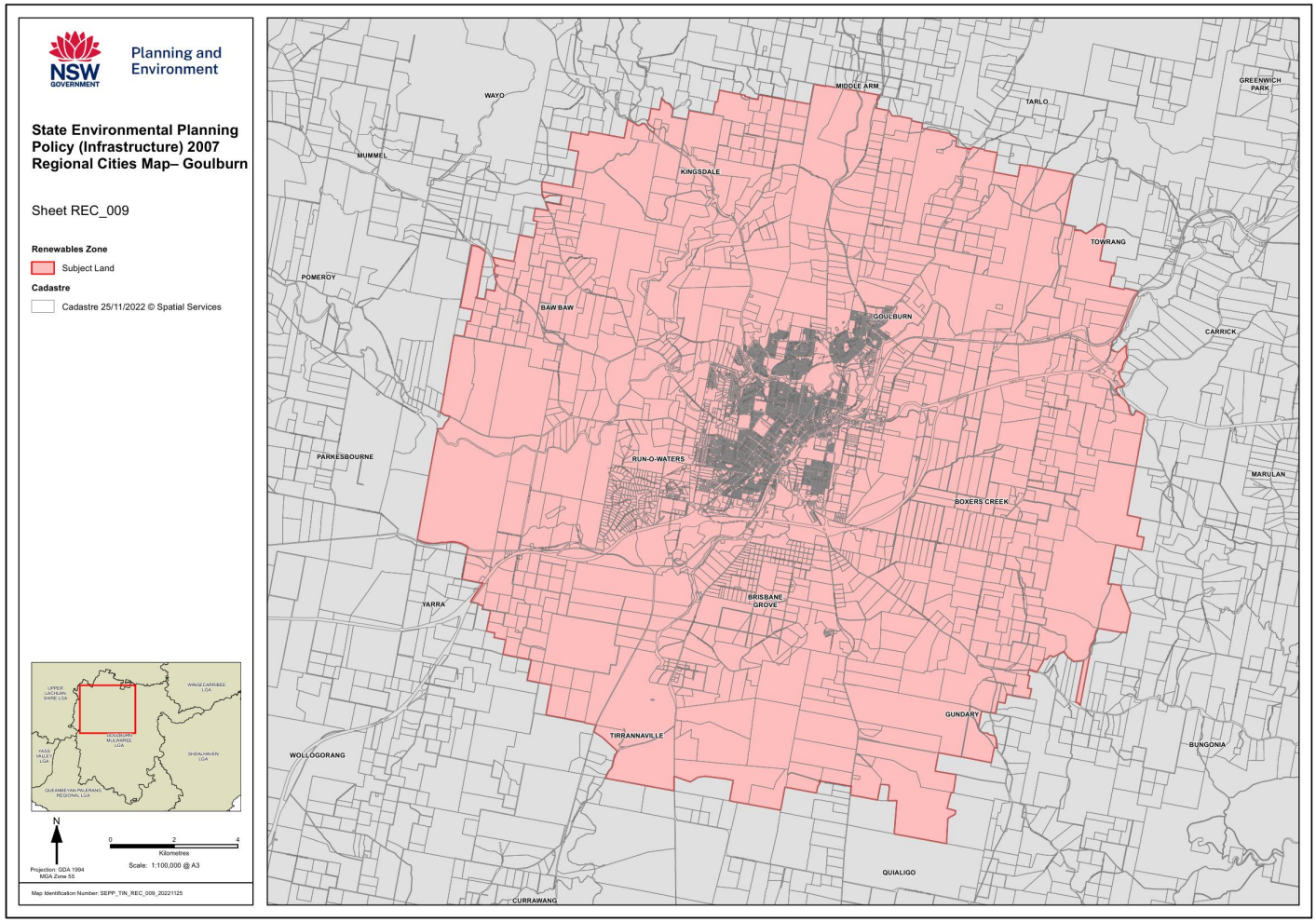


Figure 4-3 Regional cities mapping: Goulburn

05 Engagement

5. Engagement

Engagement with non-associated receivers and the broader Goulburn is crucial for developing a project that aligns with its social and environmental context, especially in the face of significant community opposition. Hybrid solar and BESS projects have a particularly unique contribution to the broader ecological impacts of climate change and energy security, as such projects generate both clean, green electricity, whilst also working to strengthen the National Energy Market (NEM) grid. These projects also bring a concentration of both direct and indirect benefits to their host region through community benefit schemes (CBS) and other economic stimulus using ancillary services.

Strong community engagement creates mutual benefits, and when undertaken successfully, can:

- Improve the Project and ensure impacts will be acceptable to the community
- Spread the benefits throughout the community, and
- Build long-term relationships and trust with the community.

5.1. Community/stakeholder engagement and consultation

This section summarises the detailed consultation activities undertaken to achieve the above-outlined goals, considering non-associated receivers, local community members, First Nations community and government agency stakeholders. It identifies:

- Issues and views raised by stakeholders
- Opportunities to influence the Project
- Plans for future engagement.

5.1.1. Background

The community engagement and consultation summary in this chapter outlines the steps taken to engage with non-associated receivers and the broader Goulburn community directly and explore both the issues and opportunities associated with the Project through a range of engagement activities. Activities undertaken throughout the EIS phase span from September 2024 to September 2025.

The Applicant acknowledges and appreciates the immense value that feedback received from stakeholders and the broader community has provided in refining the Project's design and how it can contribute positive, productive benefits to the local area.

5.1.2. Scoping phase engagement

The Applicant (previously ITP Development Australia) commenced community engagement and consultation for the Scoping Report in October 2022 and continued this engagement through to March 2023. The main objectives of the engagement activities for the Project during the Scoping phase were to identify and engage with non-associated receivers and community groups who might be interested in or affected by the Project. The Applicant aimed to build awareness, provide accessible information channels, and gather feedback from the community. There was also an aim to collect diverse qualitative and quantitative data to inform the preliminary Social Impact Assessment, ensuring that views of non-associated receivers and the broader community were considered meaningfully in the Project's planning and design. The engagement undertaken in Scoping aimed to provide detailed information about the Project's impacts and legacy, while understanding stakeholders' concerns and perspectives.

In November 2022, the Applicant announced the Project and initiated engagement with stakeholders and the broader community. Key stakeholders included non-associated receivers, the wider community, special

interest groups, infrastructure and service providers, the Goulburn Mulwaree Regional Council (GMRC), state agencies, and elected representatives. The engagement approach the Applicant took was tailored to reach these varying groups effectively.

The Applicant created a community information line, an email address, and a Project website. The contact points were promoted through local advertising, newsletters, and "Sorry we missed you" cards, which were distributed to non-associated receivers. The community information line received 15 calls, the email address received 73 emails, and the website had 1,040 visits. Advertisements were placed in the Goulburn Post to announce the Project, encourage feedback, and provide a QR link to the preliminary Social Impact Assessment survey. Print advertisements reached 5,700 readers, while digital advertisements had between 70,000 and 90,000 impressions, with 11 users clicking through to the Project website.

A doorknock and letterbox drop campaign began on 28 November 2022, targeting adjacent landholders and those within 4km of the proposed site. The campaign aimed to inform these landholders about the Project and gather their feedback. Out of 12 adjacent doorknocks, eight [8] were completed, and out of 33 doorknocks for those affected by both the Merino and Gundary Solar Farms, seven [7] were completed. Additionally, 130 letterbox drops were attempted, with 108 completed.

Invitations were also sent to key stakeholders for briefings about the Project. These briefings aimed to ensure stakeholders were well-informed, seek their feedback, and address any concerns. Briefings were conducted in person, via video chat, or over the phone as required. Notable briefings included an in-person meeting with GMRC, local government representatives, and special interest groups. A meeting was also facilitated at a non-associated receiver's property, where several adjacent landowners, other non-associated receivers, and several community group representatives attended.

Direct engagement with Transport for New South Wales (TfNSW) was also undertaken to understand their views on the Project. An email summary of the Project was sent to TfNSW, followed by discussions with a TfNSW case officer. Written commentary from TfNSW highlighted key state roads, the need for a Traffic Impact Assessment and other transport-related considerations.

Throughout this Scoping phase, the community feedback captured a sense of the perceived issues and opportunities of the Project. The main concerns and opportunities were categorised into several key themes:

- **Social:** concerns were raised regarding property values, employment opportunities, impacts on insurance, and mental health impacts
- **Land use:** preferences were shown toward the current agricultural use of the land, opposition to industrialisation of the site, and broader site selection concerns
- **Heritage:** considerations were raised regarding the First Nations' heritage of the area
- **Hydrogeology**: flooding and boggy site concerns
- **Biodiversity:** concerns raised regarding potential impact on local wildlife and vegetation
- **Bushfire:** fire risk and prevention measures raised
- **Access and traffic:** concerns raised on safety for the local community and the cumulative impacts of construction traffic
- **Visual impacts:** concerns about visual changes and impacts on local vistas
- **Noise and vibration:** construction noise and vibration impacts
- **Air quality:** concerns regarding dust from construction traffic
- **Waste:** decommissioning plans for solar panels
- **Cumulative impacts:** concerns were raised regarding the combined effects of multiple solar farms and potential airport expansion on the local community.

These issues and opportunities were explored further during the EIS engagement activities, and the responses and adaptations applied to the Project are outlined in the section below.

The Applicant acknowledges that a high level of consultation, engagement and information sharing is required throughout both the EIS phase and beyond. As a result, the Applicant has delivered a

communications and engagement program that represented a genuine investment in engagement and consultation with the local community.

5.1.3. EIS engagement

Notably, following the submission of the Scoping Report in June 2023, ITP Development Australia was acquired by EDP Renewables (EDPR) in November 2023, and the Project became part of EDP Renewables APAC (Asia-Pacific). The EDPR Australia team develops utility and town-scale solar farms and maintains stakeholder relationships (such as those with non-associated receivers, communities, governments and contractors) that were previously owned by ITP Development Australia.

The EIS phase of the Project recommenced in July 2024, and community and stakeholder engagement continued from then until the EIS was submitted to the DPHI in September 2025. The Applicant continued discussions about the Project with non-associated receivers, broader Goulburn and Tirrannaville community members, and targeted stakeholders.

Two community events were held during the EIS engagement period, with a community drop-in session facilitated at the Goulburn Soldiers Club on Tuesday, 18 February 2025, and an information pop-up booth at the Goulburn Marketplace (in front of Woolworths) on Wednesday, 19 February 2025. Two [2] advertisements were placed in the Goulburn Post with details of the community drop-in session on Saturday, the 8th of February and Saturday, the 15th of February 2025. Information regarding the session times was also circulated with other stakeholders (such as the GMRC, local representatives, local interest groups, and non-associated receivers) via email and letters, which also resulted in the session being advertised on online Facebook community groups (by the Goulburn Mayor, for example). The information pop-up at the Goulburn Marketplace provided an opportunity for the public, who otherwise might not have heard about the Project, to meet the Project team and learn more. The community drop-in session at the Goulburn Soldiers Club resulted in approximately 40 attendees, and the information pop-up resulted in 15 individual conversations.

Both sessions provided the opportunity for stakeholders and community members to attend to meet the Project team, learn more about the Project, raise queries and concerns, and have specific questions answered. The sessions allowed the Applicant to get a good understanding of the concerns the community has towards the Project, as well as the opportunities that may be generated by the Project. Discussions were also facilitated regarding landscape values, as well as the Community Benefit Scheme (CBS) that would be developed by the Project, should it be approved.

The Project team also facilitated one-on-one briefings to discuss the Project, as well as undertake interviews to inform the Social Impact Assessment (see Section 6.10) with non-associated receivers, community members, local community groups, and targeted stakeholders. This included briefings with the GMRC Councillors, the Member for Goulburn, representatives from Farmers NSW, TAFE NSW, and more. Ongoing liaison via email, phone calls and meetings continued throughout the engagement period.

In total, across the EIS engagement period:

- 168 direct emails were sent to stakeholders
- Three [3] rounds of posted letters to non-associated receivers within 4 km (a total of 537 letters)
- 26 phone calls were facilitated
- 44 in-person meetings/briefings were facilitated
- Two [2] online meetings
- Four [4] electronic direct emails (EDM) providing Project updates were sent (124 pieces of individual correspondence total)
- Two [2] community information events with approximately 55 attendees

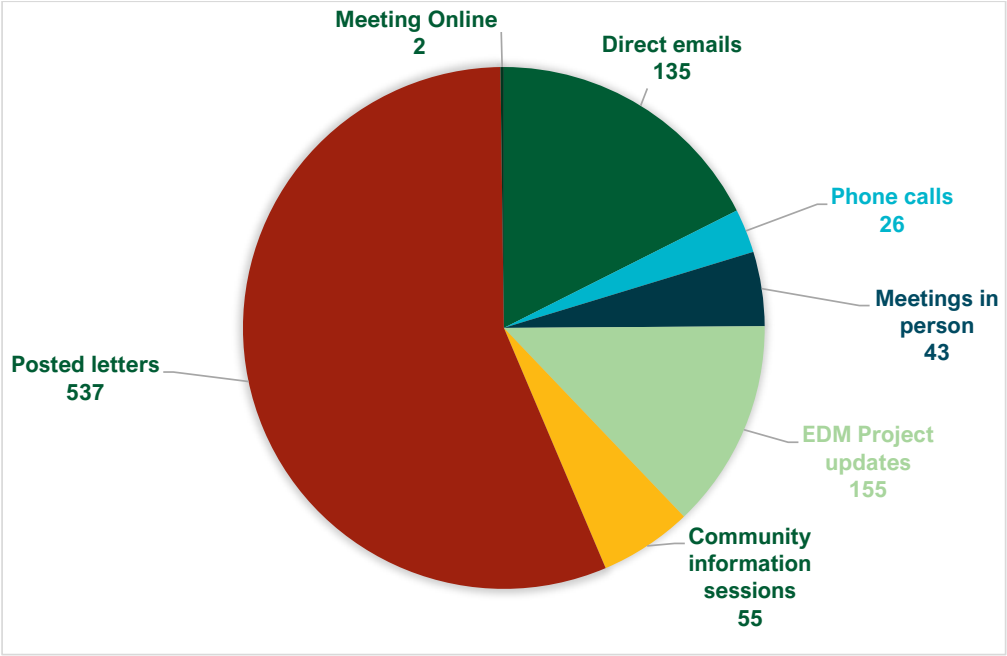


Figure 5-1 EIS engagement activities

Throughout the EIS engagement period, the community feedback and discussions captured a strong sense of the key issues and opportunities identified, building upon the sentiment gathered during Scoping engagement activities in 2022 and 2023.

The main issues that were identified and the opportunities that were highlighted throughout the EIS period included:

Concerns

- Visual impact
- Property devaluation
- Mental health impacts
- Insurance concerns
- Noise pollution
- Fire risk
- Health/EMF concerns
- Soil/water contamination
- Dust during construction
- Loss of agricultural land
- Inappropriate location (non-REZ)
- Traffic and road safety
- Decommissioning and waste
- Glare and airport safety
- Water access and drainage
- Lack of consultation and perceived transparency
- Procedural fairness and planning process
- Project ownership.

Opportunities

- Short-term local economic benefits
- Increased shade for livestock
- Job creation and training pathways
- Community Benefit Scheme (CBS)
- Use of local accommodation and services during construction
- Renewable energy generation.

These opportunities and concerns were continuously explored throughout conversations and engagement activities facilitated throughout the EIS phase.

5.1.4. Key community stakeholders

The Applicant developed an Engagement Action Plan (EAP) in August 2024, which included a detailed list of Project stakeholders to inform the communications and engagement activities undertaken for the Project.

This analysis considered the level of impact, influence, and engagement approach, in keeping with the International Association of Public Participation (IAP2) Engagement Framework. The engagement approach adopted for each stakeholder group identified was summarised within the EAP.

Table 5-1 Project stakeholder breakdown and engagement approach

Stakeholder group	Targeted stakeholders	Interests	Objectives and opportunities	Level of interest (H/M/L)	Level of Impact (H/M/L)	Quality of relationship (vp, p, n, s, vs)	Engagement needs and/or expectations	Engagement approach
Non-associated receivers (within 4km) – see Figure 2-5.	• Residential properties within a 4km radius in the first instance and 1km (pending Noise Assessment) radius of the proposed site. • One Raceway • Goulburn Airport • Gundary Solar Farm.	• Property impacts • Noise impacts • Visual impacts • Access changes • Environmental changes • Commercial agreements • Community benefits • Governance and ownership of the developing entity • Impacts on agricultural outputs • Cumulative impacts from the airport and Gundary Solar Farm.	• Develop a strong partnership with the community • Keep neighbours informed about the Proposal from early in the planning phase • Identify impacts and mitigations through a collaborative process • Discuss neighbour benefit sharing options directly • Provide opportunities to raise issues and provide feedback.	H	H	Neutral - multiple attempts to contact non-associated receivers, noting not all chose to engage/participate, while ongoing conversation occurred with multiple others.	• Consistent engagement • To be informed first of any information • Open and transparent dialogue • Opportunity for discussions and feedback • Face-to-face discussions • Personalised relationships formed • Discussions regarding impacts and possible mitigations • Collaborative approach towards mitigation and development • Understanding of cumulative impacts.	**Inform, consult, involve, collaborate.** Consultation with this group involved phone calls, distributing letters, invitations to the community drop-in session, copies of the project newsletter and a direct face-to-face meeting at their property where available. This group can also access information via the website.
Broader Community and region	Tirrannaville and Gundary localities, as well as Goulburn township, including residents, businesses, and organisations.	• Visual impacts • Noise impacts • Transport access impacts or changes • Environmental changes • Community benefits • Governance and ownership of the developing entity • Regional economic development.	• Develop an understanding of and an opportunity to participate in the Proposal • Provide opportunities to raise issues and provide feedback • Discuss community benefit sharing options.	M	M	Neutral – attempts to engage with the wider community through pop-ups, advertisements, and posters around town.	• Ongoing project updates • Information readily available • Opportunity for discussions and feedback • Identification of benefits.	**Inform, consult, involve** This group should be re-engaged through broader communications during the development application phase through a community drop-in session, a public notice and communications through the council. Ideally, communications to this group would make use of the Proposal web page/site.
Traditional Owners	• Pejar Local Aboriginal Land Council • Mulwaree Aboriginal Community Inc. • Gundungurra Aboriginal Heritage Association Incorporated.	• Visual impacts • Access changes • Environmental changes • Commercial agreements • Community benefits • Governance and ownership of the developing entity • Impacts on culturally significant areas • Impacts on Country.	• Engage with the relevant Local Aboriginal Land Council and RAPs through the formal process • Look for opportunities to contribute to the story of Country and contribute to the local Aboriginal Community • Involve local community organisations in community benefit sharing initiatives.	H	H	Neutral – consultation occurred.	• Engagement to occur face-to-face, not technology focused • Open and transparent dialogue • Opportunity for discussions and feedback • To be listened to • Personalised relationships formed • Participation in benefits development. • Feelings of empowerment with decision making	**Inform, consult, involve, collaborate, empower** This group should be re-engaged through community drop-in sessions, targeted meetings, phone calls and project update emails. Ideally, communications to this group would make use of the Proposal web page/site, but mainly direct contact. The approach is to ensure we create meeting opportunities that are best suited to this stakeholder group, mitigating participation barriers where possible. E.g. a walk on Country and/or a listen and yarn activity.

Stakeholder group	Targeted stakeholders	Interests	Objectives and opportunities	Level of interest (H/M/L)	Level of Impact (H/M/L)	Quality of relationship (vp, p, n, s, vs)	Engagement needs and/or expectations	Engagement approach
Community organisations	• Community Voice for Hume • CWA Goulburn Branch • CWA Goulburn Evening Branch • CWA Goulburn-Mulwaree Branch • Goulburn Combined Probus Club • Goulburn Mulwaree Landcare • Goulburn Quota Incorporated • Lions Club of Goulburn City • NSW Farmers' Goulburn Branch • Rotary Club of Goulburn • Tarago Progress Association.	• Property impacts • Visual impacts • Access changes • Environmental changes • Commercial agreements • Community benefits • Governance and ownership of the developing entity • Impacts on agricultural outputs.	• Identify interests and opportunities to partner and contribute • Look for opportunities to address concerns in the EIS regarding impacts on productive land.	M	M	Neutral – attempts to engage, success with some groups.	• Ongoing engagement regarding updates • Information readily available • Opportunity for discussions and feedback.	**Inform, consult** Outside of the sensitive receivers identified, this group should be re-engaged through broader communications during the development application phase through a community open drop-in session, a public notice (print) and communications through the council. Ideally, communications to this group would make use of the project web page/site.
Government Agencies/Utility owners	• DPHI • TransGrid • Essential Energy • Fire and Rescue NSW – Goulburn Branch • NSW State Emergency Service – Goulburn Unit • NSW State Emergency Service – South East Zone • WaterNSW • Department of Agriculture • Transport for NSW • Geo Science NSW • Civil Aviation Safety Authority • Air Services Australia • Biodiversity Conservation Services (BCS) • National Parks and Wildlife.	• Impacts on local infrastructure • Assessment process • Consideration of impacts • Consideration and mitigation of concerns • Consultation process • Application of standards and frameworks.	• Develop and maintain a positive relationship • Build on previous discussions • Identify opportunities to support the local economy • Work to identify issues and/or opportunities.	H	H	Neutral – ongoing agency consultation	• Ongoing engagement regarding updates • Information readily available • Face-to-face discussions • Discussions regarding issues mitigation, opportunities.	**Inform, consult, involve** This group should be re-engaged directly through phone calls, briefings, distributing letters, and direct meetings/briefings where possible. Ideally, communications to this group would make use of the project web page/site.

Stakeholder group	Targeted stakeholders	Interests	Objectives and opportunities	Level of interest (H/M/L)	Level of Impact (H/M/L)	Quality of relationship (vp, p, n, s, vs)	Engagement needs and/or expectations	Engagement approach
Council	• Goulburn Mulwaree Council • Councillor Peter Walker (Mayor, Goulburn Mulwaree Council) • Scott Martin (Director, Planning and Environment).	• Impacts on local infrastructure • Assessment process • Consideration of impacts • Consideration and mitigation of concerns • Consultation process • Application of standards and frameworks • Community Benefit Scheme / VPA.	• Develop and maintain a positive relationship • Build on previous discussions • Develop and maintain a positive relationship • Identify opportunities to support the local economy • Identify and leverage council communication channels.	H	H	Strong – ongoing consultation	• Ongoing engagement regarding updates • Information readily available • Face-to-face discussions • Discussions regarding issues mitigation, opportunities • Community benefits/VPA discussions throughout EIS • Discussions regarding use of Council roads, etc.	**Inform, consult, involve, collaborate** Consultation with this group will involve phone calls, distributing letters, and direct face-to-face meetings and/or briefings. Ideally, communications to this group would make use of the project web page/site.
Federal MP	Member for Hume, The Hon. Angus Taylor MP	• Impacts on local infrastructure • Assessment process • Consideration of impacts • Consideration and mitigation of concerns • Consultation process • Application of standards and frameworks.	• Develop and maintain a positive relationship • Build on previous discussions • Develop and maintain a positive relationship • Identify opportunities to support the local economy • Identify and Leverage council communication channels.	M	H	Poor – attempts to engage, no outcome to date	• Ongoing engagement regarding updates • Information readily available • Face-to-face discussions • Discussions regarding issues mitigation, opportunities • Community benefits/VPA discussions • Understanding of cumulative impacts.	**Inform, consult, involve** This group should be re-engaged directly through phone calls, briefings, distributing letters, and a direct face-to-face meeting where possible. Ideally, communications to this group would make use of the project web page/site.
State MP	Member for Goulburn, Mrs Wendy Margaret Tuckerman	• Impacts on local infrastructure • Assessment process • Consideration of impacts • Consideration and mitigation of concerns • Consultation process • Application of standards and frameworks.	• Develop and maintain a positive relationship • Build on previous discussions • Develop and maintain a positive relationship • Identify opportunities to support the local economy • Identify and Leverage council communication channels.	• H	• H	• Strong – consultation occurred	• Ongoing engagement regarding updates • Information readily available • Face-to-face discussions • Discussions regarding issues mitigation, opportunities • Community benefits/VPA discussions throughout EIS • Understanding of cumulative impacts.	**Inform, consult, involve** This group should be re-engaged directly through phone calls, briefings, distributing letters, and a direct face-to-face meeting where possible. Ideally, communications to this group would make use of the project web page/site.
Schools, TAFEs and Universities	• Tirrannaville Public School • TAFE NSW - Goulburn • Public, Private and Catholic Schools in the Goulburn region	• Impacts on local infrastructure • Consideration of impacts • Community Benefits	• Ensure organisations are updated on education and vocational opportunities associated with the Proposal. • Identify relevant community benefit scheme opportunities	M	L	Neutral	• Ongoing engagement regarding possible involvement in educational opportunities • Information readily available • Opportunity for discussions and feedback • Involvement in impact mitigation	**Inform, consult, collaborate** This group should be re-engaged through broader communications during the EIS phase through a community open drop-in session, a public notice (print) and communications through the council.

Stakeholder group	Targeted stakeholders	Interests	Objectives and opportunities	Level of interest (H/M/L)	Level of Impact (H/M/L)	Quality of relationship (vp, p, n, s, vs)	Engagement needs and/or expectations	Engagement approach
							(especially traffic near Tirrannaville Public School).	Ideally, communications to this group would make use of the project web page/site.
Business groups/small businesses	• Goulburn Chamber of Commerce • Goulburn township businesses and those with a broader interest in the region • Construction companies that may contribute to the solar and battery facility construction and installation	• Property impacts • Visual impacts • Access changes • Environmental changes • Commercial agreements • Community benefits • Governance and ownership of the developing entity • Impacts on agricultural outputs	• Work with the chamber to identify any local businesses that may be impacted by the Proposal (positive or negative) • Identify opportunities to develop or utilise local capability	H	M	Neutral – consultation occurred.	• Ongoing engagement regarding updates • Information readily available • Opportunity for discussions and feedback • Identification of possible opportunities/participation.	**Inform, consult** Outside of the sensitive receivers identified, this group should be re-engaged through broader communications during the EIS phase through a community open drop-in session, a public notice (print) and communications through the council. Ideally, communications to this group would make use of the Proposal web page/site.
Advocacy groups	• The Goulburn Group • Community Energy 4 Goulburn • Citizens' Climate Lobby Australia.	• Regional growth • Community benefits • Governance and ownership of the developing entity.	• Consider opportunities for partnerships and community events • Consider advocacy opportunities • Potential for partnerships.	H	M	Strong – ongoing consultation.	• Ongoing engagement regarding updates • Information readily available • Opportunity for discussions and feedback • Identification of possible advocacy activities.	**Inform, consult** Outside of the sensitive receivers identified, this group should be re-engaged through broader communications during the EIS phase through a community open drop-in session, a public notice (print) and communications through the council. Ideally, communications to this group would make use of the project web page/site.
Groups of renewable objectors (publicly accessible on Facebook)	• Stop Gundary Solar Farm • Stop Merino Solar Farm.	• Property impacts • Visual impacts • Access changes • Environmental changes • Commercial agreements • Community benefits • Governance and ownership of the developing entity • Impacts on agricultural outputs.	• Identify and address concerns as required • Prepare responses to known concerns based on previous projects • Manage issues proactively, constructively and efficiently • Ensure equity in the engagement (allow other stakeholders time to talk in information sessions).	H	M/L	Neutral – have had contact with some members of the groups.	• Ongoing engagement regarding updates • Information readily available • Opportunity for discussions and feedback.	**Inform, consult** Outside of the sensitive receivers identified, this group should be re-engaged through broader communications during the EIS phase through a community open drop-in session, a public notice (print) and communications through the council. Ideally, communications to this group would make use of the project web page/site.

5.1.5. Overview of activities

The EIS engagement period included a range of activities that aimed at explaining the changes in Project ownership, providing updates on the Project, expanding awareness of the Project, responding to concerns, working through issues raised by non-associated receivers (and identifying relevant mitigation measures), engaging with the community and wider stakeholders, and capturing potential opportunities that the Project may bring.

The Applicant worked to develop detailed answers in response to queries and concerns raised and created in-depth collateral items to accompany both virtual and on-the-ground engagement activities and efforts.

The engagement program sought to engage with non-associated receivers within 4km of the Project area and the wider Goulburn and Tirrannaville communities. The types of activities included:

- Two community information events (one drop-in style, one pop-up style)
- Direct communications (letters, emails, phone calls, email campaigns)
- Material development:
    - Project fact sheet
    - Project FAQs
    - Project newsletter
- Advertisements placed in the local newspaper
- Posters were published around the township of Goulburn
- Project website
- Online community feedback survey
- Brainstorming activities for community benefit sharing programs
- Presentations, meetings and briefings.

The focus and timing of these activities are summarised below.

Figure 5-2 Community Information Session at Goulburn Soldiers Club

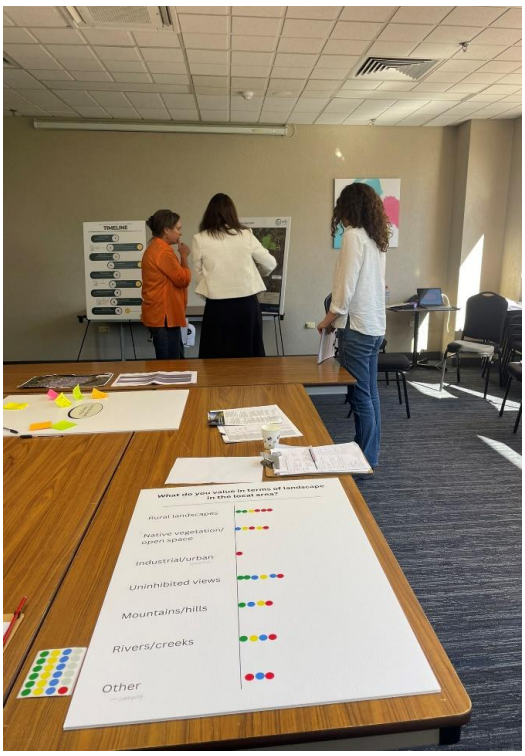


Figure 5-3 Community information session at Goulburn Soldiers Club

Figure 5-4 Community pop-up at Goulburn Marketplace

Table 5-2 Overview of EIS phase engagement activities

Activity	Outcome	Delivery timing and reach
Information sessions		
Community information session Goulburn Soldiers Club	The Applicant introduced and explained the Project, provided updates on the Project from the Scoping phase, outlined the EIS process, discussed issues/opportunities, and engaged with local stakeholders. Materials were produced in large format (i.e., an indicative site map, visual guide of the NSW SSD process), and fact sheets and FAQs were available to take away. QR codes linking out to the community feedback survey, as available on the materials, encourage attendees to complete in their own time. The team had large interactive boards for the community to interact with, which allowed attendees to identify local visual amenity factors, and brainstorm possible community benefit sharing ideas. The team completed feedback forms highlighting questions, concerns and sentiment.	• Tuesday 18 February 2025 2:00 pm – 6:00pm • Reach: approximately 40 attendees
Pop-up community information booth Goulburn Marketplace	The information pop-up outside Woolworths aimed to broaden the awareness of the Project, provided updates on the Project from the Scoping phase, outlined the EIS process, discuss issues/opportunities, and engage with local stakeholders. Project fact sheets and FAQs were available to take away, with QR codes linking out to the community feedback survey available on materials. The team completed feedback forms highlighting questions, concerns and sentiment.	• Wednesday 19 February 2025 9:00 am – 1:00 pm • Reach: approximately 15 attendees

Activity	Outcome	Delivery timing and reach
Non-associated receiver consultation		
Posted letters to non-associated receivers within 4 km of the site: 537 letters total, to Receivers 1 – 192, plus three 'future receivers' (several receivers identified had the same postal address (i.e. multiple dwellings located on one lot). After removing duplicates and receiving 'return to sender' (i.e. no postal delivery box available for lot), approximately 167 unique non-associated receivers were identified for letter delivery within 4 km. (See Appendix E.1, Appendix E.2, Appendix E.3)	Several letters were sent throughout the EIS period. The purpose of the letters was to provide an update on the Applicant ownership, provide an update on the Project, provide an overview of the EIS process, highlighted opportunities to learn more, provided information on how to find the Project website, provided information on the community information session, responded to key issues and highlighted benefit-sharing opportunities. Of the receivers to whom letters were sent, we received a 'return to sender' for 18 receivers.	• Distribution dates: Thursday 7 November 2025, Wednesday 29 January 2025, 23 September 2025. • Reach: approximately 167 unique properties (Receivers 1 – 190).
Targeted phone calls/liaison	Phone calls were made (where details had been provided with consent) to discuss the Project with non-associated receivers and other identified stakeholders, support discussions around the Project, concerns raised, coordinate Social Impact Assessment-focused interviews, and coordinate face-to-face or online meetings.	• Approximately 26 phone calls/liaisons/
Non-associated receiver property visits	Throughout correspondence with non-associated receivers (written correspondence and phone calls), the Applicant offered in-person visits to properties to discuss the Project further. Several non-associated receivers took up the offer, in which the Applicant attended.	• 11 non-associated receivers opted into visits at their properties for in-person meetings.

Activity	Outcome	Delivery timing and reach
Consultation for visual assessments	For the LVIA assessment, 194 non-associated residences were identified within 4 km of the Project using desktop tools, and initial assessments were undertaken. Based on the assessment outcomes of the LVIA, all non-associated receivers were shown as having a 'low' impact rating at worst, with no 'moderate' or 'high' impacts recorded. See the VIA report for more information.	• 10 detailed LVIA assessments required • Seven [7] letters posted on 7 February 2025 • Four [4] follow-up letters posted on 5 March 2025 • Eight [8] emails sent conversations facilitated following LVIA to discuss results • Public viewpoints assessed.
Consultation for noise assessments	For the Noise Impact Assessment, 26 non-associated receivers were identified within 4 km of the Project that may experience noise amenity impacts. Based on this assessment, no non-associated receivers were identified as exceeding noise allowances during both the construction and operation phases of the Project, and no additional work was required. See the Noise Impact Assessment for more information.	• No further property visits required.
Traditional media		
Newspaper advertisement (See Appendix E.4, Appendix E.5)	Advertisements were placed in the local newspaper advertising the upcoming community drop-in information session.	• Saturday 8th February 2025 • Saturday 15th February 2025

Activity	Outcome	Delivery timing and reach
Project posters (See Appendix E.6, Appendix E.7, Appendix E.8)	Posters were placed around Goulburn township to further expand awareness of the Project, they were placed: • Outside Coles • Community Notice Board • Outside a café.	• Week of the 17th of February 2025 (ongoing, until removed by cleaners/community).
Project Newsletters/Project Updates (See Appendix E.9 Appendix E.10)	Two [2] Project newsletters/ update documents were developed, providing updates on the Project. It was available on the Project website.	• Throughout the EIS engagement period.
Project Fact Sheet (See Appendix E.11)	A Project Fact Sheet was developed to provide an overview of the Project. It was available at the community drop-in session, the community information pop-up, and on the Project website.	• Throughout the EIS engagement period.
Frequently Asked Questions (FAQ) Brochure (See Appendix E.12)	A FAQ brochure was developed to answer common questions raised about the Project. The FAQ brochure was at the community drop-in session, the community information pop-up, and on the Project website.	• Throughout the EIS engagement period.
Project Business Cards (See Appendix E.13)	Project Business Cards were developed, which contained information on how to contact the Project team, as well as QR codes directing stakeholders to the Project website and the online survey.	• Throughout face-to-face events.
Digital tools		

Activity	Outcome	Delivery timing and reach
Website https://www.edp.com/en/asia-pacific/australia/merino-solar-farm	The Project website provided a central location for Project updates and information. The website has been available throughout the EIS phase and will remain a source of information for stakeholders as the Project progresses.	Website reach: • 961 total views (between 1 January 2025 and 28 June 2025).
Electronic direct mail (See Appendix E.14, Appendix E.15, Appendix E.16, Appendix E.17)	Campaign emails in the form of electronic direct mail (EDM) were developed to provide updates on the Project's progress, EIS assessment outcomes, community pop-up session details, and next steps within the EIS pathway.	• Throughout the EIS engagement period (specifically November 2024, February 2025 (x2), September 2025) • Reach: 31 stakeholders over four [4] circulations (124 unique deliveries total)
Online Survey (See Appendix E.18)	The online survey aimed to capture thoughts on the Project in a way that informed the Social Impact Assessment (see Section 6.10) and follow-up engagement discussions. The survey was promoted through information sessions, stakeholder briefings, EDMs,	The survey was live for 17.5 weeks between 11 November 2024 and Friday, March 14, 2025. Results from the survey included: • 37 responses received.
Stakeholder group presentations/briefings		
Goulburn Mulwaree Council (GMRC)	EDPR Australia and NGH held several discussions with GMRC between November 2024 and June 2025. Initial discussions focused on providing an update on the changes regarding the Applicant, updates on the Project, an outline of the EIS process, and a discussion regarding technical assessments to be undertaken during the EIS. In-depth discussions were facilitated with the GMRC Councillors and Mayors in a face-to-face briefing providing another overview and update on the Project, Community	• In-person briefing facilitated at GMRC offices with Mayor and Councillors of GMRC on the 11 February 2025 • In-person briefing facilitated at GMRC offices with Mayor and Councillors of GMRC on the 29 August 2025 • 16 emails sent between 19 November 2024 and 11 September 2025.

Activity	Outcome	Delivery timing and reach
	Benefit Scheme (CBS), construction impacts, employment opportunities, traffic disruptions, visual and environmental impacts, and fire impacts. Subsequent discussions were held to negotiate an agreement regarding the Community Benefit Scheme.	
State MP, Member for Goulburn	The Applicant provided an overview of the Project and changes that have been made since the last briefing provided in Scoping. The Applicant addressed concerns raised by the MP about the extension of the airport, the State Environment Planning Policy (SEPP), impacted neighbours, and community and Council consultation.	• Eight [8] emails sent between 19 November 2024 and 2 April 2025 • In-person briefing facilitated at the Member for Goulburn's offices on 29 April 2025.
Federal MP, Member for Hume	The Applicant provided an update on the Project, the changes of the Applicant, and details on community information sessions. The Applicant requested a briefing (in person or online), with no response was received.	• Six emails sent between 19 November 2024 and 26 February 2025.
Goulburn Mulwaree Local Aboriginal Land Council (LALC)	The Applicant contacted the Goulburn Mulwaree LALC, provided an update on the Project, the changes to the Applicant, and requested the opportunity to meet face-to-face to discuss the Project.	• Four [4] emails sent between 4 February 2025 and 17 February 2025.
Goulburn Mulwaree Aboriginal Community Inc. (GMAC)	The Applicant contacted the Goulburn Mulwaree Aboriginal Community Inc. to provide an update on the Project, changes to the Applicant, and requested the opportunity to meet face-to-face to discuss the Project further. A face-to-face meeting was held with a representative of GMAC, where the cultural heritage conservation,	• Three [3] emails sent between 4 February 2025 and 18 February 2025 • Face-to-face meeting facilitated on 20 February 2025.

Activity	Outcome	Delivery timing and reach
	Project processes and Community Benefit Scheme were discussed.	
Local Community Groups and/or Interest Groups: Citizens Climate Lobby Australia Community Voice for Hume CWA Goulburn Branch CWA Goulburn Evening Branch CWA Goulburn-Mulwaree Goulburn Combined Probus Club Goulburn Mulwaree Landcare Goulburn Quota Incorporated Goulburn Mulwaree Landcare Lions Club Goulburn Rotary Club Goulburn Southern Tablelands Community Foundation Tarago Progress Association The Goulburn Group Stop Gundary Solar Farm	The Applicant provided an update on the Project, the changes in Applicant, outlined the EIS process, provided details on the community information session, provided details on how to access the Project website and provide feedback, and requested a meeting for a verbal briefing and/or participation in an Social Impact Assessment interview.	• Updates provided on 20 November 2024, 4 February 2025, 13 February 2025, 26 February 2025 • Face-to-face meeting with the Southern Tablelands Community Association on 20 February 2025 • Face-to-face meeting with the Goulburn Group held on 18 February 2025 • Face-to-face meeting with Stop Gundary Solar Farm held on 20 February 2025.
Professional consultees Goulburn Chamber of Commerce NSW Farmers Association Goulburn NSW State Emergency Service – Goulburn Unit	The Project team provided an update on the Project, outlined the EIS process, provided information on benefit sharing, details on how to complete the survey and provide feedback, details on the community pop-up events, and requested a meeting for a verbal briefing.	• Updates provided on February 13, 2025 • Face-to-face Social Impact Assessment held with NSW Farmers Association, February 18, 2025.

Activity	Outcome	Delivery timing and reach
	A representative from the NSW Farmers Association was interviewed for the Social Impact Assessment (Chapter 0).	

5.2. Summary of consultation findings

5.2.1. Overall sentiment

The engagement activities undertaken throughout the EIS phase demonstrated that there is a high level of concern regarding the Project from the Goulburn and Tirrannaville communities, and mixed levels of concern (ranging from low to high) from identified stakeholders with whom briefings were facilitated.

The most prominent concern raised is the visual impact of the Project, with many stakeholders worried that there would be high visibility of the panels in the landscape and would be situated too close to residential properties. This concern was closely followed by fears of property devaluation, with stakeholders feeling the presence of the Project could significantly reduce the value of properties in the area.

The negative sentiment towards the Project is shaped by a combination of the specific concerns along with broader issues related to environmental and community impacts. Due to the location of other solar farms proposed in the region, several stakeholders expressed concerns about the mental health impacts of the Project, citing cumulative stress from the planning process, property-related anxieties, and the uncertainty surrounding multiple nearby developments. When considering environmental impacts, several stakeholders were concerned with contamination (soil and water linked to chemical use, runoff, and construction, as well as dust impacts on air quality), the safety of local roads due to increased traffic during construction, along with concerns of the use of agricultural land for the Project (despite proposed agri-grazing operations).

Conversely, several stakeholders identified benefits they felt the Project would bring, including strong short-term economic benefits to the region using ancillary services during construction (such as food and lodging), improved conditions for the livestock proposed to graze under the panels (due to increased shade availability), and several opportunities identified through a Community Benefit Scheme (CBS).

Perceived lack of transparency and a lack of consultation (between SEARs being received in 2023 and the Project recommencing in 2024) has also fuelled negative sentiment towards the Project. Many stakeholders feel their voices have not been adequately heard (whether it's based on their experience with this Project or other Projects in the region), leading to a sense of distrust and opposition towards the Project. This perception was also echoed throughout the online feedback survey. As a result, there is a cautious and critical stance amongst many members of the local community.

Concerns raised by stakeholders throughout the EIS phase were primarily focused on the following topics:

- Visual impact (highly prominent concern)
- Potential devaluation of properties (highly prominent concern)
- Lack of or inadequate consultation and perceived lack of transparency (highly prominent concern)
- Project location, including the use of agricultural land and not being within a Renewable Energy Zone (REZ) (highly prominent concern)
- Concerns about Project ownership and foreign accountability (highly prominent concern)
- Long-term mental health impacts
- Concerns regarding insurance costs and eligibility
- Proximity of panels to adjacent homes
- Noise impacts, particularly during construction

- Traffic and road safety, particularly the use of local roads, school bus routes, and damage to infrastructure
- Fire risk and management, including concerns around grassfires, heat island effects, and emergency response
- Health and safety concerns, including electromagnetic fields (EMF) and general wellbeing
- Environmental concerns, including potential for soil and water contamination, heavy metal leaching, and impact on livestock grazing under panels
- Dust and air quality impacts during construction
- Lighting, glare, and potential aircraft/aviation safety issues (glint/glare near Goulburn Airport)
- Water management, including runoff, site drainage, and impacts to neighbouring land
- Decommissioning and Project lifecycle, including concerns about infrastructure removal and landfill waste
- Concerns about procedural fairness, including perceptions of policy circumvention, fast-tracking, and limited local influence
- CBS and a belief that it is inadequate.
- Online survey feedback

The online survey was created as another opportunity for community members to share their input in an easy and accessible way. It was made available through multiple communication tools such as posted letters, EDMs, and Project business cards that were available at community information sessions.

The survey contained 20 questions and was open for completion for 17.5 weeks between Monday 11 November 2024 and Friday, March 14, 2025. A total of 37 responses were received, and an overview can be found below.

Demographic

- Of the 37 responders, 21 identified as male, 15 identified as female, and one [1] preferred not to nominate a gender
- 64.87% of responders were aged between 55-74, 10.81% were between the ages of 25-34, 8.11% were aged 35 – 44, 8.11% were 45 – 54, 5.41% were aged between 75 and 84, and 2.70% were aged between 20-24
- 11 respondents live less than 1 km from the proposed Project area, and another 11 respondents live within 1-5 km of the proposed site (comprising 59.45% of responders)
- 20 respondents (or 55.56%) are involved in agriculture, 12 (or 33.33%) are members of a local club or community organisation, and 8 (or 22.22%) own their own business

Figure 5-5 Responders' involvement in the local community

Community and values

- When asked what the respondent valued most about the local area, the following was nominated:
    - 'Landscape and views' were selected by 33 respondents (94.29%)
    - 'Natural values, including biodiversity, ecosystems, etc' was selected by 27 respondents (77.14%)
    - 'Health and wellbeing' was nominated by 26 people (74.29%)
    - 'Community safety and resilience' was selected by 21 people (60%)
    - 'Historic values' by nominated 20 times (57.14%)
    - 'Cultural heritage' 16 times (45.17%)
    - 'Recreation opportunities' was nominated 14 times (37.14%)
    - 'Work opportunities' was nominated 5 times (14.29%)
    - One respondent nominated 'proximity to regional city with all services' in the 'Other' category
- When asked to describe the attributes that the respondent is most proud of within the local community, the following were nominated:
    - Strong community values, sense of solidarity, friendliness, support, involvement, close family ties, and respect (mentioned 21 times)
    - Landscape values, including beautiful, peaceful vistas and natural features (mentioned 13 times)
    - The proximity to major urban areas (like Canberra and Sydney) (mentioned 5 times)
    - Agricultural productivity and prime farming land (mentioned 5 times)
    - Semi-rural lifestyle with space and opportunities (mentioned 7 times)
    - The region's history, cultural significance and regional identity (mentioned 4 times).
- When considering the major challenges that the local community is experiencing, respondents nominated the following:
    - The impact of solar farms and renewable energy projects on mental health, property values, and the local landscape (mentioned 18 times)
    - Issues with local Council power being overridden by state government agencies and external influences (noted 6 times)
    - Concerns regarding the destruction of historical identity, rural values, and scenic outlook due to the development of projects (mentioned 5 times)
    - Managing future development while maintaining agricultural production and preserving the natural landscape (noted 4 times)
    - General concerns about the cost of living and housing shortages (mentioned 3 times)
    - Challenges about poor government policy (mentioned once)
    - Poor quality secondary education options (mentioned once)
    - Influence of 'shock jock' media (mentioned once)

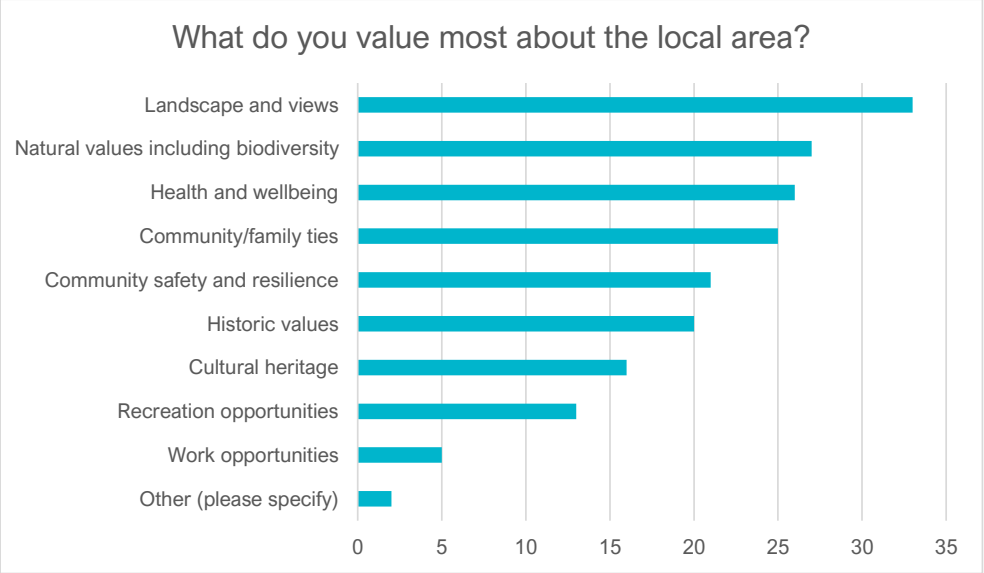


Figure 5-6 Respondents' nominations towards values in the local area

Project specific

- When asked to rate the level of support for the project, an overwhelming majority - 91.67%, or 33 respondents - strongly opposed it, one [1] respondent opposed it, one [1] respondent somewhat supported it, and one [1] strongly supported it.
- When asked why the respondent was interested in the Project, the following was nominated:
    - Potential adverse impacts on the local area (86.11%, or 31 responders)
    - Proximity to residence (66.67%, or 24 responders)
    - Wanting to build understanding of the project (5.56%, or 2 responders)
    - 16 receivers also nominated reasons they were interested in the project, including:
        - Location and suitability of the site, with concerns that the area doesn't have good solar resources, and leads to the destruction of rural lifestyles (mentioned 10 times)
        - Proximity and impact of solar projects to family residents and small farms (mentioned 7 times)
        - Environmental and health risks related to contamination, fire risks and water (mentioned 6 times)
        - Economic and policy concerns (including criticism of poor policy and financial motivations beyond project development) (mentioned 4 times)
        - Concerns of a lack of adequate community consultation (mentioned twice)
- When asked about the landscape characteristics in the local area that are important to the respondents, all answers highlighted the importance of the picturesque rural/country landscape, including views of rolling hills, bushland, waterways and grazing land
- When rating the scenic value of the region's landscape features, grazing land, rivers/creeks. Vegetation, hills, and ridgeline were rated high by 82% or above by all responders
- When asked to rate the level of concern about the proposed Project, the following was noted:
    - 94.44% of respondents were very concerned about the potential visual impact on neighbours

- 91.65% of respondents were very concerned about potential waste impacts, perceived effects on land values, and the size and scale of the Project
- 88.89% of respondents were very concerned about the effects on agricultural land use, the effects on natural areas or habitats, and fire management practices
- 86.11% of respondents were very concerned about the potential for noise impacts on neighbours
- 83.33% of respondents were very concerned about transportation planning and use of local roads and temporary construction impacts related to the Project
- 80.56% were very concerned about the potential for impacts on waterways

- When considering what was valued most in the local area, all three [3] respondents nominated community safety and resilience, health and wellbeing, natural values (such as biodiversity and ecosystems), and recreational opportunities, including fishing
- When considering social and economic considerations, an overwhelming number of respondents (91.67%) nominated potential impacts to property values as very important
- Similarly, 88.89% of respondents nominated consultation with near neighbours as very important
- When considering social and economic considerations, several respondents (approximately 10) nominated in the 'other' field that community benefits are a poor exchange for the impact of the Project, and feel those benefiting from the development of the Project is the Applicant and the landholder
- Additionally, the psychological wellbeing of the community was highlighted as an important social consideration of the Project
- When asked about potential for the Applicant to contribute towards the community through a CBS, approximately 34 of the 36 respondents requested the Project be moved elsewhere.

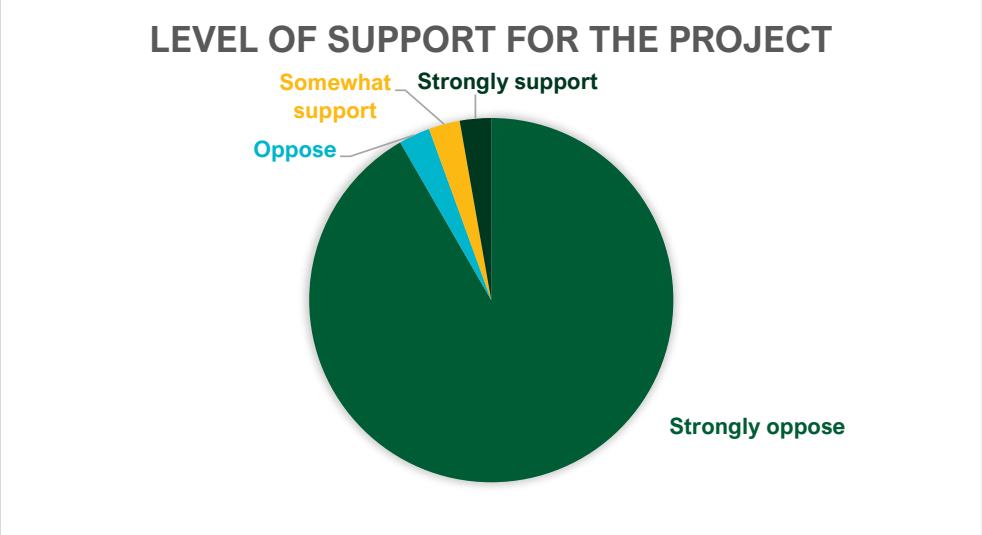


Figure 5-7 Respondents level of support for the Project

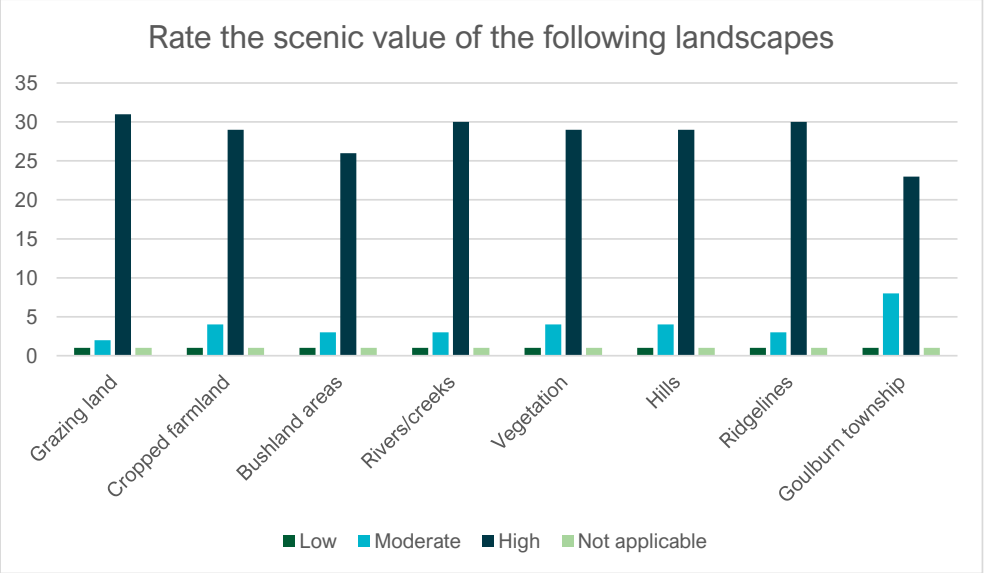


Figure 5-8 Respondents rating of scenic values

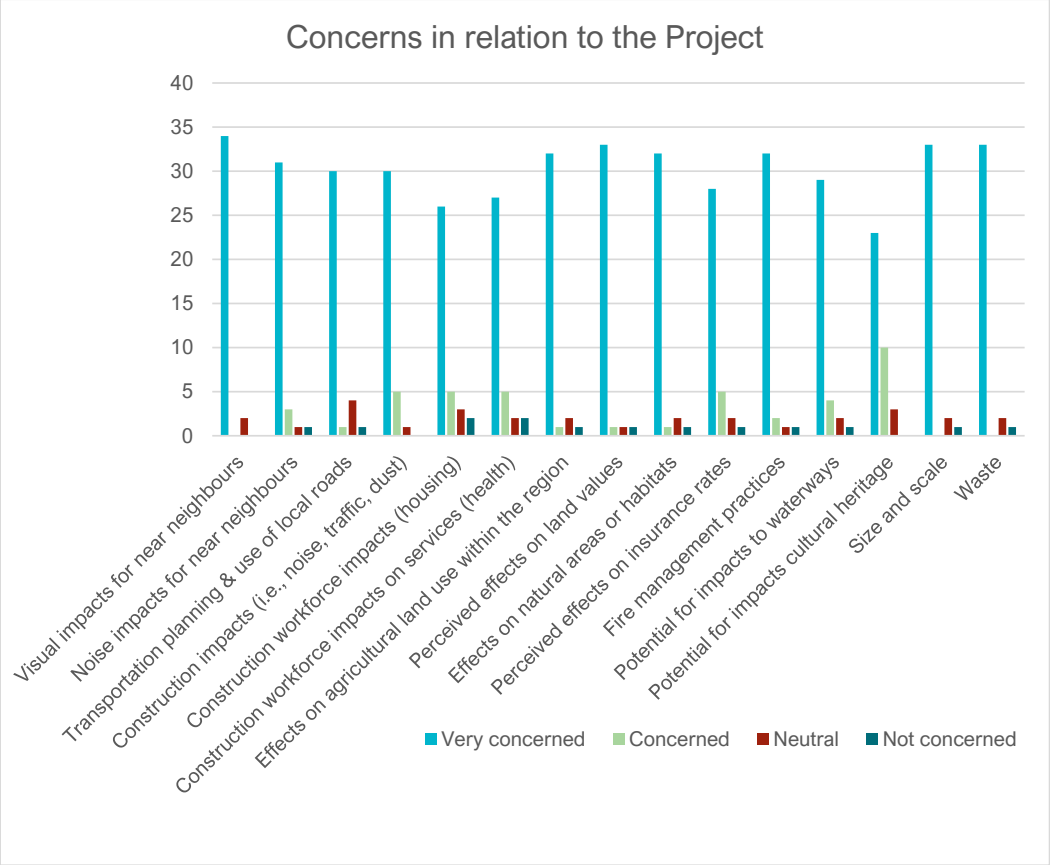


Figure 5-9 Respondents' concerns in relation to the Project

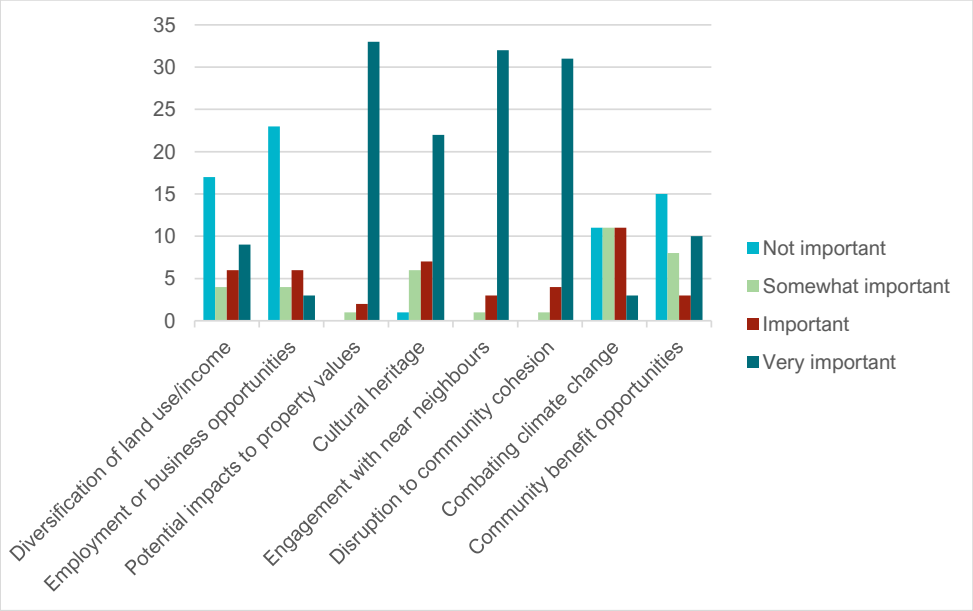


Figure 5-10 Social and economic considerations of the Project

5.2.2. Summary of key issues and opportunities

The Project team responded to community queries and views on the Project throughout the entire EIS engagement period. The issues varied across topics, and details regarding these concerns can be found below:

Table 5-3 Key community Project issues and opportunities

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
Visual impact	Economic, environmental, and social impacts of the Project	The visual impact of the Project was identified as one of the main concerns throughout the consultation process, raised by approximately 45 stakeholders during consultation activities and throughout the online survey, and nominated as the highest concern by online survey respondents. Concerns were related to the way the Project would create a visual intrusion on the rural landscape and existing valleys and ridgelines, degrading scenic rural views as a result, and ultimately changing the look and feel of the region. Additionally, major concerns were raised about the proximity of the infrastructure to homes and roads, and the impact this visually on nearby non-associated receivers (both existing and future-planned dwellings). Common themes included the loss of visual amenity in what is described as a natural and previously unspoiled landscape, impacts on property values, and concerns about glare or the industrial character of the solar infrastructure altering the area's aesthetic. Several online survey respondents echoed these sentiments, describing the Project as being inappropriate due to its anticipated visual dominance in a rural setting. One [1] non-associated receiver noted that the timeframe required for vegetation screen to grow to an effective height to mitigate this impact was too long and served as a hinderance. Other non-associated receivers requested screening on their property to reduce the visual intrusion on their current outlooks. Additionally, concerns were raised that the visual modelling provided within intermediate and detailed LVIA is not an accurate representation of the actual impact of the Project, feeling it does not account for high-sensitivity areas. Additionally, a number of stakeholders felt that the LVIA was a 'fudged' assessment, that the technical specialist undertaking the LVIA is 'in the pocket of the Applicant', and, resultantly, the results would be skewed.

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		The Applicant acknowledges these concerns and, when raised, explained the process of the LVIA within the EIS. The LVIA was undertaken by an independent specialist in accordance with the relevant NSW State Government guideline – *The Large-Scale Solar Energy Guideline: Technical Supplement – Landscape and Visual Impact Assessment 2024*. 194 non-associated residences were identified within 4 km of the Project using desktop tools, and initial assessments were undertaken. Based on these initial assessments, all non-associated receivers were shown as having a 'low' impact rating and no non-associated receiver was shown as having a 'medium' or higher impact rating. As a result, no additional mitigation measures are required. Refer to Section 6.5 for more information.
Property value	Economic and social impacts of the Project	Concerns regarding property values were raised by 13 unique stakeholders during the consultation process for the Project. Potential impacts to property value were also identified as the greatest social and economic concern within the online survey (identified by 91.67% of respondents). Stakeholders frequently expressed fears that the proximity of the development to their homes and the associated visual and amenity impacts would lead to a reduction in property value. Concerns were raised about the potential economic disadvantage to homeowners who would no longer enjoy rural outlooks or peace. Others describe the Project as 'inappropriate' for a resident-adjacent location and felt it would deter future buyers. One [1] stakeholder highlighted that a local real estate agent estimated a 30% decrease in property values, citing the Gundary area as an example (noting the Gundary project has not yet been approved/developed, however, it's been noted that impacts to property has been perceived and realised despite it not yet being developed. See section 6.2.1 for more information). Another stakeholder mentioned that they planned to retire and live on the property for the remainder of their life and are now unsure of this due to the Project. Additionally, one [1] stakeholder has indicated the Project has impacted their decision to develop their 'forever' home on the property, despite the Development Application (DA) being approved. Further, several stakeholders questioned how the Project would affect their ability to subdivide and sell their properties in future. One [1] stakeholder also mentioned the Project would become a legacy issue, with children who inherit the properties surrounding the Project

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		inheriting the 'problem'. Overall, the potential negative impact on property values was a recurring theme throughout discussions with the community. The Applicant acknowledges the concerns regarding potential impacts to property value and appreciates that the uncertainty of these impacts is worrying for the local community. The Applicant informed the community that the LVIA is being undertaken to better understand the visual impacts the Project may have on the surrounding landscape, and the outcomes of the assessment will help to inform mitigation measures that would be available to work to address aspects of this concern.
Insurance impacts	Economic and social impacts of the Project	Concerns related to insurance impacts were raised by 11 unique stakeholders. Stakeholders questioned whether proximity to the solar farm could affect their ability to obtain or maintain home and property insurance or lead to increased premiums. Additionally, worries were flagged about the liability in the event of accidents, fires, or structural damage. One [1] stakeholder believed that their insurance premium would double, raising concerns about the financial burden the Project would impose on nearby receivers. Another stakeholder questioned whether insurance companies would refuse to pay out claims related to the Project, leading to increased costs and potential uninsurability. There were also concerns about public liability insurance, with stakeholders questioning whether compensation for increased insurance costs could be incorporated into a neighbourhood agreement. Three [3] survey respondents echoed this uncertainty, stating that their insurers had raised concerns or refused to provide clear answers about coverage near utility-scale renewable developments. At the time of writing, the Insurance Council of Australia (ICA) has stated that insurers do not have specific concerns related to neighbouring energy infrastructure and are unaware of instances where a property owner has been unable to provide insurance or has increased premiums as a result of a neighbour's energy infrastructure. Additionally, the Clean Energy Council (CEC) is not aware of any evidence that demonstrates renewable projects significantly increased risk to neighbouring landholders. This assessment is based on the need to adhere to rigorous standards and regulations, being thoroughly assessed in the planning phase, developing comprehensive emergency management plans and undertaking activities to actively reduce risk. The Clean Energy Council also

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		links increases to premiums to inflation more broadly, and the increase in natural disasters seen due to climate change. Regardless of this, the Applicant is aware and understands the concerns raised about insurance, and through assessments within the EIS (such as bushfire and hazards), will have a better understanding of the mitigation measures that may be implemented to reduce some of these concerns.
Noise impacts	Economic, environmental, and social impacts of the Project	Concerns relating to noise impacts were raised by approximately 15 unique stakeholders. Stakeholders expressed concerns about the impact of operational noise related to inverters, battery storage systems, and construction activities disrupting the quiet rural environment. Several non-associated receivers raised concerns regarding 24/7 humming or buzzing from the infrastructure, particularly near residences. Additionally, six [6] stakeholders questioned whether existing modelling accurately captured ambient rural conditions and whether mitigation measures such as setbacks or barriers would be implemented. Online survey respondents also mentioned noise in the context of amenity loss and declining quality of life, though it wasn't called out specifically in free-text fields. The Applicant, in discussions with stakeholders, confirmed that pile-driving would be the loudest noise during construction and discussed vibrations and overall noise disturbance. The Applicant also explained the requirements of a Noise Impact Assessment, and the requirement for noise management plans should the Project be approved. For the Noise Impact Assessment, it was determined that 26 non-receivers would require a detailed noise assessment for both the construction and operation phases of the Project. Based on this assessment, no non-associated receivers were identified as exceeding noise allowances during both the construction and operation phases of the Project, and no additional work was required. See the Noise Impact Assessment in Appendix F.6, as detailed in Section 6.6 for more information.

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
Health impacts	Environmental and social impacts of the Project	Concerns regarding the overall impact on health were raised by five [5] stakeholders during consultation and identified as a concern by 22 respondents within the online survey. Concerns raised were about feelings of unknown towards long-term health effects from living near solar infrastructure, such as electromagnetic fields (EMF), dust exposure during construction, or proximity to battery storage systems. Stakeholders were also concerned about the cumulative effect of the Project on the community's wellbeing and human health (broadly) and were particularly concerned about health impacts to children and the elderly. The Applicant acknowledges concerns related to EMF and agrees that extreme exposure to EMF may bring negative impacts. The Applicant explained to stakeholders that the EMF omitted from the solar arrays are not distinguishable from background levels at site boundary, and standing at the edge of a transmission powerline easement would expose individuals to EMF levels ranging from 10-50mG (equivalent or less to common household items such as a hairdryer), while standing directing under a transmission powerline could result in exposure levels between 20-200mG. The International Commission of Non-Ionising Radiation Protection (ICNIRP) has set the limit for human exposure to EMF at 2000mG. Additionally, the Applicant has highlighted the strategic selection of the site to minimise the need for new transmission lines. The Applicant also acknowledges the environmental concerns related to the health and wellbeing of the non-associated receivers located near the Project. Studies will be undertaken into the dust and noise generated by the Project, and a mitigation management plan will be developed to address these issues.
Mental health	Social impacts of the Project	Significant concerns related to mental health were raised in approximately ten [10] stakeholders throughout the survey and discussions facilitated throughout the EIS phase of the Project. Five [5] stakeholders expressed mental health related concerns through the online survey, often referencing the stress, anxiety and sense of powerlessness experienced resulting from the Project's scale and perceived sense of inevitability. Concerns raised by stakeholders during direct consultation were often linked to the cumulative stress associated with the Project's proximity to homes, prolonged planning and approvals processes, uncertainty around the Project's future physical impact, the impact of having two [2] proposed developments in the same area, and broader

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		community wellbeing. Fears regarding property devaluation and the potential for noise and visual impacts have also contributed to heightened levels of psychological distress among local community members, particularly when considering these impacts on their future wellbeing. Discussions were facilitated surrounding the needs for mental health support and mitigation strategies to address these concerns with several stakeholders. The Applicant acknowledges the real impact that the Project has had on the mental health of the non-associated receivers and the broader community and recognises the need to consider not only environmental and economic factors but also the psychosocial effects of the Project on affected communities (see section 6.10). Assessments are being undertaken to understand the impact of the Project on various factors (such as visual and noise) with the aim that the outcome may provide more clarity around the expected impacts of the Project on the local community and provide less distress regarding the unknown.
Fire risks/safety	Economic, environmental and social impacts of the Project	Concerns regarding fire risk and safety were raised by approximately 38 unique stakeholders across face-to-face consultation activities and the online survey. The topic was one of the most frequently mentioned across all engagement formats, with stakeholders frequently highlighting fears that the Project would increase bushfire risk due to the materials used within the development, the BESS, and the development of large-scale infrastructure in the environment generally. Questions were raised regarding the adequacy of fire mitigation measures, including vegetation management, access for emergency services, and emergency response protocols. Notably, several stakeholders (approximately seven [7]) explicitly sought details on who would be responsible for fire safety, the role of the Rural Fire Service (RFS), and whether the Applicant had modelled worst-case scenarios. Several online survey respondents echoed these concerns, citing the devastating impact of past bushfire seasons and expressed little confidence that the Project could safely integrate into their landscape. These concerns link back to concerns outlined above about increased insurance premiums. Several non-associated receivers also indicated that the current site provides access to their evacuation plans and sought clarification on how this would be affected in an emergency. The Applicant acknowledged the concerns related to fire risks and safety and explained how a Bushfire Assessment would be undertaken as part of the EIS to better understand the level of risk associated with the

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		Project. The Applicant explained the inner deluge system contained within the BESS, along with the other monitoring it includes, which works to monitor the battery and shut-down components to monitor temperature and prevent the components from being too cold/hot. The inner deluge system protects against fires and suppresses them internally should one occur. The Applicant explained the positioning of the BESS components, including adequate spacing and the use of gravel between to reduce fuel loads and the likelihood of fire spread. Additionally, the Applicant explained the possible use of agri-solar grazing as a method of vegetation management, and how the adequate maintenance of vegetation prevents fuel load. A Bushfire Assessment and Preliminary Hazard Assessment have now been completed, and the following measures would be implemented to lower the risk of a fire spreading to or from the site: • An APZ of minimum 10m would be maintained surrounding solar farm infrastructure. The APZ surrounding the proposed BESS unit, substation, and associated ancillary infrastructure would be a minimum of 12m to the southeast and northwest, and 10m in all other directions. • The vegetation within the APZ would be managed to appropriate standards to rude the risk of a fire spreading – including reduced tree and shrub coverage and management (e.g. mowing) of the understory layer. • Site access would be constructed to provide suitable access to firefighting vehicles, such as an 8m carriageway (which may include grassed verges). • Provision of adequate firefighting resources, including water storage. Refer to Section 6.9 for more information on how hazards would be addressed by the Project.
Contamination and pollution (soil and water)	Environmental and social impacts of the Project	Concerns regarding contamination and pollution were raised by 13 unique stakeholders, including nine [9] individuals or groups through direct engagement and four [4] within the online survey. Stakeholders expressed concerns and fears that the Project would risk soil and water contamination, particularly linked to construction activities, the BESS, chemical use within the BESS, and felt it would lead to long-term degradation of agricultural land. Four [4] stakeholders raised questions about potential leaks, chemical runoff, and queried how such risks would be managed to protect surrounding land and water sources (including dams and groundwater in the area relied upon for domestic of arming use). Specific reference was also made to the potential for hazardous material

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		spills and felt there was a lack of clarity around containment or remediation strategies. Survey participants echoed these concerns, particularly when considering long-term decommissioning strategies. Some stakeholders questioned whether baseline soil a water quality testing had been conducted, and what long-term monitoring would be put in place. The Applicant explained the mechanics of the Project and the way contamination is mitigated and managed. The Applicant explained the BESS and how chemical spills are prevented through their design. The Applicant explained how a soil and water baseline is conducted as part of the EIS assessments, and during construction and operation (if approved). Monitoring and sampling would be required in the case of a battery fire, which may result in contamination occurring, and during decommissioning of the Project. The Applicant also explained the design of the Project, and how waterways have been avoided from a practicality and biodiversity perspective.
Construction impacts (dust and general disruption)	Environmental and Social Impacts of the Project	Concerns regarding construction impacts, particularly related to dust and general disruption, were raised by 29 unique stakeholders—17 through direct consultation and 12 through the online survey. Stakeholders expressed concern about the effect of dust generation, heavy vehicle movements, and road damage during the construction phase, with several stakeholders noting flow-on concerns in the form of reduced air quality, increased safety hazards, and restricted property access. Specific concerns included noise and dust near homes and uncertainty about how and when mitigation measures would be enforced. Some also raised concerns about the impact of construction on local livestock and farming operations. Frequent references were made to the cumulative impacts of large-scale construction (both for this Project and the development proposed in neighbouring Gundary) over several months or years, particularly for residents living adjacent to or near access roads and proposed infrastructure. These issues and concerns raised were often tied to a broader loss of amenity and rural character. The Applicant noted the various management plans (such as a dust suppression plan, traffic management plan, etc.) that would be required should the Project be approved. The management plans aim to reduce impacts during the construction phase.

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
Traffic and access impacts	Economic, environmental and social impacts of the Project	Concerns related specifically to traffic and access impacts were raised by 39 unique stakeholders: 27 stakeholders through face-to-face processes and 12 through the online survey. Many stakeholders raised concerns about increased heavy vehicle movements, road safety risks, and the potential for increased damage to local roads not built for high industrial use. Other stakeholders were concerned about impacts to property access, including blocked driveways, road congestion, and a lack of clarity about which roads would be used during construction and operation. Several stakeholders expressed frustration with the lack of targeted consultation about traffic routes and access issues, particularly for non-associated receivers located along haulage routes. Some residents feared they would be cut off/isolated during key Project phases or experience delays in emergency services due to narrowed or damaged roads. Two [2] stakeholders showed immense concern for the safety of the children who live/play/catch buses in the area (citing that they play on median strips in the area) as well as residents who mow lawns alongside the road, noting that haulage routes may negatively impact the safety of the community. The Applicant acknowledged the concerns raised and explained that the haulage route for the Project had not yet been selected as the Traffic Assessment was ongoing throughout the EIS, noting that the outcome would help to guide the route that was identified as being most appropriate. The Applicant noted that a Dilapidation Report is required should the Project be approved, which requires a survey of the current road conditions and the requirement to leave the road in the same or better condition following the Project. The Applicant noted the concerns regarding road safety, particularly about the safety of children in the area, and this information was provided to the specialist undertaking the Traffic Impact Assessment. The Traffic Impact Assessment has since been completed and is appended in Appendix F.7 and summarised in Section 6.7. In short, it was concluded that the existing road network has suitable capacity to handle the proposed traffic that would be generated by the Project during construction. The increase traffic loads would not pose a significant safety risk on top of existing traffic volumes, and a Traffic Management Plan would also be prepared prior to construction commencing, which would detail safe and effective methods to manage Project-related traffic.

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
State Environmental Planning Pathway (SEPP) and land use compatibility	Economic, environmental and social impacts of the Project	Concerns related to the strategic planning and land use compatibility, specifically regarding the State Environmental Planning Policies (SEPPs) and urban growth areas, were raised by seven [7] stakeholders. Stakeholders questioned whether the Project appropriately aligns with existing land use planning frameworks and raised concerns about the Project conflicting with future urban development intentions. Two [2] stakeholders expressed concern that the Project appears inconsistent with the strategic vision for the urban expansion of Goulburn. Several stakeholders indicated frustration that solar projects could override local planning controls due to SEPP exemptions. Additionally, many stakeholders engaged throughout the EIS phase questioned whether the Project was being proposed outside of a declared Renewable Energy Zone (REZ). The Applicant explained that Section 2.36(1)(b) of the SEPP states development for electricity generating works may be carried out by any person with consent on any land in a prescribed non-residential zone (including Primary Production (RU1) land). Additionally, the client explained a clause (Clause 2.42 (2)) that relates to the approvability of an energy development; it must not be granted unless the consent authority is satisfied with several items. They explained that the detailed environmental investigations are considering the potential for the Project to impact residential and commercial uses, scenic quality and growth plans, addressing these considerations. The Applicant also explained that through consultation with the Council, it has been indicated that the growth area for Goulburn is being focused on the north of the city.
Agricultural land/grazing practices	Economic, environmental and social impacts	Concerns relating to the impact of the Project on agricultural land and grazing practices were raised by 34 unique stakeholders – nine [9] through direct consultation and 25 through the online survey. These concerns centred on the loss of productive farmland, the incompatibility of large-scale solar infrastructure with existing grazing or farming operations, and the long-term consequences of removing land from agricultural use. Four [4] stakeholders voiced they felt the Project compromises land traditionally used for grazing livestock or agistment and questioned whether the land would ever be returned to productive use. Online survey respondents expressed similar concerns, feeling the area was known for its agricultural value and stating that the industrialisation of the land could have lasting environmental and economic impacts. Some stakeholders also raised concerns about soil

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		degradation, weed management, and whether the solar infrastructure associated with the Project would hinder ongoing agricultural access or damage paddocks long-term. The Applicant explained how the Project anticipates blending existing grazing activities with the development of solar energy infrastructure. They explained that the existing land use would remain as a result, and the use of grazing would help to manage and mitigate some of the concerns raised, such as weed management. Additionally, the Applicant referenced studies seen in Central West NSW where solar-grazing activities were facilitated and noted the improvement the land had seen as a result of the development of the Project (through its rehabilitative qualities).
Airport/glint and glare	Economic, environmental and social impacts	The Goulburn Airport and concerns associated with risks (including glint and glare) from the Project were raised by 12 unique stakeholders (nine [9] through face-to-face consultation and three [3] via the online feedback survey). These concerns primarily centred on the potential for solar panel reflections to interfere with pilots' visibility during take-off or landing, as well as broader questions about aviation safety and compatibility with the airport's operations and flight paths. Stakeholders mentioned that there had been a previous accident at the Airport and held strong concerns that the development of the Project would result into plane crashes in/around their property. Stakeholders formally raised the need for clear evidence that aviation risks had been fully assessed and mitigated. Several stakeholders also questioned whether consultation had been adequately undertaken with aviation users and whether the proximity of Project to the airport had been properly addressed in safety assessments. Survey respondents raised similar concerns, particularly around visibility impacts and the need for aviation authorities to be actively involved in project approval. The Applicant confirmed that the owners of the Airport had been consulted throughout the Project (from the Scoping phase onward) and are working with them to mitigate concerns regarding the Project. An outcome of this consultation has been the removal of solar panels from the end of the runway to allow for a possible extension in the future. Additionally, the LVIA assessed the glint and glare of the Project, to better understand the impacts it

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		may have on the operations of the facility. Results were compared against relevant guidelines, and it was concluded that the Project would not pose glare risks to the airport.
Project life span and decommissioning	Economic, environmental and social impacts of the Project	Concerns regarding the project lifespan and decommissioning of the Project were raised by nine [9] stakeholders, including six [6] through direct consultation and three [3] via the online community survey. These concerns centred on the uncertainty surrounding what would happen to the land and infrastructure at the end of the Projects operational life. Stakeholders questioned whether there were adequate financial and regulatory safeguards to ensure that the site would be properly decommissioned, rehabilitated, and returned to its former use. Several stakeholders expressed scepticism, feeling that the land would ever never be returned to viable agricultural or natural condition given the long-term changes introduced by the infrastructure installation. Others asked whether the Applicant would be legally or financially responsible for removing all infrastructure and restoring the soil, or if future landholders and the community would be left with the burden. Survey respondents echoed these concerns, calling for detailed commitments to full removal, rehabilitation of native vegetation, and enforceable bonds or financial guarantees. The Applicant explained the requirements to outline a detailed decommissioning plan within the EIS.
Employment and training	Economic and social impacts of the Project	Discussions regarding employment and training were raised by 26 unique stakeholders (14 through direct consultation and 12 through the online survey). Some stakeholders viewed the project as a potential economic opportunity, highlighting the need to maximise local employment and leverage the capacity for apprenticeships and training pathways, particularly during the construction phase. Stakeholders such as the GMRC and local employment agencies actively engaged with the Applicant to explore how the Project could support regional workforce development. First Nations participation, school-to-work transitions, and ongoing collaboration with local education and employment services were identified as opportunities.

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		However, other stakeholders raised concerns that promised job benefits may be short-term, overstated, or not genuinely local. For example, some stakeholders noted the risk that skilled positions might be filled by out-of-town workers, offering minimal long-term benefit to the local community and economy. Several community members felt there was a lack of job opportunities or partnerships with local training providers and felt the Project would address this positively. Overall, while the Project is seen to hold value as a source of employment (especially for young or transitioning workers), perceptions about whether the benefits would be directly delivered to the local community or not varied between stakeholders overall.
Worker's accommodation	Economic and social impacts of the Project	Concerns regarding the impact of the temporary construction workforce on local accommodation and housing availability were raised by five [5] unique stakeholders, with four [4] through direct consultation and one [1] via the online survey. These concerns focused on the pressure that a large, non-resident workforce might place on the already limited rental and accommodation market in Goulburn and surrounding areas. Stakeholders warned that if sufficient temporary worker accommodation is not provided or planned for, local renters and low-income residents could face increased competition and displacement from short-term housing stock. This concern was especially pressing in the context of an already tight regional housing market and ongoing workforce attraction challenges across several sectors.
Flooding and draining	Environmental and social impacts of the Project.	Concerns related to flooding, drainage, and water flow were raised by seven [7] stakeholders. Key topics included potential changes to natural water flow, increased surface runoff, and the risk of localised flooding as a result of soil compaction, panel installation, and vegetation clearing. Questions were also raised as to how stormwater would be managed and whether nearby properties or roads might be affected by altered drainage patterns. Some stakeholders also queried the adequacy of hydrological studies, especially in a region known for variable rainfall and flood events.

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		The Applicant explained how hydrology studies would be undertaken as part of the EIS, and to date, there was no indication that the Project would negatively impact the natural flow of water/drainage of the land, nor would the Project have a significant impact on flood behaviours in the immediate catchment.
Consultation and transparency	Social impacts of the Project	Concerns regarding a lack of consultation and transparency were raised by 44 stakeholders, making this one of the most frequently cited themes about the Project. The feedback overwhelmingly reflects a perception that the community feels the engagement has been inadequate, selective, or overly controlled, with many stakeholders stating they felt uninformed or excluded from key Project decisions. Several stakeholders expressed frustration, feeling that information was either not proactively shared or was difficult to access. Other raised concerns that consultation was treated as a "tick-the-box" exercise rather than a genuine opportunity for community input. Phrases like "brick wall," "deliberately kept in the dark," and "tokenistic" were used in both written submissions and survey responses. Survey participants echoed these themes, often noting that nearby residents were unaware of the Project until late in the planning process. Several stakeholders also raised concerns about transparency, feeling the Applicant was intentionally hiding information from the community. Many expressed a desire for greater transparency around assessment methodologies, decision-making criteria, and the balance of local versus external benefits. The Applicant acknowledged the pause in the Project's SSD process, noting that SEARs were received in 2023, the acquisition of the Applicant's company occurred at the end of 2023, and the EIS phase of the Project recommenced in October 2024. Throughout the EIS phase, the Applicant worked to engage with the community through various methods to allow stakeholders to engage in a method that suited them and their schedule best (including postal mail outs, online surveys, websites containing information, Project email and phone number, offers for one-on-one meetings, a community information session and a community pop-up). The Applicant does acknowledge that a lot of the information that was requested by the community and identified stakeholders wasn't always able to be provided immediately, as many queries were about ongoing assessments as part of the EIS.

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		The Applicant worked to close these queries through materials developed towards the end of the EIS period, providing answers based on the assessment outcomes.
Procedural fairness, governance, and transparency	Social impacts of the Project	Procedural fairness, governance, and transparency in the approvals process for the Merino Solar Farm were raised by 46 unique stakeholders (43 through formal consultation and three [3] via the online survey). This was one of the most commonly cited themes, reflecting deep mistrust or dissatisfaction with the NSW SSD process overall. Stakeholders raised questions about the integrity and legitimacy of the assessment process, including concerns that the project had been 'fast-tracked' or that important planning policies (like urban growth boundaries or the SEPP) had been overridden or circumvented. There were also multiple suggestions that community concerns were being ignored or minimised in a way that undermined faith in the decision-making process. Survey respondents echoed these sentiments, using terms such as 'flawed process', 'biased system' and 'backroom deals' to describe their view of how the Project was being handled. Several individuals questioned whether local voices were genuinely considered or if decisions were being made by state agencies or private interests without adequate oversight.
Project location	Environmental, economic and social impacts of the Project	Concerns about the location of the Project, particularly its siting on productive agricultural land and outside of a Renewable Energy Zone (REZ), were raised by 27 stakeholders. This topic was frequently cited as a fundamental objection to the Project. Many stakeholders argued that the selected site is inappropriate due to its proximity to homes and its established agricultural value. There was strong sentiment that the Project undermines land use planning by removing viable farmland from production in an area with no REZ designation. These stakeholders questioned why the project wasn't proposed in a region already earmarked for renewable development, suggesting that the absence of REZ infrastructure makes the proposal poorly aligned with NSW Government planning frameworks. The Applicant explained that a REZ is identified as a region that requires significant transmission upgrades,

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
		making it a suitable region to co-locate energy infrastructure. The Applicant explained that energy generation and storage are still required outside of REZ zones, and the location of the Project area would reduce the requirement for additional transmission upgrades.
Project ownership	Economic and social impacts of the Project	Concerns about the ownership of the Project, particularly about foreign ownership, corporate accountability, and transparency, were raised by 66 unique stakeholders. This theme was one of the most prominent across all engagement activities and was often linked with broader mistrust about the Project's intentions and long-term commitment to the community. Many stakeholders specifically named EDP Renewables (EDPR) (the parent company of EDPR Australia) and questioned the appropriateness of a multinational corporation leading a major infrastructure project in regional Australia. Concerns included whether a foreign-owned entity could be trusted to act in the best interests of the community, particularly regarding long-term maintenance, environmental responsibility, and decommissioning. Stakeholders repeatedly questioned who would be held accountable if problems arose, especially after the project was built and operational. A recurring issue was the perceived lack of transparency about who the ultimate decision-makers were and whether there were mechanisms to ensure local oversight or choice. Survey respondents similarly expressed views that the Project seemed to benefit 'overseas interests' at the expense of local communities and described it as a 'land grab by foreign investors. When queried about EDPR Australia's ownership, the Applicant was open and transparent, explaining how the ownership came to be. The Applicant also expressed that the energy developed by the Project would sit within the Australian National Energy Market (NEM) and would not be exported overseas.

Topic	Strategic category (as per EIS requirement)	Details and Project team responses
Community benefit scheme (CBS)	Economic, social impacts of the Project	Commentary about community benefit sharing was facilitated with 20 stakeholders. While several stakeholders acknowledged the potential of a community benefit scheme (and the positive economic impact this could bring to the Goulburn region), two local community groups suggested ways that the Project could positively benefit the region generally. The Southern Tablelands Community Foundation expressed a desire to source a consultant to research the fundamental needs of the community as part of the CBS so they can fund such initiatives. That being said, many stakeholders expressed frustration at a lack of clear detail, perceived lack of fairness, or the timing and transparency surrounding a benefit-sharing framework. Stakeholders questioned whether the proposed benefits would genuinely reach the most affected residents or were simply token gestures aimed at gaining approval. Others raised the need for a genuinely collaborative process to design and distribute benefits in a way that reflects local priorities, such as support for education, skills development, community health, or infrastructure. Survey respondents were critical, often describing benefit sharing as a last-minute inclusion or as something that failed to address the scale of local disruption. Some argued that the benefits were 'laughable' compared to the perceived profits 'taken offshore' by the Applicant (due to foreign ownership). Others were sceptical that any community input had influenced the structure of the proposed benefit mechanism at all. The Applicant explained the CBS framework as outlined by the DPHI and explained the role and purpose it has in sharing the financial benefits of the Project beyond the direct beneficiaries. Responding to local feedback, the Applicant has offered to direct a specific proportion of the CBS to near neighbours, subject to landholder agreement with terms including not lodging an objection to the Project. These are not impact agreements but are a way to share the benefits of the Project more locally. The Applicant proposes that the moneys will revert to the Council if the agreements are not reached. As of September 2025, restrictions regarding timing and not lodging an objection to the Project have been lifted; the Applicant will endeavour to maximise the local spend as a proportion of the CBS. See Section 6.10 (Social Impact Assessment) for more information.

5.2.3. Future engagement

The following future engagement activities are recommended for the Project, should it progress through to construction and operation. Please refer to the Social Impact Assessment (see Section Appendix E9 for further engagement needs, impacts and benefits).

Table 5-4 Planned future engagement activities

Group	Post Approval	Construction	Operation
Stakeholders	Non-associated receivers, wider Goulburn/ Tirrannaville community, GMRC, One Raceway, Goulburn Airport, Gundary Solar Farm, Perjar LALC, Mulwaree Aboriginal Community Inc., RFS, NSW Farmers (Goulburn Branch), Goulburn Mulwaree Landcare, local community groups (such as CWA, Rotary, Probus), Goulburn Chamber of Commerce, the Goulburn Group, local First Nations community, Member for Goulburn, Member for Hume	Non-associated receivers, wider Goulburn/ Tirrannaville community, GMRC, One Raceway, Goulburn Airport, Gundary Solar Farm, Perjar LALC, Mulwaree Aboriginal Community Inc., RFS, NSW Farmers (Goulburn Branch), Goulburn Mulwaree Landcare, Member for Wagga Wagga, Member for Monaro, local First Nations community, Member for Goulburn, Member for Hume, local workforce procurement agencies, local Goulburn businesses (such as lodging and food services).	Non-associated receivers, wider Goulburn/ Tirrannaville community, GMRC, One Raceway, Goulburn Airport, Gundary Solar Farm, Perjar LALC, Mulwaree Aboriginal Community Inc., RFS, NSW Farmers (Goulburn Branch), Goulburn Mulwaree Landcare, local community groups (such as CWA, Rotary, Probus), Goulburn Chamber of Commerce, the Goulburn Group, local First Nations community, Member for Goulburn, Member for Hume, local Goulburn businesses.
Key actions	• Applicant to provide updates to non-associated receivers and broader Goulburn/ Tirrannaville community on the results of impact assessments (noise, visual, traffic). • Applicant to deliver update of EIS outcome to interested stakeholder groups such as non-associated receivers	• Applicant to provide updates to non-associated receivers and broader receivers and broader Goulburn/ Tirrannaville community about planned traffic arrangements, construction activities and impact mitigations. • Applicant to provide detailed engagement with non-associated	• Applicant to provide updates to interested non-associated receivers and broader Goulburn/ Tirrannaville community with key details regarding the operation details of the site (via Project website and posted letters, where appropriate/relevant).

Group	Post Approval	Construction	Operation
	and broader Goulburn/ Tirrannaville community (who have opted into future communications), GMRC, NSW Farmers, local RFS, Pejar LALC, Mulwaree Aboriginal Community Inc., local community groups and local state and federal representatives. • Applicant to continue to engage with the non-associated receivers, local community and key community groups to highlight key milestones pre-construction. • Applicant to continue discussions with GMRC, non-associated receivers and local community groups around the development of a CBS, including negotiations on a formal figure and a governance structure. • Applicant to continue to attempt engagement with the local identified First Nations groups regarding local industry participation opportunities pre-construction.	receivers and the broader Goulburn/ Tirrannaville community about visual impact mitigations. • Applicant to provide detailed engagement with non-associated receivers and the broader Goulburn/ Tirrannaville community about fire management and mitigations, including relevant emergency management plans. • Applicant to provide updates via letters (up to 4 km radius), email updates and public notices regarding construction activities, employment opportunities and expected impacts (traffic, noise, dust). • Delivery of updates to interested stakeholder groups such as non-associated receivers, broader Goulburn/ Tirrannaville community, GMRC, NSW Farmers, local RFS, Pejar LALC, Mulwaree Aboriginal Community Inc., local community groups and local state and federal representatives. • Updates to be provided to stakeholders who have opted into future communications. • Facilitate events for local suppliers or employees to allow for local participation	• Applicant to continue to engage with the non-associated receivers, the broader community and key community groups to highlight key milestones during operation. • Applicant to collaborate with local schools and education/skills providers where possible to provide education opportunities through presentations, etc. • Applicant to engage with non-associated receivers via email (where stakeholders have requested to be included in email updates) and post letters to residents within a 4 km radius, should any large maintenance work be carried out during operation, and mitigate any impacts that may arise. • Continue to foster strong relationships with the local community via the establishment of community partnerships and industry participation. • Continue to establish the Applicant as an active, responsible member of the wider community. • Proactively communicate the decommissioning strategy (including

Group	Post Approval	Construction	Operation
		during the construction phase of the Project. Consider a larger region in this instance. • Collaborate with local First Nations communities/organisations on items such as workforce procurement, cultural sensitivity training, etc.	how damaged components are dealt with, where relevant) to interested stakeholder groups and the wider community.
Consistency with 'Undertaking Engagement Guidelines for State Significant Projects'	• Continue to engage with non-associated receivers, the community, GMRC and government agencies during the pre-construction, construction, operation and decommissioning of the project (and/or rehabilitation of the site) in line with the conditions of approval. • Provide space where the community can track the progress of the Project and raise any post-approval concerns with the Applicant and/or contractor (such as the Project website).	• Proactive, transparent, and collaborative engagement, spanning from informing on construction activities to involving and collaborating through benefit-sharing opportunities and other community partnership opportunities. • Applicant will also continue to gather ideas from the local community regarding opportunities to work with local businesses and/or suppliers. Applicant is also to gather ideas from the local community to further minimise construction impacts.	• Applicant will continue to actively engage during the operation and decommissioning stage of the Project in line with the conditions of approval. • Applicant will also continue to foster strong relationships with key stakeholders and further liaise with GMRC (or other identified community groups who are involved) regarding the implementation of benefit sharing within the local community through the requested CBS program.
Monitoring of effectiveness for community participation	• The evaluation of community participation will be continuously monitored, reviewed, and adapted post-approvals to ensure ongoing	• Explain to all stakeholders (through platforms such as the Project website and newsletter updates) at post-approval how community views were considered	• The Applicant will continue to proactively engage through the operation and decommissioning stages to ensure the local community and interested stakeholder groups are well-

Group	Post Approval	Construction	Operation
	transparency and involvement in the Project. • The Applicant will continue to gather community feedback to assess the community's experiences and perceptions, identifying areas for improvement. • Engagement approaches will remain flexible and will be reassessed throughout the post-approval phase based on feedback, which may include modifying meeting formats, diversifying communication channels, or addressing key community concerns.	when reaching decisions and how they helped to inform the Project. • The Applicant will continue to liaise with non-associated receivers and the broader Goulburn/ Tirrannaville (along with other identified stakeholders such as GMRC, elected representatives, etc.) community and monitor community sentiment to resolve key issues and opportunities. • Applicant will utilise local knowledge and expertise with suppliers and contractors where possible to work to keep benefits as local to Goulburn as possible. • Applicant will ensure they use appropriate engagement techniques when targeting specific groups. • The Project website will continue to update information on the progress of the Project and to make information easily accessible to all stakeholders.	informed on the key elements of the Project. • Applicant to continue with proactive engagement, ensuring that it is easy for the community to access timely information. • The Project website will continue to facilitate information on the Project, to make information easily accessible for stakeholders and community members.

5.3. Aboriginal community engagement

Two avenues for engagement with the local First Nations community were adopted:

1. Engagement through the Engagement Action Plan: Pejar Local Aboriginal Land Council (LALC) and the Mulwaree Aboriginal Community Inc. The engagement sought to:
    a. Identify opportunities to contribute to the local story of Country and contribute to the local First Nations community
    b. Involve local First Nations community organisations in community benefit sharing initiatives.

The Pejar LALC and the Mulwaree Aboriginal Community Inc. received communications relating to the Project, separate from the ACHA process, and briefings were offered in both instances.

2. Formal consultation in relation to potential to impact Aboriginal cultural heritage.

Consultation with First Nations people must be undertaken and documented in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010a).

In accordance with Step 4.1.2 of the *Consultation Requirements,* Red-Gum Environmental Consulting, an advertisement was placed in *The Goulburn Post* on 13 November 2024 requesting expressions of interest for consultation regarding the Project. A letter seeking assistance to identify parties with an interest in the Project area was sent to Heritage NSW on the 21 August 2024.

Responses received from Heritage NSW indicated a total of the sixty-seven (67) Aboriginal individuals or organisations who may have an interest in the Project. An invitation to register interest and a proposed assessment methodology letter was sent to each of these identified parties on 1 October 2024 and a period of 30 days was provided for the parties to respond.

This process resulted in 11 RAPs for the Project. None of the RAPs raised objections to or comments on the methodology. Additionally, the Pejar LALC was unable to be contacted via phone and email attempts.

The archaeological survey of the Merino Solar Farm Site was conducted over 3 days, from 6 January 2025 to 8 January 2025, and was conducted by 2 archaeologists from Red-Gum, and 6 representatives from 6 RAPs.

A draft copy of the Aboriginal Cultural Heritage Assessment Report (ACHAR) was sent to the RAPs for a 28-day review period. No RAPs responded and the ACHAR was finalised and is appended to this EIS, Appendix F.2.

5.4. Agency engagement

As part of preparing the EIS for the SSD development application, the SEARs require that the relevant State or Government authorities, infrastructure and service providers, community groups, affected landowners, exploration licence holders, quarry operators and mineral title holders be consulted.

Table 5-5 summarises the method of consultation, if issues were raised and if so, where they are addressed in this EIS.

The SEARS, including a cross-reference table showing where each specific matter is addressed in the EIS, is included in Appendix A.

Table 5-5 Agency consultation summary

Issue	Detail
Department of Planning, Housing and Infrastructure (DPHI)	
Project update 17 Jan 2025	Meeting to discuss outcomes of traffic workshop and proposed changes to traffic access, compared to that proposed in the Scoping report. DPHI advised that the community, affected receivers and transport authority should be consulted.
Project update 15 July 2025	Meeting to discuss key issues raised by community, expected EIS timing. DPHI advised that the additional requirement in the updated SEARs regarding contamination assessment could be addressed in the Submissions stage, post public exhibition of the EIS, if required.
NSW Rural Fire Service	
Community concerns email query 27 July 2025	An email was sent to RFS on 9 July 2025 to follow up on community concerns regarding how a battery or solar farm fire would be managed onsite. The enquiry also queried how such a fire response would be resourced, and what the role of local RFS staff would be. A response was received from RFS on 27 July 2025: *"There are pre-set triggers for operational response based on the type and location of the incident. Where the site is in a Rural Fire District, such as this one, the RFS would be the primary response agency and if HAZMAT was required F&R NSW would be attached to the job accordingly."* Regarding resourcing in the Goulburn area, RFS stated: *"RFS Districts work in collaboration with facility managers and other stakeholders to develop pre incident plans (PIP). F&R NSW would be a critical part of a PIP for this facility."* Further clarification was sought regarding if local crews would first be sent to respond to a fire, and if FRNSW would also then be sent if a HAZMAT response was needed. Clarification was also sought if RFS crews would then be

Issue	Detail
	dismissed once FRNSW arrived. Further advice from RFS was received on 31 July 2025, referring specific community concerns to the District Manager and District Coordinator. An email was sent to both contacts on 6 August 2025, and no response has been received to date.
Goulburn Mulwaree Council	
Project update	The letter was sent providing an update on the status of the Project on 19 November 2024 and 31 January 2025, and a request for a meeting to provide an update on the Project and discuss the CBS scheme. The Applicant met with GMRC on 11 February and 29 August 2025 (see 5.1.5) and provided an update on the Project (including the Council's CBS expectations. 16 emails were also exchanged between 19 November 2024 and 11 September 2025 to discuss Project related matters. GMRC have been briefed on the general terms of the Community Benefit arrangements, ahead of EIS submission. Council gave positive feedback, but no formal response has been given to date.
Traffic matters email 14 April 2025	Amber Organisation led engagement regarding turn treatments on Council roads, road maintenance and upgrade assumptions, appropriate road specifications, OSOM assessment requirements. Further details provided in Appendix F.7 Traffic Impact Assessment.
Traffic matters email 10 June 2025	Amber Organisation requested height clearance information of Hume Highway overpass over Sloane Street, Goulburn. No response received.
CASA – Civil Aviation Safety Authority	
Aerodrome operations email, 8 August 2025	Phone and website contact made, requesting CASA comment on the methods and results of aviation glare report. CASA advised that while the location is near Goulburn Aerodrome '… *that a solar installation at that distance is unlikely to pose a hazard to aircraft operations and that if the Goulburn Airport operator has concerns about glare, they should request a solar glare analysis'.* The Applicant has forwarded the glare analysis to the operator; 7 August 2025). CASA stated they '… *cannot comment on the project as part of the EIS process as there is no restriction to glare levels prescribed in legislation. CASA generally applies the Federal Aviation Administration Policy (FAA) guidelines for the assessment of such installations. These guidelines apply in circumstances when reflected solar glare may affect aircraft operations.'* It is noted that glare analysis was undertaken according to the 2021 U.S. Federal Aviation Administration Policy.

Issue	Detail
Geological Survey of NSW – Mining Exploration and Geoscience	
N/A	EIS addresses all the SEARs and Agency requirements. As such, further consultation is not required.
Mineral lease holder	
Project update 1 June 2025	Applicant informed Tarago Exploration Pty Ltd by email of the Project including link to website for further information.
Project update 7 August 2025	Applicant followed up with Tarago Exploration Pty Ltd by email.
WaterNSW	
Project update and status of Water Cycle Management Study 17 September 2025	A Water Cycle Management Study (WCMS) is progressing in tandem with Project design to inform the specific requirements that will be required to achieve a *neutral or beneficial impact* on water quality (as is required for projects in the Sydney Drinking Water catchment). A WCMS is not a requirement of the SEARs (Appendix A) but is understood to be an expectation of WaterNSW. Consultation is continuing to ensure that the study meets agency expectations. A draft of Section 6.8 has been forwarded to the agency ahead of EIS lodgement. The commitment to undertake a WCMS is captured as a performance objective in the mitigation measures.
DPIE Water and Department of Natural Resources Access Regulator	
N/A	EIS addresses all the SEARs and Agency requirements. As such, further consultation is not required.
Department of Primary Industries - Fisheries	
N/A	EIS addresses all the SEARs and Agency requirements. As such, further consultation is not required.
Department of Primary Industries - Agriculture	
N/A	EIS addresses all the SEARs and Agency requirements. As such, further consultation is not required.
Transport for NSW	

Issue	Detail
Project update 21 February 2025	Amber Organisation lead engagement to discuss emergency access, cumulative impacts of Gundary Solar Farm, OSOM route, site distances on Currawong Road, difficulty of access from the south and local disruptions, shuttlebus assumptions. Further details provided in Appendix F.7
Australian Rail Track Corporation (ARTC)	
Project update 4 June 2025	Amber Organisation requested information by traffic consultant for rail level crossings in Brooklyn Victoria and Port Waratah NSW. No response received.
Transgrid	
Connection Process Agreement June 2024	Capacity for the electricity grid to accommodate the electricity generated from the Project has been confirmed by TransGrid. The Applicant signed a Connection Process Agreement for the Merino Project with TransGrid on the 28th of June 2024.
NSW Heritage	
N/A	Minimal consultation with Heritage NSW has been undertaken to date, as comment is generally received following submission of the ACHA. Some preliminary engagement was undertaken when a Request for Information for relevant Aboriginal Stakeholders was made during the early stages of the ACHA.
Biodiversity Conservation Division	
Survey approach 19 August 2024	An onsite meeting was held with Red Gum Consulting to introduce the Project to BCD and discuss specific approach to threatened reptile surveys, use of Biodiversity Assessment Method in preference to a Land Category Assessment for exotic / low value native pasture, avoidance of southern marsh areas and flooding concerns. BCD agreed to view an early draft of the biodiversity assessment.
Draft report provided 31 January 2025	A draft report (V2) was provided for comment and agency comments addressed in the subsequent version (V3).
Crown Lands	
N/A	No crown land, roads or waterways intersect the Project area. As such, Crown Lands requested no further consultation.

06 Assessment of impacts

6. Assessment of key impacts

6.1. Biodiversity

Red Gum Environmental Consulting completed a Biodiversity Development Assessment Report (BDAR) to assess the potential biodiversity impacts of the Project, in accordance with the NSW Biodiversity Assessment Method (BAM) 2020.

The assessment is summarised below and appended in full, Appendix F.1.

6.1.1. Approach

The approach to completing the BDAR included:

- A desktop assessment to describe the existing environment and landscape features of the Development Footprint and to identify the suite of threatened biota potentially affected by the proposal.
- Field surveys:
  - To describe the biodiversity values of the Development Footprint and surrounding study area and to determine the likelihood of threatened biota and their habitats occurring in the Development Footprint or being affected by the proposal.
  - To target candidate threatened species and confirm their presence or absence.
- BAM calculations using the credit calculator (Version 1.5) to quantify the biodiversity impacts of the proposal following implementation of measures to avoid and minimise impacts and to determine the biodiversity credits that would be required to be retired to offset the residual impacts of the proposal.

The BAM site assessment approach was used to evaluate impacts on native vegetation 'zones' and threatened species in the solar farm site. The detailed methodology is provided in full in Appendix F.1 and a summary of the field survey and avoidance approach is provided below.

Specific notes regarding areas subject to assessment:

- Most of the Development Footprint (approximately 760ha) is mapped as Category 1 – exempt land, as defined in Part 5A of the *Local Land Services Act 2013 (2024)*. Biodiversity values on Category 1 land are excluded impacts and are not assessed under the BAM. However, additional biodiversity values (prescribed impacts) are still considered in these areas, as required under clause 6.1 of the *Biodiversity Conservation Regulation 2017* (BC Regulation). Areas without vegetation within the Development Footprint (existing road and dams), and areas of non-native vegetation have also been mapped as 'excluded impacts' in consultation with Biodiversity Conservation Division (BCD).
- The Development Footprint assessed for biodiversity impacts assumes impact areas along Painters Lane are restricted to a 7m road width and four specific access locations, as specified in the concept access designs developed through the Traffic Impact Assessment (accesses shown in Section 6.7).[8]
- A refinement of the Development Footprint was proposed by the final BDAR, micrositing the emergency access option off Braidwood Road (north of primary access) to minimise biodiversity

[8] All other assessments have considered the full road reserve for impacts on Painters Lane, up to access #7, which is 2.45km from the Braidwood Road / Painters Lane Intersection.

impacts. This change has been fully assessed for biodiversity and heritage impacts. It is a recommendation of the BDAR and carried over as a mitigation measure of the EIS.

- Two locations along the Over Size Over Mass vehicle haul route have also been identified for works, if the Port of Melbourne haulage route is used. These are in Victoria and not subject to the NSW BAM. A mitigation measure has been included (Section 6.7.3) to seek necessary Victorian permits if this haul route is used.

Field survey effort

Seven seasons have been covered by the survey program to date, from Winter 2023 to Summer 2024/25. Rapid assessments have progressed to targeted surveys as the Development Footprint has been refined in response to biodiversity and other constraints. Twelve flora species and eleven fauna species have been the subject of properly time targeted surveys in accordance with NSW and Commonwealth guidelines, where available.

Table 6-1 Survey effort summary

Season and month		Survey type
Winter 2023	July, August	Vegetation mapping Rapid vegetation assessments Opportunistic fauna and flora observations Fauna habitat assessment Active searches for scats and signs Laying of species credit reptile survey tiles
Spring 2023	September, October, November	Vegetation mapping Rapid vegetation assessments Opportunistic fauna and flora observations Fauna habitat assessment Active searches for scats and signs Laying of species credit reptile survey tiles Dawn bird surveys Searches targeting candidate nests or roosts for species credit matters Surveying of species credit reptile survey tiles Meandering for targeting candidate threatened flora and insects Opportunistic fauna and flora observations Active searches for scats and signs Bioacoustic recorders – frogs, birds, mammals Ultrasonic call recording – bats Baited PIR cameras for candidate mammals Installation of Grassland Earless Dragon PVC anthropod tubes.
Summer 2023/24	December	Surveying of species credit reptile survey tiles and tubes Bioacoustic recorders – frogs, birds, mammals Baited PIR cameras for candidate mammals Systematic traverses targeting candidate insects. Opportunistic fauna observations Koala (Phascolarctos cinereus) Spot Assessment Technique (SAT) Searches targeting candidate nests or roosts for species credit matters Evening frog surveys Spotlighting Grey Headed Flying Fox Call playback – koalas, owls and frogs
Autumn 2024	May	Dawn bird surveys

Season and month		Survey type
		Koala (Phascolarctos cinereus) Spot Assessment Technique (SAT) Spotlighting Call Playback – mammals and owls Opportunistic fauna observations
Winter 2024	June, August	Spotlighting Call Playback – mammals and owls Opportunistic flora and fauna observations Vegetation mapping & Rapid vegetation assessments Opportunistic fauna and flora observations Fauna habitat assessment Active searches for scats and signs Laying of species credit reptile survey tiles Searches targeting candidate nests or roosts for species credit matters Active searches for scats and signs
Spring 2024	October	Vegetation integrity plots Surveying of species credit reptile survey tiles Meandering for targeting candidate threatened flora. Active searches for scats and signs Opportunistic fauna observations Dawn bird surveys Diurnal bird survey
Summer 2024	December	Surveying of species credit reptile survey tiles Opportunistic fauna observations Systematic traverses targeting candidate insects. Active searches for scats and signs

Table 6-2 Candidate species targeted by surveys

Common name	Scientific name	Common name	Scientific name
Flora		**Fauna**	
River Swamp Wallaby-grass	*Amphibromus fluitans*	Striped Legless Lizard	*Delma impar*
Dwarf Kerrawang	*Commersonia prostrata*	Pink-tailed Legless Lizard	*Aprasia parapulchella*
Michelago Parrot-pea	*Dillwynia glaucula*	Grassland Earless Dragon	*Tympanocryptis pinguicolla*
Wingless Raspwort	*Haloragis exalata subsp. exalata*	Squirrel Glider	*Petaurus norfolcensis*
Basalt Pepper-cress	*Lepidium hyssopifolium*	Yellow-bellied Glider	*Petaurus australis*
Hoary Sunray	*Leucochrysum albicans subsp. tricolor*	Barking Owl	*Ninox connivens*
Omeo Stork's-bill	*Pelargonium sp. striatellum*	Powerful Owl	*Ninox strenua*
Tarengo Leek Orchid	*Prasophyllum petilum*	Masked Owl	*Tyto novaehollandiae*
Monaro Golden Daisy	*Rutidosis leiolepis*	Grey Headed Flying Fox	*Pteropus poliocephalus*

Common name	Scientific name	Common name	Scientific name
Button Wrinklewort	*Rutidosis leptorhynchoides*	Brush-tailed Phascogale	*Phascogale tapoatafa*
Large-fruit Groundsel	*Senecio macrocarpus*	Koala	*Phascolarctos cinereus*
Small Purple-pea	*Swainsona recta*	Gang Gang (breeding)	*Callocephalon fimbriatum*
Silky Purple-pea	*Swainsona sericea*	South-eastern Glossy Back Cockatoo (breeding)	*Calyptorhynchus mathami lathami*
Austral Toadflax	*Thesium australe*	White-bellied Sea-eagle (breeding)	*Haliaeetus leucogaster*
Black Gum	*Eucalyptus aggregata*	Key's Matchstick Grasshopper	*Keyacris scurra*
Aromatic Peppercress	*Lepidium hyssopifolium*	Green and Golden Bell Frog	*Litoria aurea*
		Southern Bell Frog	*Litoria raniformis*
		Southern Myotis	*Myotis macropus*
		Superb Parrot	*Polytelis swainsonii*
		Golden Sun Moth	*Synemon plana*

Avoidance approach

The Biodiversity Assessment Method (BAM) requires that the project demonstrate how impacts have first been avoided. Offsetting residual impacts is only appropriate after avoidance options have been fully explored. Avoidance of impacts has been considered in site selection and additionally in the development of the layout, in response to the findings of the biodiversity assessment. Of the 770ha comprising the Development Footprint, four discontinuous vegetation zones of poor to low condition native vegetation totalling 64ha were recorded. All other areas were avoided by the Project. Key areas of avoidance now include:

- Patches of Critically Endangered Threatened Ecological Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion.
- Patches of the EPBC-listed Critically Endangered Threatened Ecological Community White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland which is associated with the BC Act-listed Critically Endangered Threatened Ecological Community 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.
- All native trees have been avoided, subject to a recommendation to microsite the proposed emergency northern access laneway from Braidwood Road.
- The large central seasonal wetland area and Saltpetre Creek in the southern site and mapped biodiversity values in relation to Saltpetre Creek.
- Riparian areas of the main unnamed creek in the northern site (except for unavoidable crossings for access).
- Dams and low-lying areas prone to inundation that could provide significant potential habitat for threatened and migratory and local wetland fauna species including birds, bats and frogs.
- Remnant habitat that currently contains Black Falcon (*Falco subniger),* Flame Robin (*Petroica phoenicea*) and White-fronted Chat (*Epthianura albifrons*) which are all s listed as a vulnerable species under the BC Act.

The Development Footprint has been reduced by 220ha from approximately 990ha to 770ha via avoiding key biodiversity and riparian areas. Figure 6-1 shows an older development layout, which encompassed much larger areas of woodland including hollow bearing trees, dams, waterways and wetlands to demonstrate adherence to the principles of avoiding and minimising development impact.

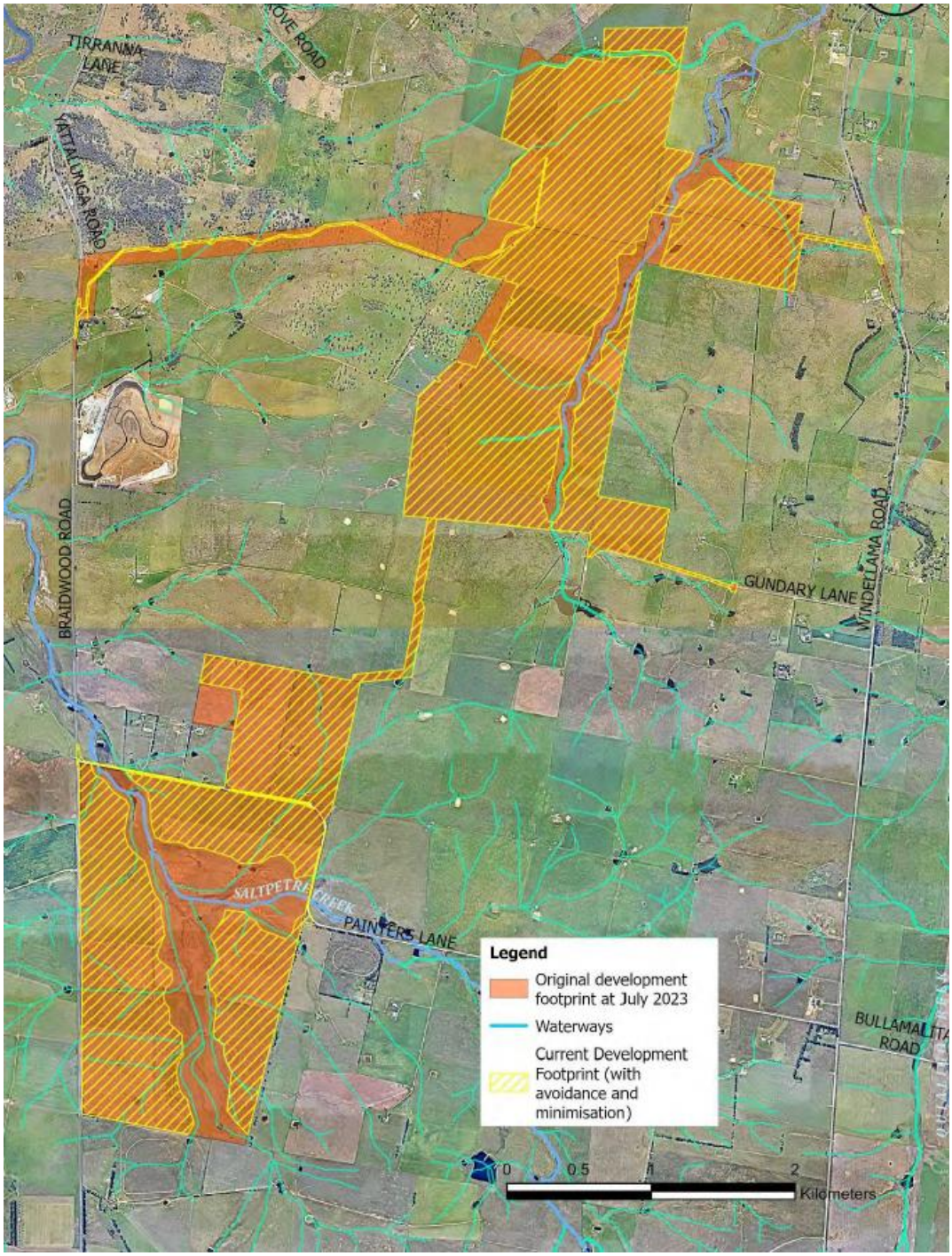


Figure 6-1 Changes to development site design/footprint following fieldwork, demonstrating adherence to the principles of avoiding and minimising development impacts

6.1.2. Existing environment

Landscape context

The Development Footprint occurs within the South Eastern Highlands Interim Biogeographic Regionalisation for Australia (IBRA) region and within the Monaro IBRA. The assessment area/Development Footprint is located within the NSW Mitchell Landscape of the Lake George Complex, Gundary Plains, and the Breadalbane Swamps and Lagoons.

There are 32 non-perennial informal drainage lines mapped within the Development Footprint, largely fed from the 38 farm dams in the assessment area. The two principal waterways and wetland areas have been avoided as part of this project with a generous riparian buffer.

Habitat within the assessment area is highly disconnected given the historical clearing associated with agriculture and other land uses in the region. No karsts, caves, crevices or cliffs or other areas of geological significance occur in or adjacent to the development site. No areas of outstanding biodiversity value, as identified under the BC Act, occur within the assessment area.

Native vegetation extent

Native vegetation cover within the assessment area (1500m buffer around the Development Footprint) was estimated to be 9.8 percent; 516ha out of 5,270ha.

Considering the Development Footprint:

- 687.68ha of land have been identified as Category 1 – exempt from most aspects of the assessment due to a history of regular cultivation
- 13.63ha of land are comprised of existing roads, non-native road side vegetation, dams that will not be impacted and shelter belts have also been separated as not native vegetation
- 64.31ha of land is native, derived from Plant Community Type 3415 Spear Grass Grassland, South Eastern Highlands Bioregion.

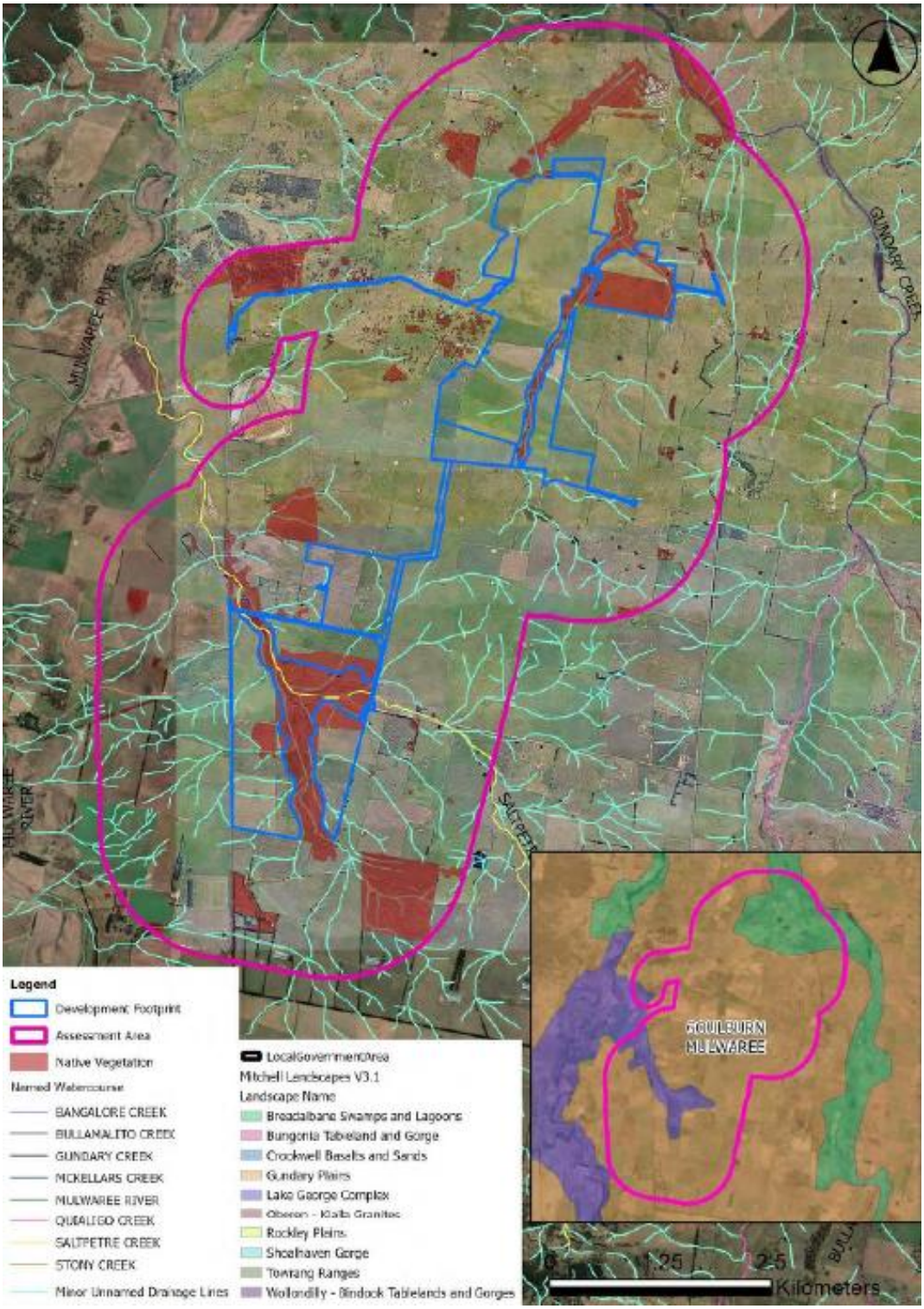


Figure 6-2 Native vegetation extent

Figure 6-3 Example of Category 1 – exempt land (currently and previously cropped)

Figure 6-4 Example of exotic roadside vegetation along Braidwood Road (southern site access point)

PCT 3415 Southern Tableland Red Grass-Spear Grass Grassland, South Eastern Highlands Bioregion is typically a naturally treeless vegetation community of a tall to very tall dense grassland comprised of grasses, forbs and some twiners, occurring on the undulating valley floors from Goulburn to Bredbo in the Southern Tablelands of NSW.

Due to historical and current agricultural management within the Development Footprint, the remnant native grassland vegetation condition is highly degraded and disturbed with reduced native cover, height and diversity of species negatively impacting on the habitat composition, structure and function. Patches in brake-of-slope and lower-lying areas appear affected by moderate levels of salinity/salt resulting in dominance of *Juncus* spp. and other salt-tolerant exotic plant species.

Areas mapped as PCT3415 were not considered a derived or secondary grassland (i.e. a grassland derived from clearing of a woodland or forest community); there was no evidence of shrubs, trees, tree stumps and/or fallen timber and/or there are no trees of woodland or forest tree species in a woodland or forest formation adjacent to or near the site, on similar topographical positions and geological substrates.

Four separate zones have been defined, see Table 6-3, in order to conduct representative plot surveys. The plot surveys result in a 'vegetation integrity' score out of 100. All four zones can be seen to have very low integrity; scoring 5-27 out of 100.

The vegetation within the Development Footprint is not considered part of a NSW or Commonwealth listed threatened ecological community.

Table 6-3 Vegetation zones

Zone ID	Area (ha) within dev. footprint	Patch size class	Plot IDs of vegetation integrity plots used in	Vegetation integrity score out of 100
Zone 1	23	5–24ha	Plot 5 Plot 6 Plot 7 Plot 8	27.0
Zone 2	17	5–24ha	Plot 19 Plot 32 Plot 33	5.0
Zone 3	13	5–24ha	Plot 10 Plot 30 Plot 31	15.7
Zone 4	12	5–24ha	Plot 11 Plot 12 Plot 13	18.4
Total	**65**			

Figure 6-5 Scattered tree now avoided by the Project (Tree ID 21 - *Eucalyptus blakelyi* – Class 3 with hollows)

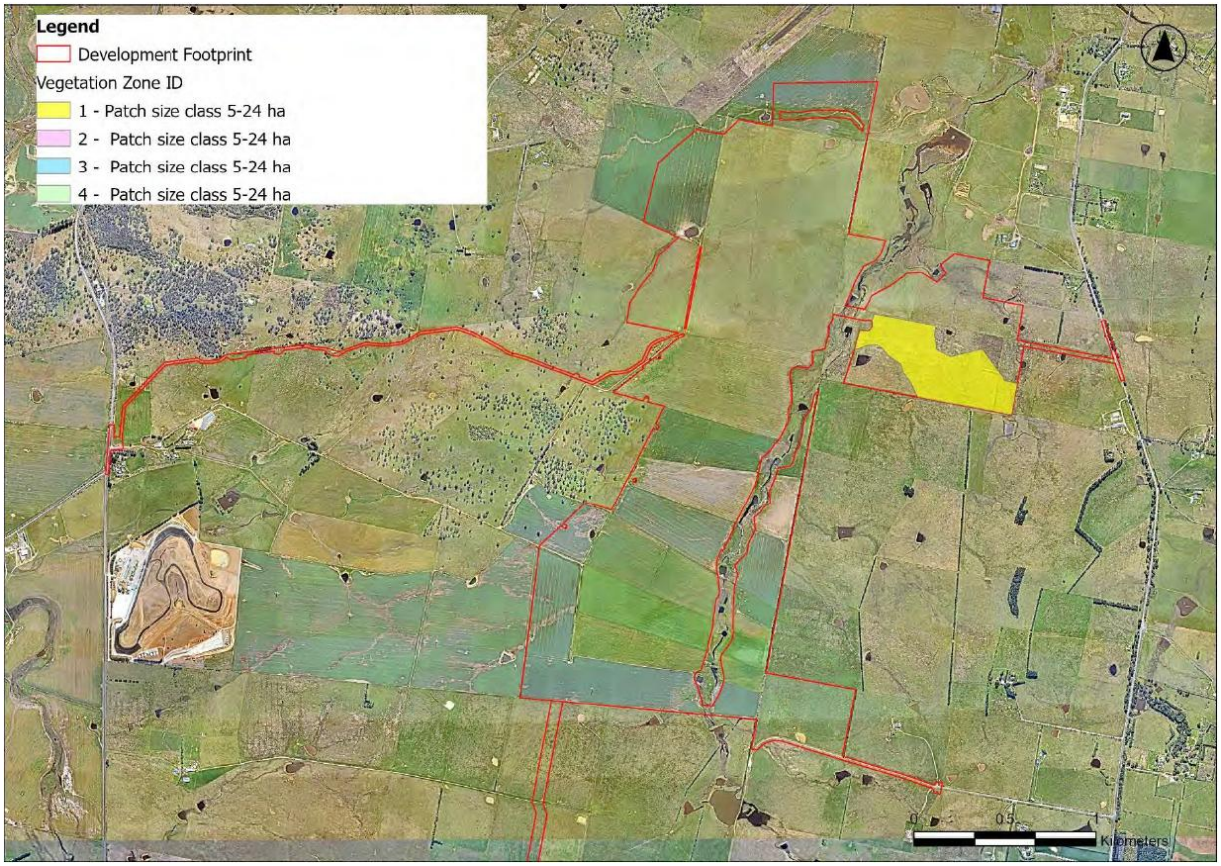


Figure 6-6 Native vegetation zones – north

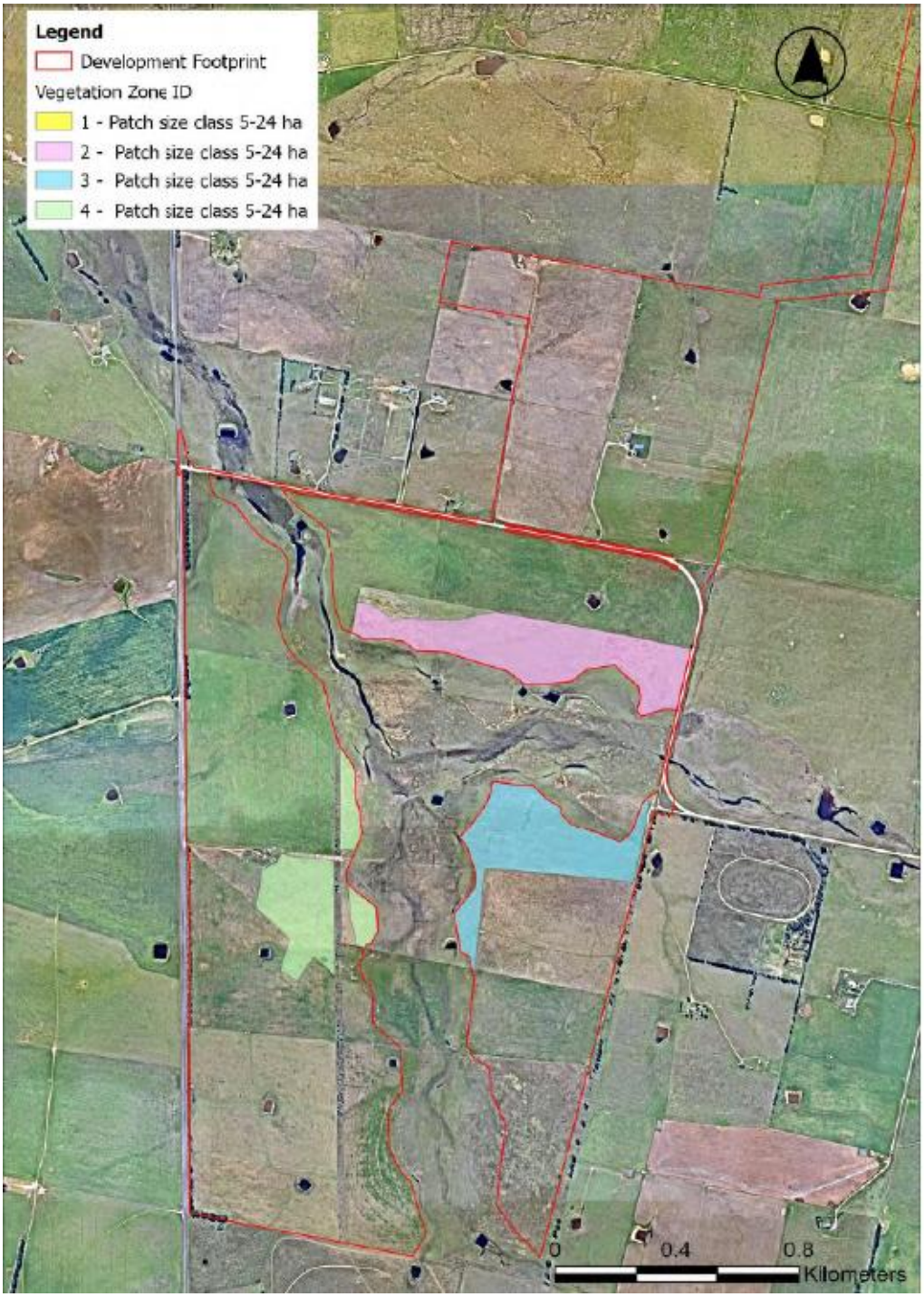


Figure 6-7 Native vegetation zones - south

Species credit' species (that would generate an offset obligation)

No 'species credit' flora or fauna (that would generate separate offset obligations) were identified in the Development Footprint during the survey program.

Several 'ecosystem credit' species, were observed either in or near to the Development Footprint. They do not generate an additional offset obligation but and have been considered in the assessment of impacts. They include:

- Spotted Harrier *Circus assimilis*
- Black Falcon *Falco subniger*
- Flame Robin *Petroica* phoenicea
- White-fronted Chat *Epthianura albifrons.*

Matters of National Environmental Significance

An EPBC protected matters report was undertaken on the July 2023 and December 2024 (10km buffer of the development site) to identify Matters of National Environmental Significance (MNES) that have the potential to occur within the development site such as:

- Wetlands of International Importance
- Threatened Ecological Communities
- Threatened species
- Migratory species.

No EPBC-listed threatened ecological communities were recorded in the Development Footprint.

No EPBC-listed threatened species were recorded in the Development Footprint and considering the poor habitat quality, none are expected to rely on the site.

No migratory shorebird species listed under the EPBC Act were recorded during field surveys within the Development Footprint or adjacent in nearby riparian and/or wetland areas. However, several species have the potential to occur in or fly over the Development Footprint and use the avoided riparian corridors and the large seasonal wetland area in the southern site at least on a transient or opportunistic basis to rest or forage on occasion. These include:

- Fork-tailed Swift (*Apus pacificus*)
- White-throated Needletail (*Hirundapus caudacutus*)
- Yellow Wagtail (Motacilla flava)

6.1.3. Potential impacts

Direct impacts

Vegetation clearing

The project would result in direct impacts on 64ha of native vegetation. The majority of this vegetation is poor to low condition and has low biodiversity value due to historically and current agricultural pressures with limited connectivity to other native patches. The clearing would involve the removal of non-threatened native plants. No trees would be removed.

The project has avoided the better-quality remnants and areas of habitat value and the residual impacts that cannot be avoided are able to be offset, under the Biodiversity Offset Scheme.

Fauna injury and mortality

Construction is likely to result in the injury or mortality of some individuals of these less mobile fauna species and other small terrestrial fauna that may be sheltering in vegetation within the Development Footprint during clearing activities. More mobile native fauna such as native birds, bats, terrestrial and arboreal mammals that may be sheltering in vegetation in the Development Footprint are likely to evade injury during clearing and construction activities.

There is one hollow-bearing tree in the Development Footprint, and therefore a potential risk of injury or mortality to any species which may be using these hollows, such as microbats, arboreal mammals or hollow-nesting birds.

Recommendations have been made in Section 6.1.5 to minimise the risk of vegetation clearing activities resulting in the injury or mortality of resident fauna.

Fragmentation or isolation of habitat

Habitat fragmentation through the clearing of vegetation can increase the isolation of remnant vegetation and create barriers to the movements of small and sedentary fauna such as ground dwelling mammals, reptiles and amphibians. Furthermore, habitat fragmentation can create barriers to the movement of pollinator vectors, such as insects, and consequently affect the life cycle of native flora species.

Given the existing degree of fragmentation and isolation in the local landscape and the extent of the relatively small extent of clearing proposed combined with the poor habitat condition, it is unlikely that the project would create any significant or new barriers to the movement of flora and fauna. Relictual habitat patches within the assessment area is highly disconnected given the historical clearing associated with agriculture and other land uses in the region.

A review of available spatial data determined that there are no government identified biodiversity corridors within the Development Footprint (DPIE 2017).

The treed areas of threatened Grassy Forest and/or Grassy Woodland surrounding the Braidwood Road access laneway in the northern development site are marginally connected to a larger forested area beyond the Development Footprint via stepping-stones of scattered paddock trees.

The larger forested areas have been excluded from the Development Footprint and any existing connectivity should not be affected by the development as surrounding scattered trees around the access laneway have been avoided via micro siting the road/laneway alignment. A recommended micrositing route for the emergency access route is shown below in Figure 6-8.

Saltpetre Creek and the unnamed larger drainage line in the northern site associated riparian vegetation may serve as a degraded habitat corridor for aquatic or wetland species due to poor native vegetation condition and being moderately saline; however these areas have been excluded from the Development Footprint; therefore, any existing connectivity should not be affected by the development.

Aquatic habitats

Aquatic habitats in the Development Footprint include:

- 32 first, second, third and fourth Strahler order unnamed ephemeral watercourses/drainage lines (refer to Figure 1F and 1G) where 30 of these are first or second Strahler order streams
- 16 man-made farm dams with little emergent vegetation due to agricultural grazing pressure (refer to Figure 6-9).

Water extraction from dams would not result in the removal of a dam. They are used as a water source currently (stock use).

The Project does not directly impact Key Fish Habitat or any threatened biota listed under the Fisheries Management Act. Aquatic habitats may provide limited breeding and shelter resources for common aquatic invertebrate, frog, bird and reptile species. The principal waterways and wetland areas (including Saltpetre Creek) have been avoided as part of this Project with a generous riparian buffer to address the indirect impacts outside the Development Footprint.

Several stream crossings are required. Safeguarding and mitigation measures for watercourses and hydrology (refer to Section 6.8) will protect local hydrology, water use and water quality.

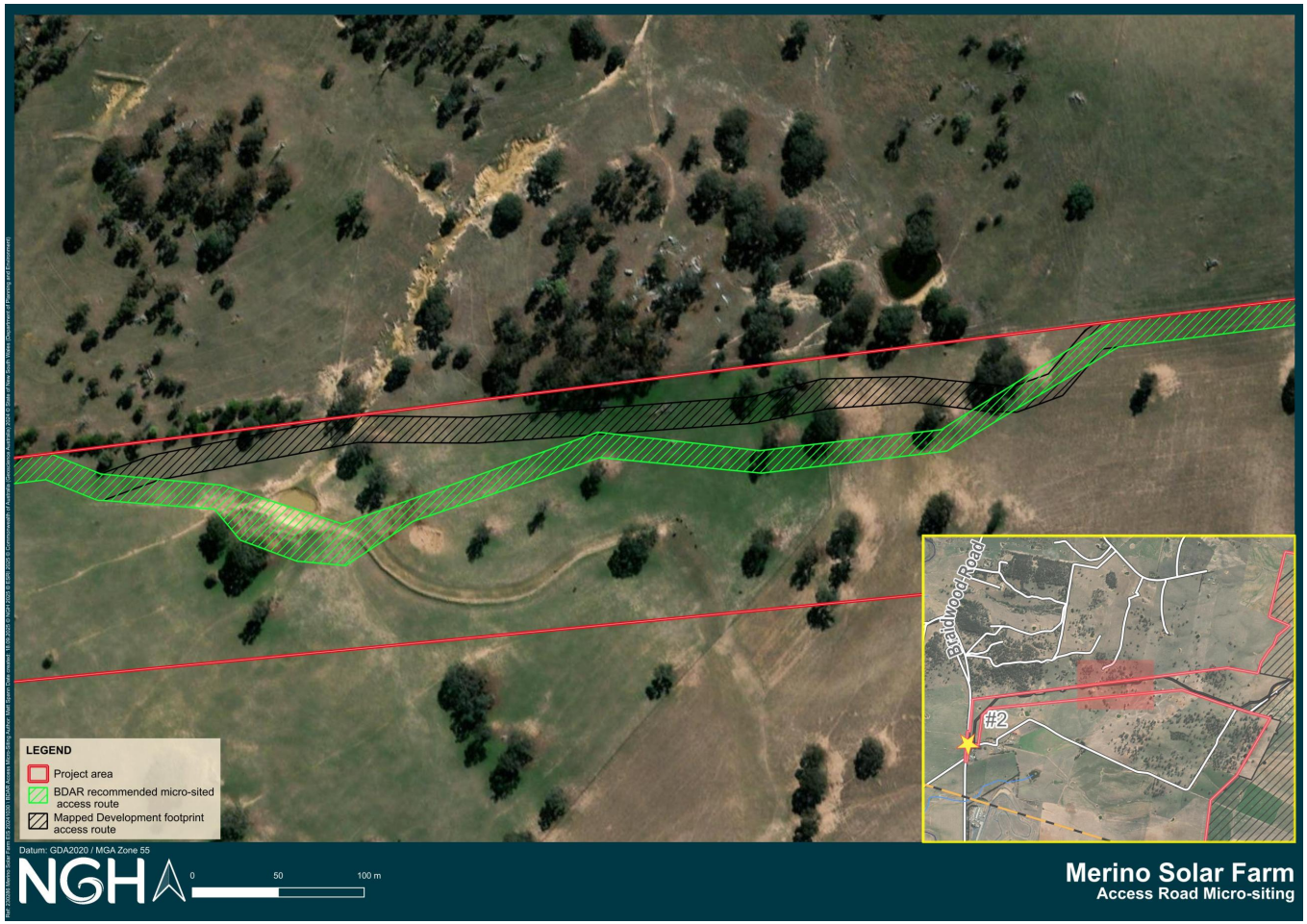


Figure 6-8 Emergency access route micrositing – has been assessed for biodiversity and heritage impacts

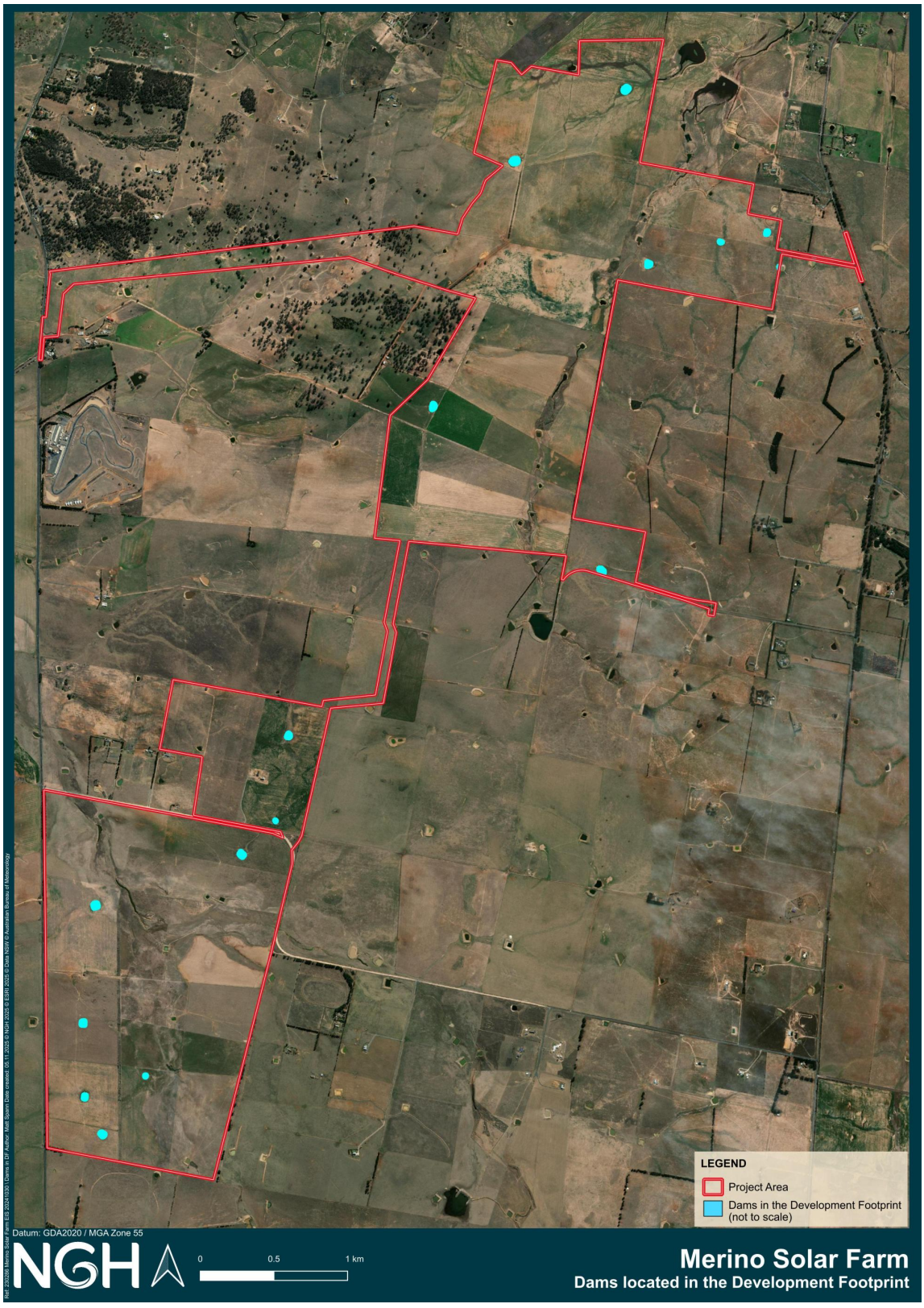


Figure 6-9 Dams in the development footprint

Indirect impacts

Edge effects

Edge effects can include increased noise and light and/or erosion and sedimentation at the interface of intact native vegetation and cleared areas. Edge effects may result in impacts such as changes to vegetation type and structure, increased growth of exotic plants, increased predation of native fauna or avoidance of habitat by native fauna. Edge effects would result from construction activities and then continue to affect vegetation and habitats adjoining the Development Footprint during the life of the development.

There is little remnant native vegetation surrounding the Development Footprint, and where it does occur, the majority are already heavily exotic dominated or salt affected. However, in the northern site, larger patches of surrounding remnant woodland and forest occur nearby in moderate condition outside the Development Footprint, therefore there is a moderate risk of construction activities spreading new weeds into adjoining vegetation. Recommendations have been made in Section 6.1.5 to minimise these risks. Other relevant mitigation measures to reduce the impacts of edge effects include lighting design to minimise light spill as well as dust suppression and erosion and sediment measures during construction are included in Section 6.4.

Introduction and spread of weeds, pests and pathogens

Disturbance associated with vegetation clearing, vehicle traffic and general day to day operations of the proposal during construction increase the potential for the spread, introduction and establishment of weed and pest species, and diseases and pathogens. Weed species are effective competitors for food and habitat resources and have the potential to exclude native species and modify the composition and structure of vegetation communities.

Construction activities within the Development Footprint may, in general, have the potential to introduce or spread pathogens such as Phytophthora (*Phytophthora cinnamomi*), Myrtle Rust (*Uredo rangelii*) and Chytrid fungus (*Batrachochytrium dendrobatidis*) into adjacent native vegetation through vegetation disturbance and increased visitation. Recommendations have been made in Section 6.1.5 to minimise these risks.

Noise and light impacts on fauna

The majority of the proposed construction works and operation of the development would be undertaken during standard, daytime construction hours. Exemptions and approval for works outside of the above standard construction hours may be required during certain circumstances.

Construction and decommissioning noise would be temporary/short-term and generally confined to daylight hours. There would be a minor increase above existing background levels and that is unlikely to result in a significantly impact on fauna that occur in the proposal site. Once the development is in operation there may also be some indirect impacts from noise and light around the immediate periphery of the site. To help mitigate these impacts lighting, the Development Footprint will be designed to direct light inward to limit the light spill into adjoining native vegetation.

Aquatic disturbance and impacts on fish habitat

The introduction of pollutants from the project into the surrounding environment, if uncontrolled, could potentially impact on water quality further downstream. There is potential for water quality impacts to Saltpetre Creek, Gundary Creek and the large ephemeral wetland in the southern site, and their tributaries and other aquatic habitat downstream from the proposal site. Potential water quality impacts would be managed through the implementation of suitable mitigation measures, including the provision of silt fences and other structures to intercept potentially sediment-laden runoff.

No endangered aquatic communities, aquatic fauna or marine vegetation listed under the FM Act or EPBC Act occur in the Development Footprint and no significant impacts on riparian vegetation or habitats downstream of the Development Footprint are anticipated as a result of the project. There would be no impact on Key Fish Habitat as a result of the project.

Prescribed impacts

Three prescribed impacts relevant to the project have been considered:

- Habitat of threatened entities in non-native vegetation
- Waterbodies, water quality and hydrological processes
- Vehicle strikes

Habitat of threatened entities in non-native vegetation

Non-native vegetation dominates the Development Footprint. Exotic roadside vegetation also occurs along Braidwood Road, Windemella Road, Gundary Lane and Painters Lane. This provides potential open foraging habitat for three threatened species that are all listed as a vulnerable species under the NSW BC Act:

- Spotted Harrier (*Circus assimilis*)
- Black Falcon (*Falco subniger*)
- White-fronted Chat (*Epthianura albifrons*)

Currently, within the 5270-hectare assessment area (calculated using 1500 m buffer area from the Development Footprint), there is approximately 4800ha of cleared/exotic agricultural pasture and cropping areas that can be used as Spotted Harrier and Black Falcon foraging habitat.

The large ephemeral moderately saline wetland habitat in the southern site, (and to a lesser extent, the unnamed drainage line in the northern site) is being avoided as core habitat for White-fronted Chat. The Chat may irregularly use the adjoining non-native agricultural pasture areas but is more likely to prefer the avoided core wetland/riparian areas.

Construction and decommissioning activities might temporarily disrupt foraging activity, however there are many similar areas of non-native foraging habitat adjacent the development site. Therefore, the development is not considered likely to lead to the loss of significant non-native foraging habitat.

The Development Footprint also contains some scattered mature linear plantings/windbreaks of non-indigenous native shelter belts around paddock edges and/or plantings of exotic mature *Pinus radiata* (Radiata Pine) and/or *Cupressus* sp. (Cypress Pine). A recommendation to retain these linear plantings where possible is included.

Waterbodies, water quality and hydrological processes

There are 32 first, second, third and fourth Strahler order unnamed ephemeral watercourses/drainage lines and 16 man-made farm dams within the Development Footprint with little emergent vegetation due to current agricultural grazing pressure and/or crop maintenance. While the dams and principal waterways and wetlands are being avoided by the proposal, these areas and other waterways downstream may offer threatened species habitat that may be indirectly impacted during the clearing, construction and decommissioning phase via run-off, erosion, sedimentation and pollution leading to reduced water quality and/or potential altering of hydrological processes. A full assessment of potential impacts, assessments and mitigation measures for water use, waterbodies, water quality and hydrological processes are detailed in Section 6.8 including specific mitigation measures to manage these impacts.

Vehicle strikes

The installation and use of access roads within the Development Footprint that join to Braidwood Road, Windemella Road, Gundary Lane and Painters Lane have the potential to result in increased fauna vehicle strikes, and associated fauna mortality, particularly during twilight and night-time periods. However, there are currently no threatened fauna utilising habitat within the site that would be at risk from vehicle strike. Given the fragmented nature of native vegetation in the area, it is likely

that more mobile species, such as Brushtail Possums, Wallabies, Kangaroos and Wombats, are at greatest risk. Given the speed limit of access roads will likely be relatively low and will primarily be used during daylight hours, the likelihood of vehicle strike to either threatened or non-threatened species is considered low risk.

Serious and irreversible impacts (SAII)

No impacts are anticipated for these entities, and no further assessment is required. No threatened species, including those associated with the TEC, were identified as being at risk of a SAII.

Matters of National Environmental Significance

No impacts are anticipated to EPBC listed threatened ecological communities, threated flora or fauna.

Regarding migratory species, a critical consideration in assessing the significance of potential impacts according to the significant impact guidelines for migratory shorebird species (DoE 2017), is whether or not a proposed action is likely to affect 'important habitat'. An area of 'important habitat' for the migratory shorebirds is generally:

- A site that is identified as internationally important
- A site that supports either:
    - At least 0.1 per cent of the flyway population of a single species, or
    - At least 2,000 migratory shorebirds, or
    - At least 15 shorebird species.

Important habitat for Latham's Snipe is describe more specifically as:

- areas that have previously been identified as internationally important for the species, or
- sites that support at least 18 individuals of the species.

The Development Footprint does not intersect any mapped important habitat for any migratory shorebird species. The Development Footprint does not contain any specific habitat features or resources that suggest that it would support any migratory species frequently or in large numbers.

In consideration of the Environment Protection and Biodiversity Conservation Act referral guidelines, no impacts are anticipated on Matters of National Environmental Significance and no referral under the EPBC Act has been undertaken.

Offsets

'Ecosystem credits' as calculated by the BAM have been generated and will be required to be retired to offset the removal of native vegetation and include:

- 330 credits to offset 23ha of PCT3415 Southern Tableland Red Grass-Spear Grass Grassland of the South Eastern Highlands Bioregion – Poor condition (Zone 1).
- 131 credits to offset 12ha of PCT3415 Southern Tableland Red Grass-Spear Grass Grassland of the South Eastern Highlands Bioregion – Poor condition (Zone 4).

Zones 1 and 4 are shown in Figure 6-6 and Figure 6-7.

No 'species credits' have been generated.

The retirement of the credits will be carried out in accordance with the NSW Biodiversity Offsets Scheme (BOS), and will be achieved by either:

- Retiring credits under the Biodiversity Offsets Scheme based on the like-for-like rules, or
- Making payments into the Biodiversity Conservation Fund using the offset payments calculator, or

- Funding a biodiversity action that benefits the threaten entities impacted by the development.

As no significant impacts on EPBC listed entities is anticipated, no referral or offsets in accordance with the EPBC Act is considered to be required.

6.1.4. Key uncertainties

This assessment was based upon the species data available at the time of the study, and the environmental conditions, season, and time constraints imposed by the project for the field survey.

No weather/climatic limitations to surveying were noted for any targeted candidate species. Leading up to the December 2023 frog surveys, particularly there was good rainfall making for loud frog calling.

The final impact footprint has yet to be determined however, adoption of a broad Development Footprint provides certainty that impacts have been fully assessed in accordance with the NSW BAM for changes that may come during detailed design. Regarding impacts outside NSW, a mitigation measure has been included (Section 6.7.3) to seek necessary Victorian permits if this haul route is used.

6.1.5. Safeguards and mitigation measures

The key strategy to manage biodiversity impacts has been to develop the layout to avoid higher value areas early in the Project's development. Specific biodiversity mitigation strategies have been developed to address impacts that cannot be avoided (shown below) and an offset obligation will be met prior to any impacts, in accordance with the Biodiversity Offset Scheme (also included as a commitment below).

It is noted that a Construction Environmental Management Strategy would be required for the construction and decommissioning phase of the project and would include, as a minimum, industry-standard measures for the management of soil, surface water, weeds and pollutants, as well as site-specific measures, including the procedures outlined below. Some of these mitigation measures overlap other areas of investigation (soil, water and pollutant mitigation) and are also included elsewhere in this EIS.

Guidance regarding the detail of specific measures can be found within the Appendix F.1; for example preclearing surveys and will be included where relevant in the prescribed management plans and protocols.

Table 6-4 Safeguards and mitigation measures for biodiversity impacts

ID	Mitigation measures	Project stage
B1	Adopt the micrositing of emergency access off Braidwood Road, illustrated in the BDAR V2 and Figure 6-8 to minimise impacts required to establish this route.	Design
B2	**Offset obligation** Prior to clearing, the applicant would retire, in accordance with the Biodiversity Offset Scheme: • 330 credits to offset 23ha of PCT3415 Southern Tableland Red Grass-Spear Grass Grassland of the South Eastern Highlands Bioregion – Poor condition (Zone 1). • 131 credits to offset 12ha of PCT3415 Southern Tableland Red Grass-Spear Grass Grassland of the South Eastern Highlands Bioregion – Poor condition (Zone 4).	Prior to impacts

ID	Mitigation measures	Project stage
B3	**General** • All workers are to be provided with an environmental induction prior to starting work on site. This would include information on the ecological values of the site, protection measures to be implemented to protect biodiversity and penalties for breaches. • Prepare a flora and fauna management sub-plan as part of the CEMP, incorporating the recommendations below, and expanding on specific details where necessary. • Measures to suppress dust implemented during clearing and construction • All workers are to be provided with an environmental induction prior to starting work on site. This would include information on the ecological values of the site, protection measures to be implemented to protect biodiversity and penalties for breaches.	Construction and decommissioning
B4	**Vegetation clearing** Limit disturbance of vegetation to the minimum necessary to undertake the proposal. • Prior to the commencement of any work in or adjoining areas of native vegetation, a survey would be carried out to confirm the extent of the Development Footprint and to mark the construction impact boundary. The perimeter of this area will be fenced using high visibility fencing and clearly marked as the limits of clearing. All vegetation outside this fence line will be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal. Fencing and signage must be maintained for the duration of the construction and decommissioning period. Fencing should be designed to allow fauna to exit the site during clearing activities. • Prior to the commencement of any work in the native vegetation an experienced ecologist will conduct pre- clearance surveys. If any species is detected a further assessment would be undertaken and any subsequent requirements implemented before work commenced • Stockpiles of fill or vegetation should be placed within existing cleared areas (and not within areas of adjoining native vegetation). • The water management system/drainage plan will be established within Development Footprint boundary to prevent transfer of sediments into adjacent vegetation.	Construction and decommissioning
B5	**Weeds pests and pathogens** Develop a weed and pest species management sub-plan as part of project CEMP to manage weeds and pathogens during the construction, operational and decommissioning phases of the proposal. • The location and extent of any priority and/or high threat environmental weeds within the site will be identified by a suitably qualified ecologist during pre-clearance surveys. The introduction and spread of weed species will be minimised by restricting access to areas of native vegetation and communicating the responsibilities of all project personnel at site inductions and during regular toolbox meetings. • All priority weeds identified on the site (specifically Serrated tussock (*Nassella trichotoma*), Blackberry (*Rubus fruticosus* sp. agg. African Boxthorn (*Lycium ferocissimum*), Chilean Needle grass (*Nassella neesiana*), Radiata Pine (*Pinus radiata*), Willow (*Salix spp*.), Gorse (*Ulex europaeus)*) will be controlled and removed in accordance with the requirements of the Biosecurity Act 2016 and Council's relevant	Construction and decommissioning

ID	Mitigation measures	Project stage
	Weed Control Manuals as per protocols to protect priority biodiversity areas in NSW from Phytophthora cinnamomi, myrtle rust, amphibian chytrid fungus and invasive plants (OEH 2020a). • Appropriate pesticides will be applied if required and a record of such application is made in the pesticide application register. • All noxious and environmental weeds will be cleared and stockpiled separately to all other vegetation, removed from site and disposed of at an appropriately licensed disposal facility. When transporting weed waste from the site to the waste facility, trucks must be covered to avoid the spread of weed-contaminated material. Disposal must be documented, and evidence of appropriate disposal must be kept. • All machinery entering the site must be appropriately washed down and disinfected prior to work on site to prevent the potential spread of weeds, Cinnamon Fungus *Phytophthora cinnamomi* and Myrtle Rust Pucciniales fungi in accordance with the national best practice guidelines for Phytophthora (O'Gara et al. 2005) and the Myrtle Rust factsheet (DPI 2015) for hygiene control and protocols to protect priority biodiversity areas in NSW from Phytophthora cinnamomi, myrtle rust, amphibian chytrid fungus and invasive plants (OEH 2020a). • Incorporate control measures in the design of the proposal to limit the spread of weed propagules downstream of proposal site. Sediment control devices, such as silt fences, would assist in reducing the potential for spreading weeds.	
B6	**Removal of fauna habitat** • Protocols to prevent introduction or spread of Chytrid fungus would be implemented following hygiene protocol for the control of disease in Australian frogs (DCCEEW 2011) and protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus and invasive plants (OEH 2020a). • Pre-clearance fauna surveys would be undertaken in accordance with BDAR, Appendix F.1. • Significant habitat features (fallen logs and tree hollows) removed from site would be salvaged and relocated within adjacent areas of vegetation. Prior to removal hollow logs should be knocked gently knocked with an excavator for a short time while the log is observed by a qualified ecologist. Any fauna leaving habitat resources would be rescued by the ecologists according to the protocol for fauna capture and relocation into adjoining vegetation. Any stockpiled hollow sections of trunks or branches should be placed on their ends (with the hollow opening against the ground) to minimise the chance of fauna entering hollows while they are stockpiled. Vegetation in the adjacent vegetation reserve is not to be damaged during relocation habitat features. Appropriately, sized machinery should be used to relocate hollow trunks and limbs and will use existing tracks or disturbed areas only. • A suitably qualified and appropriately licenced ecologist will be present during the clearance of all native vegetation and/or fauna habitats. Animals that require handling must not be approached or handled until the ecologist is present, unless in an emergency (e.g. when there are both no authorised persons present and where the failure to immediately intervene would place the animal at significant risk). In such an emergency, the site manager may obtain over the phone instructions from the project ecologist to ameliorate the	Construction and decommissioning

ID	Mitigation measures	Project stage
	situation. A wildlife rescue organisation (e.g. WIRES or Sydney Wildlife) should be made aware of operations in case any injured fauna is found. All animals encountered will be treated humanely, ethically, and in accordance with relevant codes under the NSW Prevention of Cruelty to Animals Act 1979, including: ○ Australian code of practice for the care of animals for scientific purposes (NHMRC 2013) ○ Code of practice for the welfare of wildlife during rehabilitation (OEH 2011) ○ Animal ethics considerations and protocols outlined in this document. • If the project ecologist considers an animal is at risk of injury or undue stress, it is to be gently directed into secure adjoining habitat. Where deemed necessary by the project ecologist, the animal may be required to be captured and released. Capture and release operations will proceed via the following protocols: • All construction activities that are considered by the project ecologist be likely to increase the risk of injury, mortality or stress to the animal will be halted until the animal has been removed, which will be enforced with the co-operation of the contractor. Construction activities that do not contribute to the risk of injury, mortality or stress to the animal can continue (as determined by the project ecologist). • Only qualified ecologists or wildlife carers are authorised to handle animals. • Animals will be captured (if required) by the project ecologist using a safe and ethical technique, as is appropriate for the particular species (see below). Native animals that are unable to depart of their own accord will be captured and held in a receptacle appropriate for that species until release. All captive-held animals will be provided with food, water and warmth as is appropriate for the species. Each receptacle will only hold one animal at a time and will be cleaned and disinfected between use to avoid the spread of disease. • Details of any fauna relocated from hollows would be recorded on the tree hollow inspection register. Any other fauna relocated from trees, shrubs or other areas would also be recorded. • The construction contractor is to contact the project ecologist for advice if any unexpected fauna is found during the construction period (i.e. following clearing of native vegetation when the project ecologist is no longer on site). • A post-clearing report will be prepared documenting all animals that are handled, or otherwise managed, within the site. Data to be recorded includes: ○ Date and time of the sighting and details of the observer ○ Species ○ Number of individuals recorded ○ Adult/juvenile ○ Condition of the animal (living/dead/injured/sick) ○ Management action undertaken (e.g. captured, handled and taken to vet) ○ Results of any management actions (e.g. released, placed in a nest box, euthanised, placed with carer)	

ID	Mitigation measures	Project stage
	○ An inventory of hollows and fallen timber salvaged and relocated will be maintained.	
B7	**Water quality and aquatic habitats** • Erosion and sediment control plans should be prepared in accordance with relevant policy documentation and Government guidelines. The erosion and sediment control plans would be established prior to the commencement of construction and be updated and managed throughout as relevant to the activities during the construction phase. • Erosion and sediment control controls would be regularly inspected, particularly following rainfall events, to ensure their ongoing functionality. • Stabilised surfaces should be reinstated as quickly as practicable after construction and decommissioning. • Appropriate speeds are to be enforced to limit dust generation and minimise chances of fauna mortality through vehicle strike. • All stockpiled material should be stored in bunded areas and kept away from waterways to avoid sediment or contaminants entering the waterway. • Spill kits would be made available to construction vehicles. A management protocol for accidental spills would be put in place.	Construction and decommissioning
B8	**General**: • Prepare a Vegetation Management Plan (VMP) (or equivalent) to ensure that the proposal does not result in any direct or indirect impacts on retained vegetation within the footprint (especially those areas below the solar panel arrays), and/or surrounding areas and/or proposed local offset areas, incorporating recommendations below, and expanding on specific details where necessary. • All staff are to be provided with an environmental induction prior to occupying site. This would include information on the ecological values of the site, the operation of the VMP, protection measures to be implemented to protect biodiversity and penalties for breaches. • Identify and fence the retained vegetation along boundaries within the proposal site in order to exclude unauthorised access and avoid indirect impacts. Install and/or maintain stock proof fencing where the conservation area adjoins agricultural land. Boundaries with other areas of native vegetation should be left unfenced to allow for fauna movement and for firefighting activities. Ensure that site occupiers and visitors are aware of the biodiversity value and sensitivity of the conservation area.	Operation
B9	**Retained vegetation management** • Implement weed and pest control activities appropriate to maintain the current condition of any retained vegetation (as a minimum), such as a Vegetation Management Plan (see above Section 6.2.2). • Signposting and enforcement of appropriate speed limits along the proposed access road to reduce the likelihood of vehicle strike and mortality of native fauna.	Operation
B10	**Project site management** • Enforcement of legal obligations to control priority weeds and pests within the proposal site to prevent the spread of propagules and	Operation

ID	Mitigation measures	Project stage
	individuals into adjacent areas of native vegetation and properties. • Lighting to be designed to direct light away from adjoining bushland areas and native patches and to limit the impacts of light spill on native fauna habitats. • Erosion and sediment control controls would be regularly inspected, particularly following rainfall events, to ensure their ongoing functionality. • All stockpiled chemicals and materials should be stored in bunded areas and kept away from waterways to avoid sediment or contaminants entering the waterway.	

6.2. Aboriginal heritage

This section summarises the findings of the Aboriginal Cultural Heritage Assessment (ACHA) undertaken by Red -Gum Environmental Consulting Pty Ltd, provided in Appendix F.1. As required by the SEARs, it must:

- Assess the impact to Aboriginal cultural heritage items (cultural and archaeological) in accordance with the Guide to *Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010), including results of archaeological test excavations (if required).
- Provide evidence of consultation with Aboriginal communities in determining and assessing impacts, developing options and selecting options and mitigation measures (including the final proposed measures), having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010).

6.2.1. Approach

A specialist ACHA was undertaken to provide an assessment of any Aboriginal objects and cultural values associated with the Project area and to assess the cultural and scientific significance of any Aboriginal heritage sites within the Project area. Further, the ACHA assesses the potential impacts to Aboriginal sites and provides management strategies that may mitigate any impacts.

The ACHA report is noted by Red-Gum Environmental Consulting Pty Ltd to have been prepared in accordance with the following guidelines:

- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011)
- Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010a)
- Aboriginal Cultural Heritage Consultation Requirements for Proponents (ACHCRP) (DECCW, 2010b).

Consultation with Aboriginal stakeholders was undertaken in accordance with clause 60 of the *National Parks and Wildlife Regulation 2019* following the consultation steps outlined in the ACHCRP. An initial public advertisement was run in the Goulburn Post on the 13th November 2024 to seek registrations of interest in the Project from interested Aboriginal parties. A letter seeking assistance to identify parties with an interest in the Project area was sent to Heritage NSW on the 21st August 2024.

Responses received from Heritage NSW indicated a total of the sixty-seven (67) Aboriginal individuals or organisations who may have an interest in the Project, who where then invited to register interest and provide comment on the proposed methodology on the 1st of October 2024.

As a result of this process, 11 Aboriginal stakeholders, registered their interest in the Project. The Registered Aboriginal Parties (RAPs) for the Project were:

- Sonione Rogers
- Yukumbruk
- Didge Ngunawal Clan
- Mundawari Heritage Consultants
- Mura Culture Services
- Corroboree Aboriginal Corporation
- Yurwang Gundana Consultancy Cultural Heritage Services
- Muragadi Heritage Indigenous Corporation
- Ginninderra Aboriginal Corporation
- Guntawang Aboriginal Resources Inc
- Murra Bidgee Mullangari Aboriginal Corporation

The "exposure based" survey approach was undertaken by the team over two days from the 6th of January to the 8th of January 2025, by two Red-Gum archaeologists with representatives from the below organisations:

- Mundawari Heritage Consultants
- Mura Culture Services
- Ginninderra Aboriginal Corporation
- Muragadi Heritage Indigenous Corporation
- Didge Ngunawal Clan
- Murra Bidgee Mullangari Aboriginal Corporation

The pedestrian and vehicle based transects inspected during the survey were noted to provide a representative sample of each landform type within the Project area with the sampling methodology focusing on areas of high archaeological potential that coincided with areas of proposed ground disturbance.

Following survey, a copy of the draft ACHA report was provided to all RAPs for review as well as specifically inviting comment on the results, the significance assessment, and the recommendations. No responses from the RAPs were received.

A comprehensive account of the consultation steps undertaken by Red-Gum Environmental Consulting Pty Ltd to comply with the ACHCRP is provided in the ACHA report.

6.2.2. Existing environment

Landscape context

The Project area is located within the South Eastern Highlands Interim Biogeographic Regionalisation for Australia (IBRA) region. The Project area is also located across three NSW Mitchell Landscapes, as outlined in Table 5 of the ACHA appended in Appendix F.2 which includes the Gundary Plains, Breadalbane Swamps and Lagoons and the Lake George Complex landscapes. The landscape occupying the largest area within the Project area is the Gundary Plains which is described as containing wide-open valleys with abandoned terraces and Quaternary lakebeds on lower Devonian siltstone, sandstone, andesite and quartz felspar porphyry.

The northern portion of the Project area is characterised by an unnamed third order (under the Strahler Stream Order classification) that drains in a northwards direction, eventually terminating at Gundary Creek. The southern part of the Project area contains one non-perennial waterway – Saltpetre Creek, that is a 5th

and 6th order stream, eventually draining to the Mulwaree River. There are multiple smaller 1st and 2nd order streams within the Project area with 32 non-perennial informal drainage lines mapped.

Current and historic land uses have resulted in much of the Project area containing native or exotic pasture which has been used grazing of stock. Native vegetation remaining within the Development Footprint is limited to discontinuous patches of poor to low quality native grassland. Modelling carried out in the ACHA predicts that much of the Project area would have comprised of 'composite grassland' prior to European settlement of the region, with the remaining likely being 'not grassland', above a height of 670m AHD. Both vegetation types, would have provided a range of material and food resources for Aboriginal people.

Historic land uses are likely to have reduced the potential for Aboriginal sites to remain intact within the landscape. Landforms within the Project area were divided into distinct zones to reflect the potential archaeological sensitivity. These zones were:

- Lower slopes (<650m AHD)
- Mid-slopes (650-670m AHD)
- Upper slopes (>670m AHD)

Archaeological context

The Project area, located south of Goulburn, is situated in Ngunawal country, near the southern border of Gandangara country.

The region is described within the ACHA as having a complex Aboriginal history, with many recorded interactions between Ngunawal and other groups. A number of significant Aboriginal sites are also noted to be within the Goulburn area, outside the Project area.

The Aboriginal Heritage Information Management System (AHIMS) provides a database of previously recorded Aboriginal heritage sites in NSW. As a starting point, an extensive search of AHIMS will indicate whether any Aboriginal sites are known and previously recorded on AHIMS within or adjacent to the Project area. On the 18 September 2024 and 05 March 2025, an extensive search of the AHIMS database was undertaken over an area bound by Lat -34.905, Long 149.6016 to Lat -34.7999, Long 149.8492, centred on the Project area (most recent Client Service ID 981873). As extensive search of the AHIMS database are only valid for a 12 month period additional searches of the AHIMS database were undertaken on 14 May 2025 (Client Service ID : 1004295) over an area bound by Lat, Long From : -34.842, 149.6517 - Lat, Long To : -34.7716, 149.7753, and Lat, Long From : -34.9735, 149.586 - Lat, Long To : -34.8327, 149.8332.

There was a total of 69 Aboriginal sites recorded within 5km of the Project area. No Aboriginal sites were recorded within the Project area. The results of the AHIMS search within 5km of the Project area are shown in Figure 6-10 and summarised in Table 6-5 below. No Aboriginal Places are within the Goulburn-Mulwaree LGA.

Table 6-5 Previously recorded Aboriginal sites in the region

Site Type	Number
Artefact (1 or more)	57
Artefact (1 or more), Potential Archaeological Deposit (PAD)	10
(PAD)	1
Modified tree	1
Closed/restricted record	1
Total	**52**

AHIMS results, along with previous archaeological surveys undertaken in the region that support a predictive model developed by Fuller (1989) that attributes archaeological sensitivty and risk to particular landforms. In landscapes similar to the Project area, previous investigations, such as Umwelt (2024 for the nearby Gundary Solar Farm), have indicated that Aboriginal sites are typically found at low to very low densities, with localised concentrations often located in proximity to major waterways. However, these sites are likely to have been impacted by disturbance and are therefore considered to have low archaeological potential. Umwelt (2024) identified that the sites with the highest artefact density were situated on gentle spurs/ridges, indicating that focused Aboriginal camping activities were likely to occur on elevated, relatively gentle or flat land with good outlook over reliable water and the broader valley.

The predictive model employed by, and outlined within, the ACHA for the Project indicates that based on the available evidence, it appears that areas of higher elevation were more commonly utilised for occupation, likely due to the greater variety of resources available, as well as the increased opportunities for shelter, which is a critical factor in the region and it was noted that there was low to moderate potential for the presence of Aborigianl sites within the sections of the Project area that overlook drainage lines and areas near spur line crests. The ACHA notes that there was low to moderate potential for stone artefacts (isolated finds or artefact scatters) and PADs to occur within the Project area, with low potential for other site types such as modified trees, stone arrangments, burials and Aboriginal Places.

The predictive model employed by, and outlined within, the ACHA (see Figure 11 in the ACHA) for the archaeological sensitivity of landforms within the Project area were:

- Lower slopes (<650m AHD) and major waterways have very low archaeological sensitivity
- Mid-slopes (650-670m AHD) have low archaeological sensitivity
- Upper slopes (>670m AHD) have moderate archaeological sensitivity.

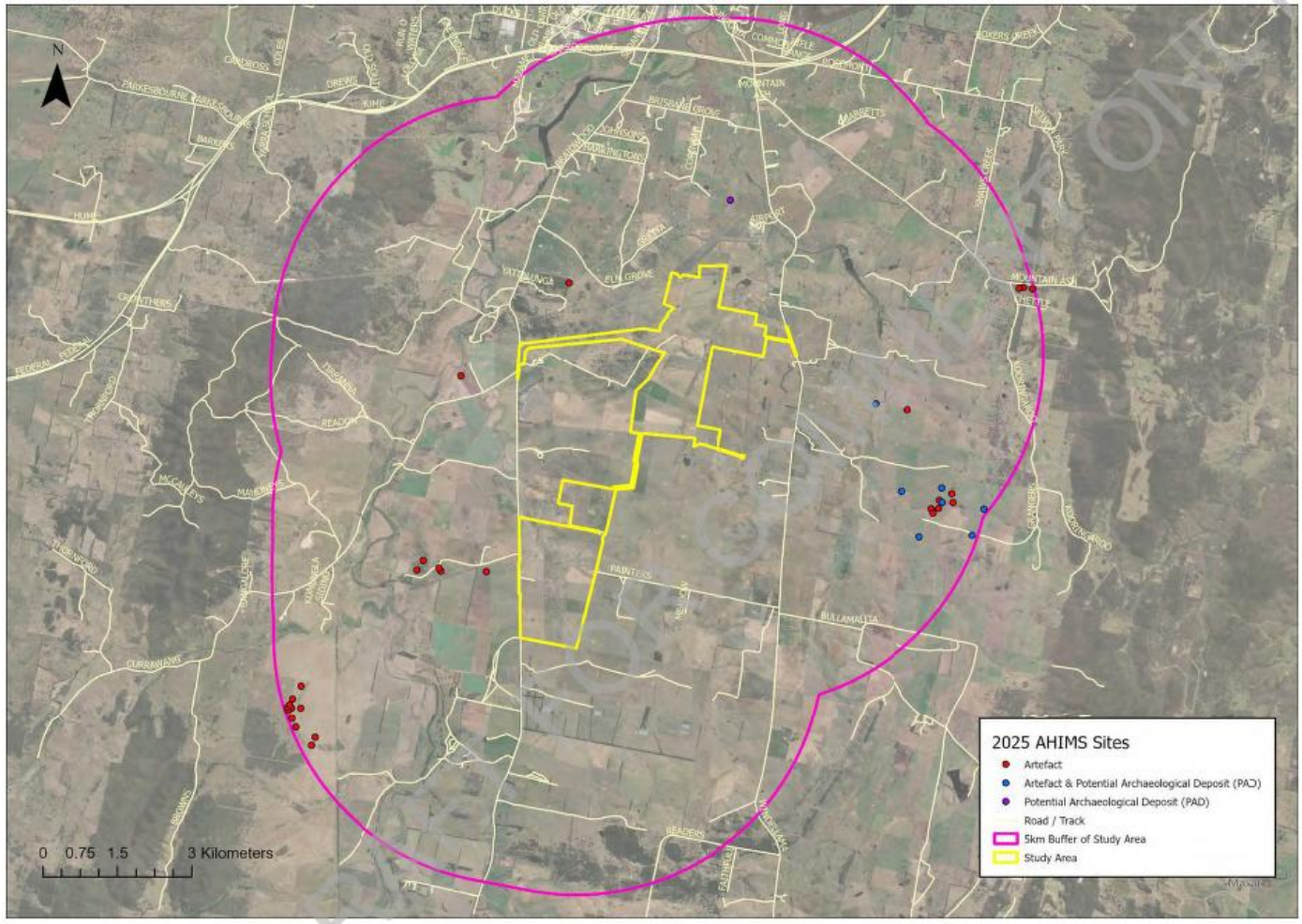


Figure 6-10 AHIMS sites recorded within 5kms of the Project area

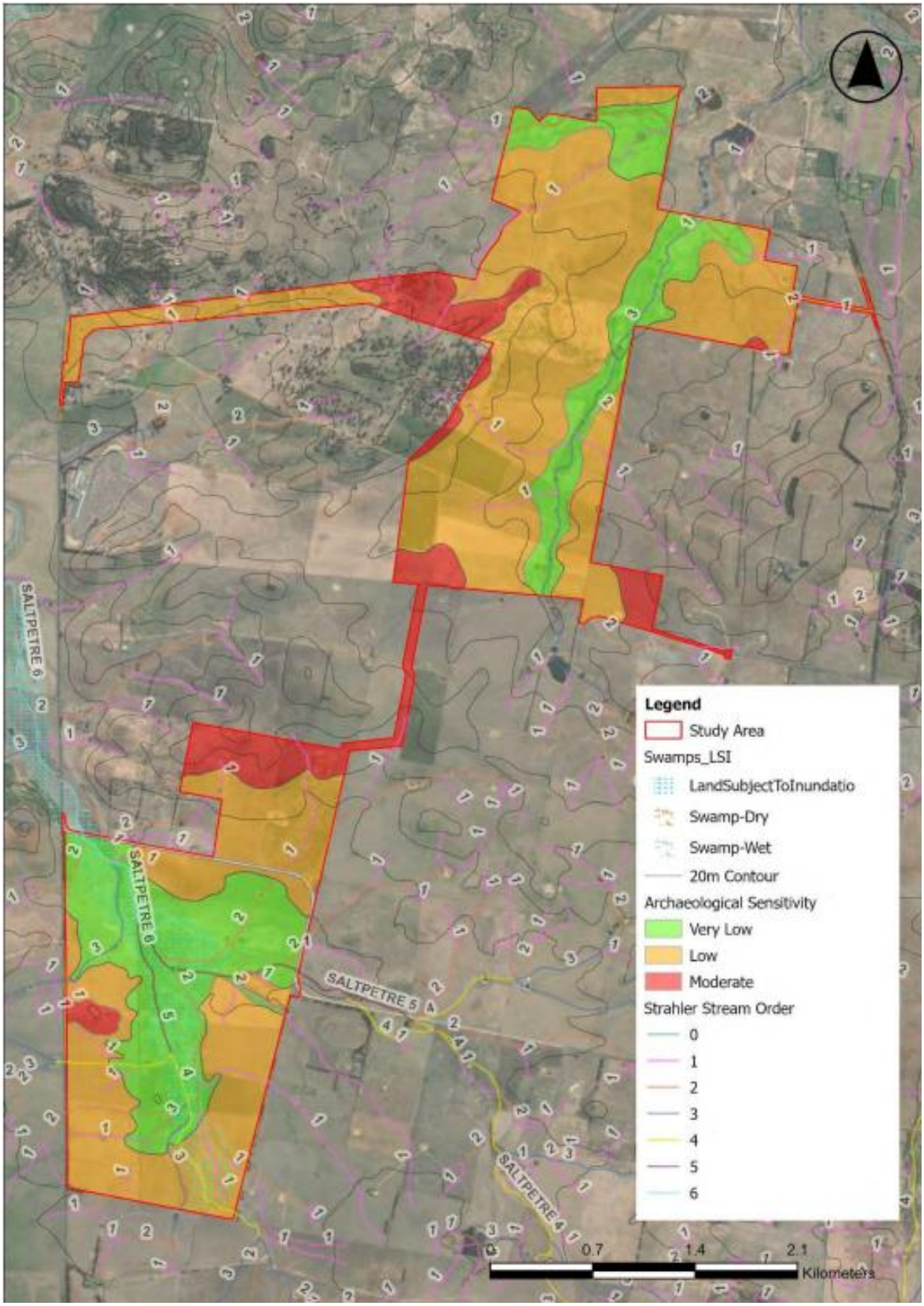


Figure 6-11 Archaeological sensitivity zones

Field survey summary

The field survey was undertaken by two Red-Gum archaeologists and six Aboriginal representatives from the RAPs for the Project over two days from the 6th of January to the 8th of January 2025.

The method of survey used an 'exposure-based' approach, with survey focus placed on areas exhibiting a higher potential (as indicated by landform features) and erosional features. Transects across the footprint of the proposed solar farm were undertaken using a combined method of foot and vehicular surveying. As such, the survey team were able to complete pedestrian and vehicle based transects of representative samples of each landform type within the Project area with the sampling methodology focusing on areas of high archaeological potential that coincided with areas of proposed ground disturbance.

During the vehicle-based portion of the survey, a total of 182.97 km was traversed by the survey team, for a total survey coverage of 115.77 Ha. During the pedestrian survey, a total of sixty-four exposure sites were identified across the site (totalling 59.87 ha) and a total of 169.39 ha was traversed by the survey team on foot, centred on each of the exposure site locations which were identified.

No Aboriginal objects, sites or PADs were identified during the survey. Red -Gum Environmental Consulting Pty Ltd note that the lack of Aboriginal finds and PADs is likely due with the nature of the study area and its long history of intensive agriculture and general absence of any undisturbed potential artefact bearing topsoil.

Significance

The assessment of the significance of Aboriginal archaeological sites is currently undertaken largely with reference to criteria outlined in the International Council on Monuments and Sites (ICOMOS) Burra Charter (Marquis-Kyle and Walker 1994). Criteria used for assessment are:

- ***Social or Cultural Value***: In the context of an Aboriginal heritage assessment, this value refers to the significance placed on a site or place by the local Aboriginal community –either in a contemporary or traditional setting.
- ***Scientific Value***: Scientific value is the term employed to describe the potential of a site or place to answer research questions. In making an assessment of scientific value issues such as representativeness, rarity and integrity are addressed. All archaeological places possess a degree of scientific value in that they contribute to understanding the distribution of evidence of past activities of people in the landscape. For example, flaked stone artefact scatters, larger sites or those with more complex assemblages are more likely to be able to address questions about past economy and technology, giving them greater significance than smaller, less complex sites. Sites with stratified and potentially in situ sub-surface deposits, such as those found within rock shelters or depositional open environments, could address questions about the sequence and timing of past Aboriginal activity, and will be more significant than disturbed or deflated sites. Groups or complexes of sites that can be related to each other spatially or through time are generally of higher value than single sites.
- ***Aesthetic Value***: Aesthetic values include those related to sensory perception and are not commonly identified as a principal value contributing to management priorities for Aboriginal archaeological sites, except for art sites.
- ***Historic Value***: Historic value refers to a site or places ability to contribute information on an important historic event, phase or person.
- ***Other Values***: The Burra Charter makes allowance for the incorporation of other values into an assessment where such values are not covered by those listed above. Such values might include Educational Value.

Social or cultural value

While the true cultural and social value of Aboriginal sites can only be determined by local Aboriginal people, as a general concept, all sites hold cultural value to the local Aboriginal community.

Although some landforms within the Project area were determined to have potential for the presence of Aboriginal sites based on archaeological modelling, no new Aboriginal sites or PADs were identified during the survey or through consultation with RAPs who participated in the survey. As such the cultural significance of the Project area is considered to be low-to nil.

Scientific (archaeological) value

As no Aboriginal heritage sites were identified or are known to be present within the Project area, the overall scientific values are considered to be low to nil.

Other values

There are no know other values associated with the Project area noted in the ACHA, including aesthetic or historic values in relation to Aboriginal heritage.

A summary of the assessment of significance is provided in the ACHA included in Appendix F.2.

6.2.3. Potential impacts

The potential harm from construction activities from the proposal typically include:

- Installation of solar panels
- Construction of internal access roads
- Ancillary power conversion infrastructure
- Perimeter fencing
- Construction material storage.

Given that no Aboriginal sites or areas of PAD were identified or are known to be present within the Project area, it is not expected that the proposal would have any impact Aboriginal heritage.

To reduce the potential for harm to any unidentified or unexpected Aboriginal objects within the Project area, the below mitigation measures and safeguard should be implemented.

6.2.4. Safeguards and mitigation measures

The following mitigation measures are therefore required to be implemented.

Table 6-6 Aboriginal heritage mitigation measures

ID	Mitigation measure	Project stage
AH1	Preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) prior to ground disturbance. This plan should outline requirements for the management of unexpected cultural heritage through the construction, operation and decommissioning phases of the Project. The CHMP should be prepared in consultation with the RAPs and Pejar LALC and include the following: • Unexpected finds protocol • Unexpected skeletal remains protocol • Induction policies that will include a cultural heritage awareness procedure • Legislation requirements for Aboriginal heritage • Outline how the Construction Environment Management Plan (CEMP), or equivalent, should reinforce how the cultural landscape is considered throughout the project and considered in the rehabilitation of the Project area.	Prior to construction - ongoing
AH2	All topsoil removed during the construction of road access within the Project area is to remain on site and used in rehabilitation works. This will ensure that in the low likelihood that any Aboriginal objects are in the soil that they will remain 'on Country'.	Construction - ongoing
AH3	All works proposed must be constrained to within the assessed area of the Project area (including access tracks and lay down areas). If changes are made to the proposed works which could impact locations outside of the assessed Project area, further archaeological investigation may be required. This may include consultation with the RAPs and Pejar LALC and further field inspection.	Design and during construction - ongoing
AH4	If any objects of suspected Aboriginal heritage origin are encountered during the proposed works, work in the area of the find should cease and the unexpected finds protocols should be implemented.	During construction - ongoing
AH5	In the unlikely event that human remains are discovered during the proposed works, all works must cease in the immediate vicinity. The local police and Heritage NSW should be notified. Further assessment would be undertaken to determine if the remains are Aboriginal or non-Aboriginal. Should the remains be identified as Aboriginal in origin Heritage NSW will identify the appropriate course of action.	During construction - ongoing

6.3. Historic heritage

6.3.1. Approach

This desktop assessment considers the following information in its assessment of historic heritage impact:

- Review of relevant literature
- Searches of national and state heritage databases. This includes the Australian Heritage Database (World, National and Commonwealth Heritage Lists), and the Heritage NSW State Heritage Inventory (State Heritage List, Section 170 registers and local heritage lists) (NSW Heritage Division, 2016).
- Searches of Goulburn Local Environmental Plan and Development Control Plan (LEP and DCP).

The potential impacts of the Project on items of historic heritage are assessed having regard to the NSW Department of Planning and Environment 2023 publication *Assessing heritage significance*. Recommendations are provided accordingly that would help to avoid, minimise or mitigate against impacts to the identified cultural heritage values of the Project area.

6.3.2. Existing environment

Historical background

The Project area is situated within the localities of Tirrannaville and Gundary, approximately 6km south of the current Goulburn CBD. The region of Goulburn was first identified by white settlers through convict volunteers who were sent by Governor Hunter, where in 1798 they reached Mount Towrang. Subsequently a number of other ventures explored the region beginning with Hamilton Hume, Charles Throsby and James Meehan in 1814 and 1818. It was in 1818 that Meehan travelled through the areas of Tirrana and the Gundry Plains. Meehan named the region Goulburn, which became part of the County of Argyle. Argyle was within the approved settlement zone of the 19 Counties, established by Governor Darling in 1826. Early settlement in the County of Argyle was predominantly small with land used by stock stations holding stock for Sydney based landowners until more frequent settlers appeared through to the late 1820s (Lester Firth Associates 1983).

The crossing of the Goulburn River was established in 1820 but it wasn't until 1828 that the survey for the proposed new town allotments was marked out. A timber court house was built in 1830 as were bark roofed huts for the police officers. The town continued to expand, drawing in more civil and commercial enterprises as the town became an important and central location for the surrounding regions and as a stop on journeys south for example to the Limestone Plains, especially as the roads were subject to major improvements through a convict labour work force (Lester Firth Associates 1983).

Goulburn was later declared a city in 1864. Throughout its history, the Goulburn-Mulwaree region has been a pastoral area, with lands used for the grazing of sheep and cattle, being one of the early Colony's best wool growing areas (Barker Ryan Stewart Pty Ltd & Sue Rosen and Associates, 2018).

In the 1830s and 1840s, produce processing facilities, such as flour mills, tanneries and soap factories were established in the rural areas surrounding Goulburn. Later, coach making and boot factories were established. By 1851, the population had reached 1,526 people (Barker Ryan Stewart Pty Ltd & Sue Rosen and Associates, 2018).

Goulburn has continued to grow and develop throughout both world war periods, with downturns during the 1920's depression and the recession in the 1970's.

Background searches

Databases searches were conducted to identify relevant historic heritage items (Table 6-7). Two LEP listed items were noted nearby the Project area. These are:

- Pelican Homestead and Shearing Shed
- Tirranna Homestead, Gibson Family Cemetery and Veterans Allotments

Both properties are located adjacent to the proposed northern Braidwood Road intersection upgrade; refer to Figure 6-12. The Pelican Homestead Shearing Shed is located 45m south of the Development Footprint, while the nearest homestead building is 95m south of the Development Footprint. The curtilage appears to overlap the proposed access upgrade. The Tirranna Homestead building is located about 1.1km northwest of the Development Footprint.

Table 6-7 Summary of historic heritage database search results

Database	Date of Search	Parameters	Results
National and Commonwealth Heritage Listings	04/11/2024	10km buffer from Development Footprint	No sites of heritage are on the database nearby to the Development Footprint
Australian Heritage Database Comprises the World Heritage and Register of National Estate Note: Items listed on the Non-Statutory archive have been excluded	16/12/2024	Goulburn LGA	No sites of heritage are on the database nearby to the Development Footprint. All 100 results in the search area are listed on the Non-statutory archive of National Estate and therefore do not have active heritage protection under the federal legislation.
State Heritage Register (SHR)	16/12/2024	Goulburn LGA	There are 29 items listed on the State Heritage Register. None of which are located nearby the Development Footprint.
Goulburn Local Environment Plan (LEP)	16/12/2024	Schedule 5 Environmental heritage	Two LEP items are listed within or adjacent to the Development Footprint 1. Pelican Homestead, Shearing Shed 2. Tirranna Homestead, Gibson Family Cemetery, Veterans Allotments

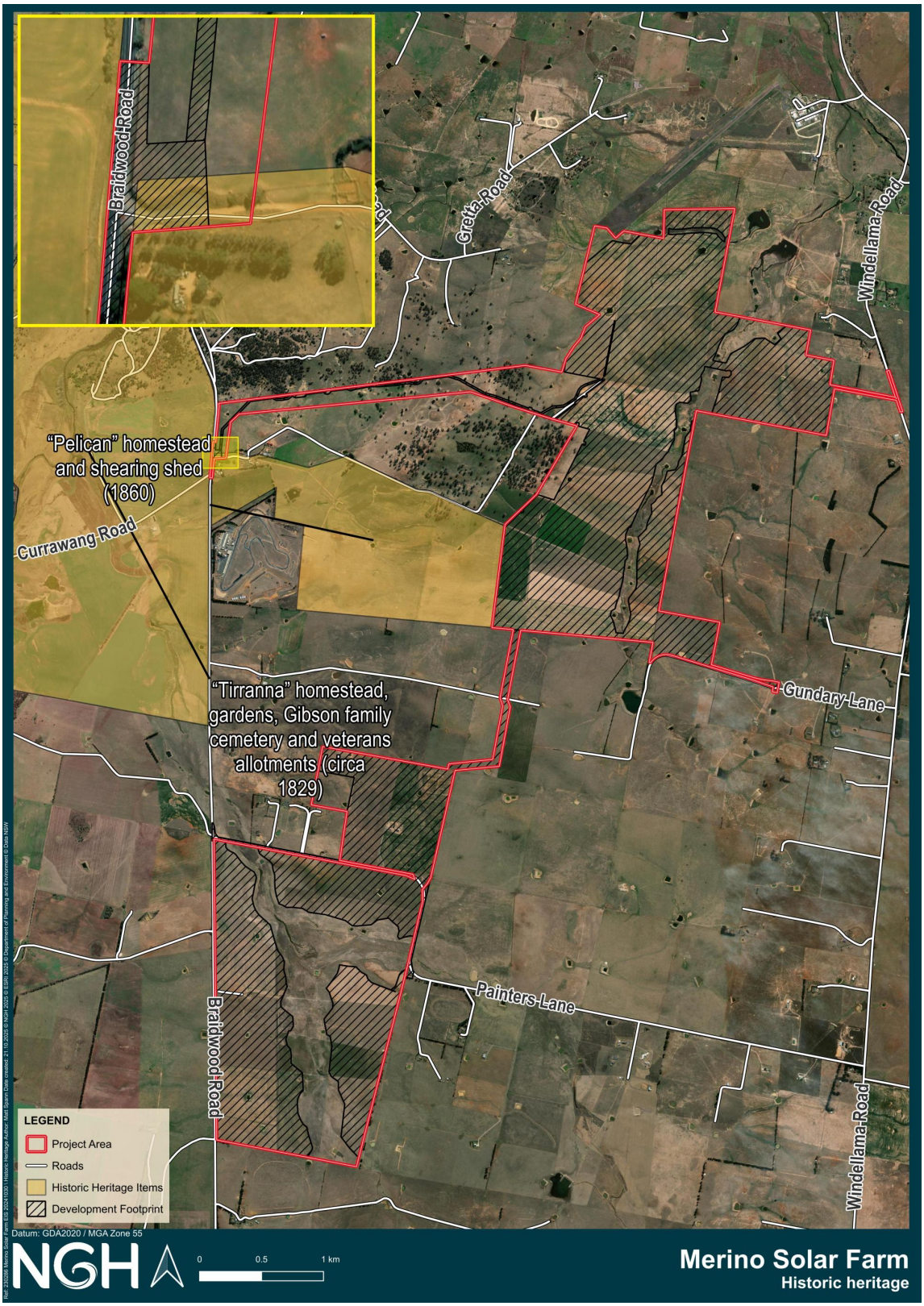


Figure 6-12 Local heritage items of relevance to the Project

6.3.3. LEP item statements of significance

The statement of significance for each of the noted local heritage listed items is presented below.

Pelican Homestead - Statement of significance

Pelican Station is highly significant locally for its association with the Sykes family who came to Australia in 1807 and took up land at Spring Valley, 20 miles southeast of Goulburn in 1827. This property is now known as 'Australind' and comprises 4000 acres. The 'Pelican' was originally part of a grant to Dr Andrew Gibson in 1827. In the early 1900s it was bought by the Mitchell family and the then the Sykes family in 1950. The stone homestead was convict built and it was originally the 'Pelican Inn'. The Station is significant for its social, recreational and tourist values. - State Heritage Inventory listing (source: HMS - ViewItem).

It is noted that the listed item specifies the "Pelican" Homestead and Shearing Shed. However, the significant feature identified in the statement of significance is the Pelican Inn. Review of the information available within the Goulburn Mulwaree Council heritage documents also appear not to differentiate between the original Homestead and Inn buildings but there is no mention of the shearing shed in this documentation (Barker Ryan Stewart and Sue Rosen and Associates 2018, Edward Higginbotham & Associates 2009, Lester Firth Associates 1983). It is not clear therefore exactly where the shearing shed is situated although aerial imagery appears to show a shearing shed close to the current driveway access to the property, about 260m west of Braidwood Road. It is also apparent that the current mapped curtilage of the listing appears to cross through the shearing shed and not completely encompass it.

Tirranna Homestead, Gibson Family Cemetery, Veterans Allotments – Statement of Significance

Tirranna is historically significant because it reflects more than 150 years of pastoral activity by descendants of the original settler, Dr Andrew Gibson, the Assistant Colonial Surgeon, who took up the land grant in 1828. The three homesteads, their outbuildings, landscape and gardens are important in exhibiting unusual richness in cultural features. Tirranna is also important for the information it contributes to a wider understanding of the patterns of everyday life on a large pastoral property in the first 100 years of European settlement in the Goulburn district. Tirranna Cemetery is a small family cemetery garden established c 1850s. The cemetery demonstrates a richness of cultural features as follows: the sandstone obelisk memorial with its wrought iron fence; the headstones of various ages; the wrought iron gates and sandstone fence posts; and the old plantings of mature trees. The place is significant as an example of a small family cemetery demonstrating the following characteristics: traditional use of funerary species in formal planting arrangements; the importance of commemorating the family in the local area by the erection of the obelisk; and for 100 years of continued family use demonstrated by the varying styles of headstones. It is very evocative of the nineteenth century due to its historic elements, is visually dramatic due to its location and surrounding conifer plantings and is a local landmark feature The obelisk is important for its association with Dr Andrew Faithfull Gibson, the pioneer settler of the region. - State Heritage Inventory listing (Source: HMS - ViewItem).

6.3.4. Site survey

No items suspected of having historic heritage value were identified during the Aboriginal heritage survey program.

6.3.5. Potential impacts

Impacts to historic heritage can be direct, such as damage caused by impact or vibration, as well as indirect, such as a reduction of the visual amenity of the site or its surroundings. The Development Footprint in the vicinity of these heritage places and Braidwood Road is to be used as an alternate and emergency access to the project site only. At this stage there is no intention to conduct significant road or intersection upgrades and therefore there is negligible potential for the project to impact on the heritage buildings or curtilage as listed.

The curtilage of the Tirranna homestead complex abuts the Braidwood Road access point to the Project area but does not overlap with the Development Footprint. The buildings and the cemetery places comprising part of the listing are situated approximately 1km from the emergency access intersection and therefore direct impacts from any construction activities are not expected to occur.

The listed curtilage for the Pelican Homestead overlaps with the Development Footprint at the intersection with Braidwood Road and the Pelican Sheep Station driveway access. However, the Pelican Inn is situated about 30m from the western edge of Braidwood Road and about 100m south of the designated Development Footprint boundary. Therefore, it is not expected that there would be any direct impacts to the Pelican Homestead/Inn or the Shearing Shed, despite Figure 6-12 indicating that the Development Footprint would overlap with part of the Pelican Homestead's mapped curtilage. It is likely that mapped cadastral boundaries in this area are incorrect, and confirmation of this was sought and received from Goulburn-Mulwaree Council on 7 January 2025 (Executive Assistant – Planning & Environment, email correspondence), who indicated:

> *" In relation to the lot boundary enquiry for Lot 1 DP 807719 and Lot 2 DP 1140024, Council records indicate there is an established right of carriageway easement to the north of Lot 1 to facilitate access into Lot 2. This is registered on the Deposited Plan and Title Search for Lot 1 DP 807719. In relation to the cadastral boundary alignment between the two properties, there are often discrepancies between the paper version and the cadastral boundary on mapping systems."*

It is likely that the actual property boundary, and subsequently the heritage item's curtilage are more accurately represented by Figure 6-13. Confirmation will be obtained during the detailed design phase of the Project when a qualified land surveyor will be engaged to verify lot boundaries. This is included as a Project commitment.

Given the location of the features within the relevant listings and their distance from areas of possible ground disturbing works associated with the Project, and that there will be no change of use for the existing transport corridors nearby, no direct impacts as a consequence of the Project are anticipated.

Figure 6-13 Pelican Homestead cadastral discrepancy

Indirect impacts on heritage items may occur where there are impacts on the broader heritage values of the sites. In this case, both sites are linked to visual elements and Pelican homestead notes tourism values specifically.

The construction program would include higher volumes of traffic (and associated noise and dust) which may affect visual amenity; however, these impacts would be low, and temporary in nature. In operation, the sites would not have direct views of the solar farm infrastructure arrays and traffic volumes would be low to negligible, as the access point would be used as emergency access only. No impacts to the accessibility of these two sites would occur.

The locale also includes existing transport corridors and transmission line infrastructure and One Raceway (previously Wakefield Park) immediately to the south of the Pelican Inn. As such the impacts related to the construction and operation of the proposed Solar Farm are considered both temporary (i.e., during construction) and of a low level. The Project in its current form is unlikely to affect the heritage values of either site.

6.3.6. Key uncertainties

Impact to known historic heritage places is considered a very low risk for the proposal based on historical studies and site survey and the Development Footprint. However, to address the risk that unrecorded sites of value occur within the Development Footprint, mitigation measures centre on developing and implementing an 'unexpected finds' protocol and verifying accurate Development Footprint boundaries, in relation to the Pelican homestead curtilage.

6.3.7. Safeguards and mitigation measures

With the implementation of these and the following measures in Table 6-8, which form commitments of the Project, the potential impacts to historic heritage are considered manageable.

Table 6-8 Historic heritage mitigation measures

ID	Mitigation measures	Project stage
H1	If potential archaeological relics are encountered during the proposed works, activity in the immediate area of the find should cease and the unexpected finds protocol detailed in the Cultural Heritage Management Plan (CHMP) would be followed. Depending on the nature of the discovery, additional assessment and excavation permit may be required prior to the recommencement of construction in the affected area. The Heritage Council would be notified in writing in accordance with Section 146 of the NSW *Heritage Act 1977* if it was confirmed that relics had been identified.	Construction, operation and decommissioning
H2	Verify no impacts on Pelican Homestead (Inn) and Shearing Shed curtilage, with reference to accurate site surveying of any possible road intersection works.	Design stage.

6.4. Land compatibility

6.4.1. Approach

The assessment of the Project's compatibility with the existing and adjacent land uses takes in a number of specialist areas, as it must consider not only what the land is currently used for, but what it is capable of supporting in the future and what other developments may interact with it in the future.

Under the Solar Guideline, Level 2 assessment is required where solar energy projects are proposed on moderate capability land, being land verified as Land and Soil Capability (LSC) Class 4. Broad-scale LSC mapping (NSW Government 2023) shows that the Project area is mapped predominantly as LSC Class 4, with the exception of land along Saltpetre Creek and its tributaries which is mapped as LSC Class 5 (Premise 2023). As such a Level 2 Agricultural Impact Assessment (appended in full, Appendix F.3) was completed by Aspireagri. It is informed by a Soil and Land Classification Verification (RCC 2025; appended in full, Appendix F.4) which documents the soil survey program, including biophysical parameters such as soil type, slope, landform position, acidity, salinity, drainage issues and soil depth and rockiness.

The Agricultural Impact Assessment also includes a Use Conflict Risk Assessment (LUCRA) in accordance with the Department of Industry's Land Use Conflict Risk Assessment Guide (DPI, 2011). This risk matrix aims to:

- Identify and address potential land use conflict issues before a new land use is implemented
- Objectively assess the effects of a proposed new land use on neighbouring land uses
- Inform and compliment development control and buffer requirements
- Provide suggested mitigation actions to reduce land use conflicts.

Detailed methods and limitations of the Agricultural Impact Assessment and Soil and Land Classification Verification are set out in each specialist report. It is noted that the Agricultural Impact Assessment uses an operational Project life of 35 years to estimate economic impacts; this is standard time frame and justified on the basis that the approval sought will be considered indefinite. This section also draws of broader research into other land uses, in addition to agriculture. This chapter provides a high-level summary of the findings and is structured as follows:

- Existing environment
  - Land use overview
  - Soil verification and results
- Potential impacts on current and potential future land uses
  - Agricultural productivity
  - Residential development
  - Transport (including aviation)
  - Mining
- LUCRA
- Safeguards and mitigation measures

6.4.2. Existing environment

Land use overview

This overview summarises key characteristics of the Project area and surrounds, including zoning, agricultural resources and threats as well as other land uses.

The Project area includes seven private landowners, as well as GMC road easements. The freehold land is zoned RU1 Primary Production. Refer to local land zone mapping, Figure 4-1.

The Goulburn region supports a wide range of business and unlike much of regional NSW, agriculture is not the predominant business when looking at the numbers of business by type. ABS (2025a) estimated that there were 151 businesses engaged in 'agriculture, forestry and fishing' in 2023, representing 8.7% of total businesses numbers. 'Construction' was the largest business category representing 21.1% of business, followed by 'rental, hire and real estate' with 9.0% and 'professional, scientific and technical services' with 8.9%. Businesses which service agriculture including 'wholesale trade' and 'retail trade' represent 2.3% and 7.9% of total business, respectively.

Considering land use by area (rather than business number), the Project area is predominantly utilised through grazing of modified (non-native) pastures, with small regions of native pasture grazing (NSW Government, 2025) with beef cattle and sheep meat production. Some paddocks that are used regularly for winter crop production. There is no land used for the purpose of irrigation in the vicinity of the Project area. Smaller residential lots are also indicated. Refer to local land use mapping, Figure 6-14.

Within the Project area, water sources for livestock are earth dams that collect surface water run-off and bores that are equipped with pumps to access ground water. Approximately 38 dams have been identified in the Project area based on satellite imagery. No known commercial irrigation land or water sources occur within the Project area.

Private agricultural infrastructure within the Project area relevant to the AIA includes:

- fencing for livestock (boundary and internal)
- livestock yards and loading ramps for handling and transport of sheep and cattle
- shearing sheds for sheep
- storage sheds for farm plant and equipment
- grain storage silos
- bores for pumping ground water for livestock and domestic use
- earth dams and banks for surface water runoff collection and soil erosion control
- access roads and tracks.

Consultation with involved landowners in the Project area was conducted 18 December 2024 with matters raised in relation to the current environment including:

- General decline in pasture carrying capacity due to invasion of pastures with grass weeds, especially African lovegrass (*Eragrostis curvula*)
- Spread of blackberry (*Rubus fruticosus*) in planted tree lines.

South East LLS staff advised that, grass weeds, serrated tussock (*Nassella trichotoma*), Chilean needle grass (*Nassella neesiana*) and African lovegrass (*Eragrostis curvula*), present significant potential problems within the Project area and surrounding lands (both public and private). Of the recent arrivals of plant pests and diseases reported by NSW DPIRD (2024b), none are likely to present significant threats within the Project area given current and foreseeable agricultural land use and enterprises. Considering pest animals, deer, feral pigs, wild dogs, feral goats and feral horses, present significant current and future biosecurity issues within the Project area and immediate surrounds. This was confirmed by consultation with SE LLS biosecurity staff from the Goulburn office. Relevant animal diseases include Footrot, Ovine Johne's disease and Lice.

A search of the NSW Planning Portal Spatial Viewer on the 7 March 2025 shows that there is no Crown Land within or adjacent to the Subject Site. Similarly, there is no provision for travelling stock routes in the vicinity of the site.

There are no mines or quarries within the Subject Site. However, there is an active mineral exploration license (EL9704) that overlaps with parts of the Subject Site in the western access corridor and the southern edge of the site. This license is held by Tarago Exploration Pty Ltd. A response noting the contact for further correspondence was received from the license holder in August 2025.

Future climate is relevant to projecting impacts on agricultural land use. Modelling by CSIRO and BoM enables climate projections for 2030s, 2050s and 2070s to be explored, providing Australian farmers with tailored insights into their changing climate tailored to key commodities. Climate projections for 2050s with specific insights for sheep and wheat production in the Goulburn area show:

- For **sheep** at Goulburn, there is likely to be increased heat risk exposure and resultant reduction in fertility but reduced risk of cold exposure with lambing.
- For **wheat** at Goulburn, there is likely to be reduced risk of frost at flowering and minimal change in risk of heat damage during flowering and grain fill (CSIRO and BoM 2024).

These future climate projections have been considered when assessing the likely impacts of the Project on agriculture.

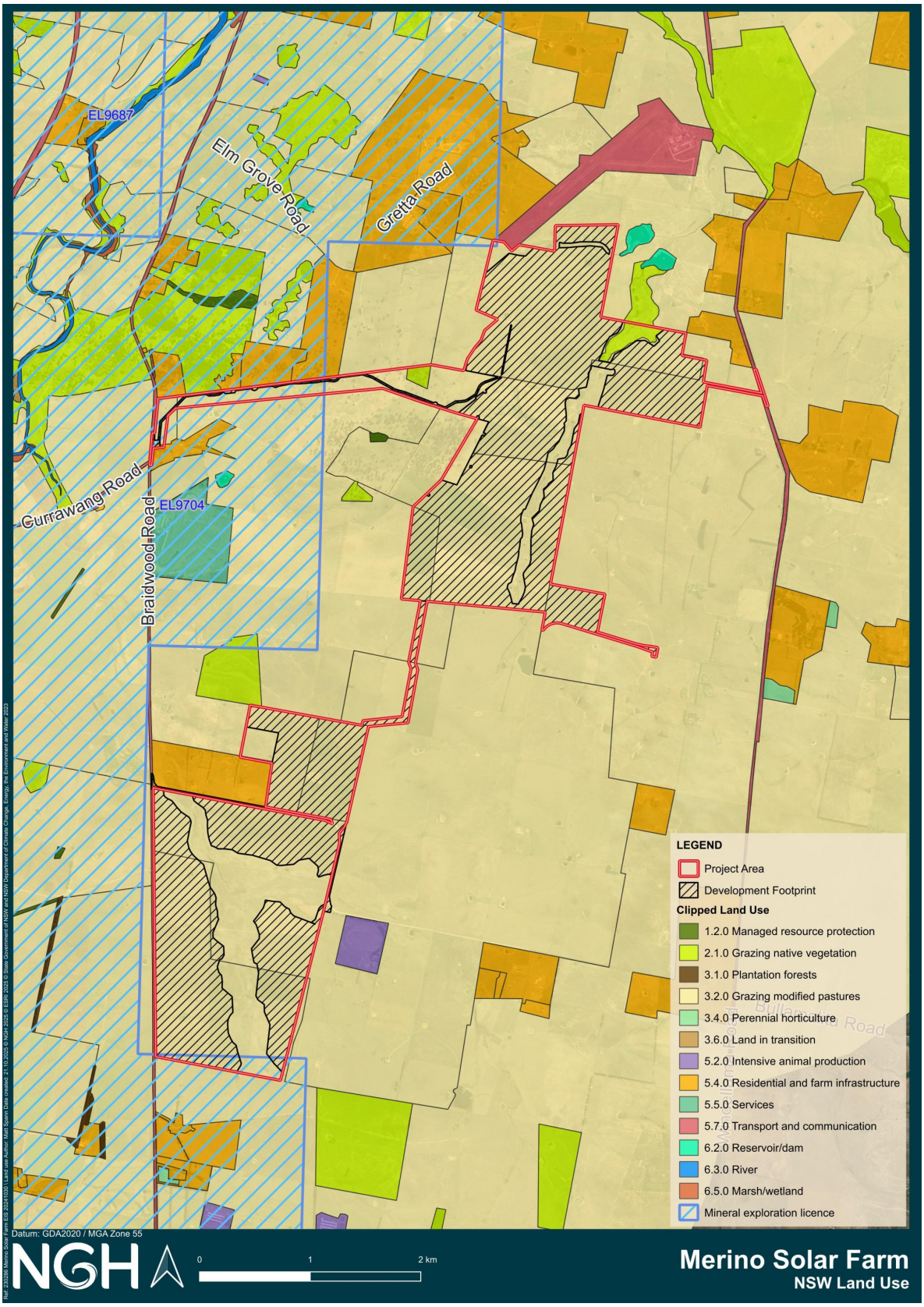


Figure 6-14 Local land use mapping (source: SEED)

Soils verification process and results

Statewide mapping

Desktop analysis identifies:

- There are three soil landscapes described in the Goulburn map sheet that occur within the Project area:
  - Blakney Creek Soil Landscape
  - Collector Creek Soil Landscape
  - Gundary Soil Landscape.
- The Project area is underlain predominantly by Kurosols and Sodosols, as per the Australian Soil Classification (Isbell, 2021).
- Inherent soil fertility is mapped across NSW on a scale of 1 (low) to 5 (high). Soils with a lower inherent fertility can only support limited plant growth and require larger inputs of fertiliser. The Development Footprint of the project is mapped as containing soils with moderately low (2) inherent soil fertility.
- Land and Soil Classification (LSC; the inherent physical capacity of the land to sustain a range of land uses and management practices without leading to the degradation of soil, land and water resources) is mapped as containing LSC Classes 4 (moderate capability land) and 5 (moderate-low capability land).

Database searches also showed no results for salinity, acid sulfate soil risk, biophysical strategic agricultural land (BSAL) or state significant agricultural land (SSAL) across the Subject Site and surrounding region.

Verification process

In accordance with Solar Guidelines (DPHI 2024a), Level 2 AIA assessment, verification of the LSC Classes of land within the Project area ('LSC verification') has been completed under a separate, but related specialist study. This LSC verification was conducted for the Project area by Rick Colless and John Lawrie (RCC 2025).

RCC (2025) advise that the broadscale LSC mapping was undertaken with the slope of the land being the primary parameter to determine LSC class. Slope was assessed using aerial photo interpretation with a stereoscope and manually mapped onto a 1:100,000 map sheet. While there was a program of ground truthing with the broadscale LSC mapping, this was not comprehensive.

As part of the LSC verification process, RCC (2025) assessed an array of biophysical parameters including soil type, slope, landform position, acidity, salinity, drainage issues and soil depth and rockiness. This has resulted in updated LSC classification for some lands in the Project area.

The process applied by RCC (2025) has enabled the minimum map unit to be reduced to 10ha in the outputs of the LSC verification, down from 100ha in the broadscale mapping (DPIE 2021c). This enables the revised LSC classification to be interpreted at the scale of individual properties and the overall Project.

Table 6-9 shows a comparison of areas of LSC classes from broadscale mapping (DPIE 2021c) and LSC verification conducted for the Project (RCC 2025). There is a difference in the total areas between the two datasets, as the RCC (2025) LSC GIS layer does not cover the entire Project area. The LSC verification (RCC 2025) shows that compared to the broadscale mapping (DPIE 2021c):

- There are no Class 4 lands within the Project area, whereas the broadscale mapping suggested that there was a significant area of Class 4 lands (83% of Project area)
- An increased area of Class 5 lands; and
- A significant area of Class 6 land (27% of Project area), whereas broadscale did not show any Class 6 land.

The majority of the LSC Class 6 lands identified by RCC (2025) aligns with the Collector Creek Soil Landscape (SL). These areas have been reclassified as Class 6 due to the risk of poor drainage, high flood hazard, high erodibility including tunnel erosion, susceptibility to soil salinity and structural decline. Based on property inspections conducted as part of the AIA, the majority of these lands are currently used for grazing on a mixture of improved and naturalised pastures. The exception is where this Class 6 land extends into small portions of paddocks used regularly for crop production in rotation with improved pastures in the northern position of the Project area.

Table 6-9 Comparison between statewide mapping and ground verified LSC classification

LSC Class	Statewide mapping (DPIE 2021c)	LSC verification (RCC 2025)	Variance
	Area (ha)	Area (ha)	Area (ha)
1 - Extremely high capability			
2 - very high capability			
3 - high capability			
4 - Moderate capability	806.72	0.00	-806.72
5 - Moderate–low capability	179.18	717.37	538.19
6 - Low capability	0.03	31.81	31.78
Total	**985.93**	**749.18**	

Applying the outputs of the LSC verification (RCC 2025), Table 6-10 shows a summary of LSC classification in the Project area.

Note: there is a difference in the total areas (Project area and Development Footprint), as the RCC (2025) LSC GIS layer does not cover the entire Project area.

Table 6-10 Summary of verified LSC classification in the Project area

LSC Class (based on RCC 2025)	Project area		Development footprint	
	Area		Area	
	(ha)	(% total)	(ha)	(% total)
1 - Extremely high capability	0.00	0.00%	0.00	0.00%
2 - very high capability	0.00	0.00%	0.00	0.00%
3 - high capability	0.00	0.00%	0.00	0.00%
4 - Moderate capability	0.00	0.00%	0.00	0.00%
5 - Moderate–low capability	788.93	82.11%	717.37	95.75%
6 - Low capability	171.87	17.89%	31.81	4.25%
Total	**960.80**	**100.00%**	**749.18**	**100.00%**

The soil surveys also identify several potentially significant soil-landscape factors that need to be addressed in planning, construction, operation and decommissioning of the Project. These include erosion hazard, soil structural decline, soil acidification, water logging and dryland salinity.

The verified LSC and soil survey locations are show in Figure 6-15.

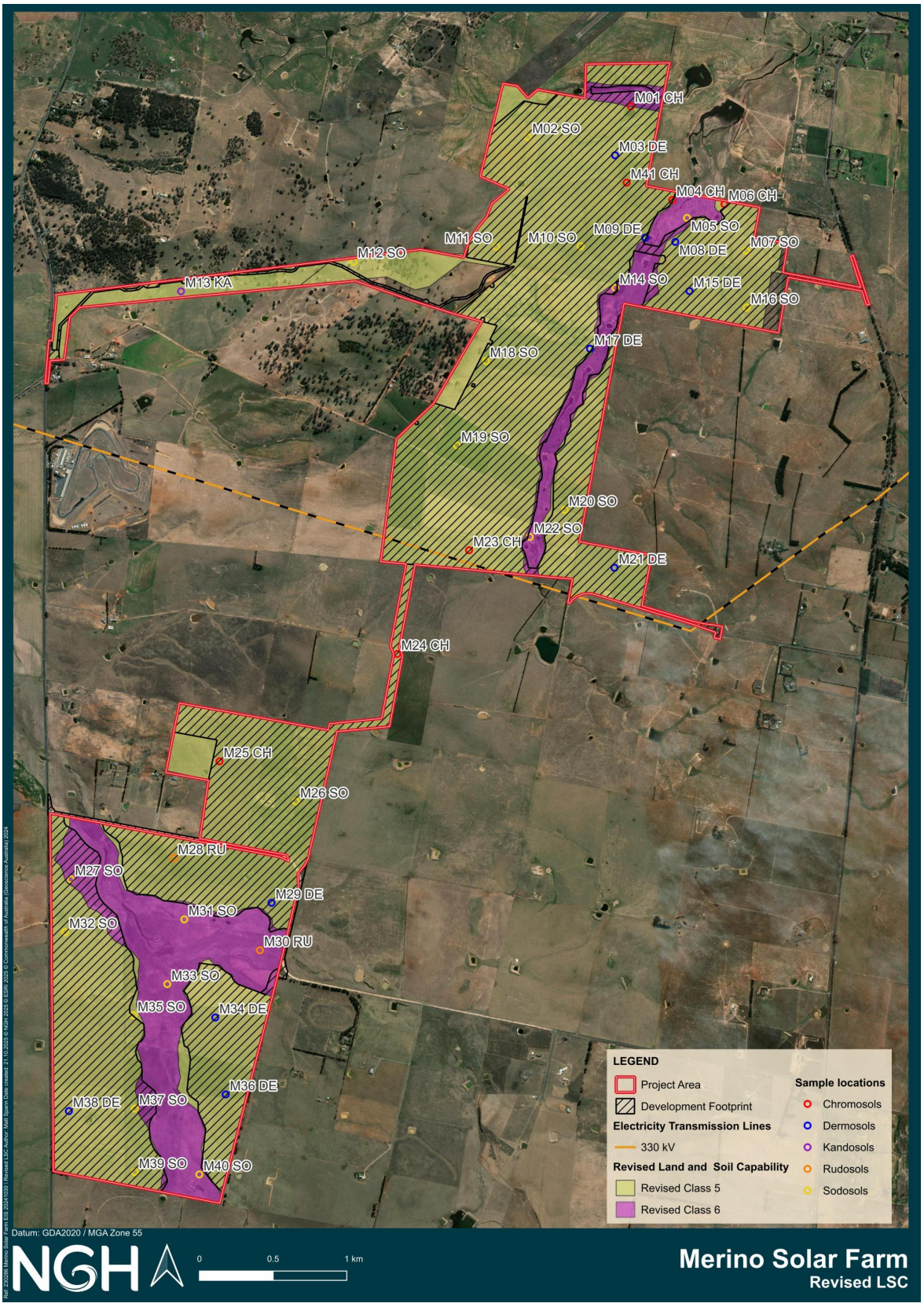


Figure 6-15 Verified LSC class and soil survey locations

6.4.3. Potential impacts on current and potential future land uses

The following land uses are currently relevant to the Project area and surrounding and are discussed further below, where relevant.

Table 6-11 Current and future land use summary table

	Project area	Surrounding areas
Agricultural productivity	Yes	Yes
Residential development	Yes	Yes
Transport (including road, rail and airports)	No	Yes
Crown land / traveling stock routes	No	Yes
Mining, quarries, mineral or petroleum rights	Yes	Yes

Agricultural productivity

Current productivity

The current estimated agricultural productivity of the Project area is based on details of current land use and management derived from consultations with involved landowners and property inspections (18 December 2024). Enterprise gross margins used in the analysis are based on a gross margin budget series that have been developed and maintained continuously by ASPIRE agri since 1992. The gross margin series comprises common broadacre livestock (sheep and cattle) and crop enterprises applicable to the region in which the Project area is located. The enterprise gross margins comprise the gross income for an enterprise less the direct (or variable) costs incurred in producing the enterprise income. They are a commonly used tool for analysing farm enterprises[9]. Gross margins do not include fixed or overhead costs such as depreciation, insurance, finance costs, rates (council and LLS), or management labour.

Within the ASPIRE agri gross margins used in the analysis presented in the AIA:

- Enterprise productivity (stocking rates, livestock growth rates (meat and wool) and crop yields) are based on 'year-in-year-out' estimates. These are derived from a variety of sources of regional data applicable to the Goulburn Mulwaree LGA
- Agricultural commodity (product) prices are based on market values as of December 2024
- Machinery costs are based on contract rates (current market values)
- Other input prices are based on market values applicable for 2024 production.

Summary data from the annual agricultural productivity analysis for the Project area is shown below, with comparison to regional data (Goulburn Mulwaree LGA). This is the data used to analyse the impact of the Project on agricultural productivity spanning all three Project phases (construction, operation and decommissioning).

Table 6-12: Estimated annual agricultural productivity of the Goulburn Mulwaree LGA compared to Project area

[9] Information on gross margins - https://www.dpi.nsw.gov.au/agriculture/budgets/about

Agricultural production 2021	Region (GM LGA) Units	Project Area Units	Project Area % of Region
Area of holding - total area (ha)	9,180	767	8
Dairy cattle - total (no.)	212	-	-
Meat cattle - total (no.)	1,441	176	12
Sheep and lambs - total (no.)	9,833	1,125	11
Broadacre crops - total area (ha)	260	157	61
Agricultural production - total gross value ($m)	**3.10**	0.25	8
Crops - total gross value ($m)	**0.30**	0.11	36
Livestock slaughtered and other disposals - total gross value ($	**1.60**	0.14	9

Construction impacts

Agricultural earnings

When compared to other forms of land development, current common construction techniques for solar farms have relatively low impact on agricultural productivity. For example, in this Project steel piles will support the solar arrays, driven directly into the soil, without the need for concrete foundations. This method of construction makes it relatively straight forward to reinstate the land under solar panels to its original land and soil capability at the end of the operation phase of the Project.

The primary impact of construction on agriculture is expected to be removal of areas from production to accommodate the construction of the Project. This will comprise a mixture of both temporary and long-term removal of land from production and occur over the entire Development Footprint. For this Project, in close consultation with the involved landowners, it is possible that construction phases maybe matched, in whole or part, to the phases of annual farm production cycle to reduce the loss of grazing. This 'matching' of construction and agricultural phases would have significant benefits with vegetation management in the Project area. The impact on agricultural production would be variable between landowners, depending on the area affected as a proportion of whole holding and the type of pasture (improved versus naturalised).

A 'worst case' assessment of impacts on agricultural productivity assumes that the entire Project area is removed from production for the construction phase. That is, the entire Project area of **985.44ha** will be affected. Construction is estimated by Merino Solar Farm Pty Ltd to take about 24 months to complete, with a peak period of 10 months. The reduction of net income over the construction period was estimated as $269,839 per annuum with a total of **$527,774 in 2024 dollars**. *These reductions are before an allowance for fees associated with land access for the Project, payable by the Applicant to the involved landowners.*

There would also be associated economic impacts beyond the farm gate ('off-farm impacts'). Off-farm impacts would be incurred by businesses servicing the involved landowners. These impacts are directly attributable to reduced input purchases (goods and services) and outputs (cattle, sheep, wool and grain) for transport and sale. As the majority of the businesses that support the involved landowners are local businesses, the impacts would occur largely in the Goulburn Mulwaree LGA. During the construction phase, off-farm impacts associated with the Project are estimated at **$0.96 million in 2024 dollars**, being a reduction in the purchase of agricultural goods and services.

While not fully quantified, the above reduction in agricultural expenditure will be offset by expenditure related to the Project during the construction phase. For example, the infrastructure costs to facilitate solar grazing (fencing and livestock water system) is estimated as $72,856 for water pipes, troughs and tanks with the assumption that existing boundary fencing will be retained.

Impacts on agricultural resources: soil and water

Soils and landforms are expected to be subject to only minor disturbance across the majority of the Development Footprint as part of the erection of solar arrays and trenching for electrical cabling. Steel piles will support the solar arrays, driven directly into the soil, with limited effects on the soil surface and profile. While trenching results in significant disturbance of the soil profile, the impacts are generally limited to the width of the trench with implementation of mitigation measures. Earthworks necessary for construction of the BESS, substation and switching substation, site facilities or access tracks, will subject soils to higher impact disturbance.

All soil that will be significantly disturbed during construction should be stripped and re-used during construction and/or rehabilitation to mitigate long term effects on soil resources during operation. Given the limited surface disturbance anticipated over most of the Project area, any soil stripping and re-use is expected to be localised only. This will enable stripped soil to be stored adjacent to the disturbed area and respread on the area from where it was stripped. This localised approach will promote reinstatement of the soil profile to its original condition to the extent possible. A recommended approach to soil stripping is included in the AIA.

The soil constraints documented in the Soil and Land Classification Verification (RCC 2025) present manageable challenges for ground cover management under the existing land uses. While they are also expected to be manageable during the construction phase, the level of risk and challenge is elevated and will require careful planning and implementation of targeted management actions. In the low-lying parts of the Project area, poor internal drainage in a majority of soils, and soil salinity, will present challenges to groundcover management. Detailed recommendations on soil management during construction are also provided within the Soil and Land Classification Verification (RCC 2025).

Recommendations during construction to manage sodic soils include:

- *Disturbed areas* - ground cover be maintained at 70% [where possible], disturbance be minimised and all topsoil to be stripped and stored from disturbed areas for replacement after completion of construction
- *Trenched areas* - removal and stockpiling of topsoil, separate from subsoil, application of limestone/gypsum blend to subsoil prior to backfilling the trench and replacement of topsoil as last layer in backfilling
- An environmental officer be onsite during construction and early operating phase, at least until all disturbed areas have been rehabilitated.

In addition, several areas have been identified as highly sodic and avoidance recommended. They will be avoided (refer to Figure 3-10) unless remediation has been shown to be successful and the proposed impacts would not lead to unacceptable structural damage or pollution risks. This is a mitigation measure and will ensure the Project's final impacts are acceptable to this constraint. This is expected to inform preconstruction remediation works, construction works methods as well as the final infrastructure layout and operational monitoring.

Erosion and sediment controls would be implemented during construction to manage potential impacts to soil and water resources. These controls would be detailed in an Erosion and Sediment Control Plan (ESCP), which would follow the requirements of *Managing Urban Stormwater: Soils & Construction* (Landcom, 2004) and *Managing Urban Stormwater: Soils and construction – Volume 2A* (DECC, 2008). ESCP measures will be fully defined during the detailed design phase, when the Project layout and location of controls can be confirmed.

Water for construction will be primarily sourced existing onsite dams, and then supplemented from commercial suppliers in the GMC area (via road transport) as necessary.

Construction water sources will be determined prior to the commencement of construction in consultation with suppliers and involved landowners. It is not expected that the Project will have any significant interaction with groundwater based on the extent of ground disturbance, depth of post holes for solar arrays

and the features of the existing environment including the depth of ground water bores. It is anticipated that the Project would not have any discernible impact on water resources for adjacent landowners for use in agricultural production.

Biosecurity risks

The Project presents a general risk of introducing and/or spreading biosecurity matter including animal diseases, plant diseases, feral pests and weeds within the Project area and immediate surrounds during construction of the Project. A breach of the 'general biosecurity duty' of this nature is likely to increase costs and/or decrease income on the involved (host) properties and could impact other properties within the Project area and immediate surrounds. Depending on the biosecurity matter, the timeframe of impacts on both costs and income could occur over periods ranging from days to years. Biosecurity matter also has the potential to be spread by soil and water movements associated with construction works. These movements would generally occur over relatively short distances given the nature of the works and the characteristics of the Project area. Notwithstanding the above matters, biosecurity risks can be mitigated to acceptable levels during the construction phase with carefully planning, design and implementation of mitigation measures. Mitigation measures have been developed to address these risks, in Section 6.1.5.

Construction impact summary

It is expected that the construction phase of the Project will have a limited impact on agricultural productivity of the broader region and state of NSW. No significant threats are predicted to critical mass thresholds of agricultural enterprises as needed to attract and maintain investment in agricultural industries, support services and infrastructure. Cumulative impacts with other major projects in the region are considered in Section 6.12.

Operational impacts

Reduced production area

The primary impact of operation on agriculture is expected to be the long-term removal of areas from production to accommodate the infrastructure and operation activities for the life of the Project. This will occur over the entire construction footprint. Grazing could continue on other parts of the Development Footprint, such as under the solar panels and transmission line structures. If accommodated in the final Project design, co-existence with sheep grazing enterprises would allow grazing to continue in the solar panel area. It is not expected that cattle grazing would be possible due to the required height of panels and other fragile Project infrastructure to facilitate this use.

Permanent access tracks constructed for the Project are likely to affect soil characteristics to the extent that these locations would require significant rehabilitation to be returned to productive crop and pasture areas. This would greatly reduce agricultural productivity in these locations for the life of the Project, but they comprise only a small percentage of the Project area. As the detailed design of the Project has not yet been undertaken, the scale of the areas affected for access tracks and transmission (including the transmission line to connect the northern and southern sections of the Project area, approximately 2.5km long) cannot be determined but have been estimated.

To address uncertainty regarding the final design and whether livestock grazing would continue within all areas of the Development Footprint, a realistic 'worst case' scenario is used in the assessment. It is assumed that the entire Development Footprint will be removed from production for the operation phase; **767.23ha**.

Impact on agricultural productivity

The reduction of net income over the operational period is estimated as $215,019 per annum with a total of **$5.01 million 2024 dollars**. These reductions are before an allowance for fees associated with land access for the Project (payable by the Applicant to the involved landowners) and solar grazing.

Off-farm impacts would be incurred by businesses currently servicing the involved landowners. These impacts are directly attributable to reduced input purchases (goods and services) and outputs (cattle, sheep,

wool and grain) for transport and sale. As the majority of the businesses that support the involved landowners are local businesses, the impacts would occur largely in the Goulburn Mulwaree LGA. During the operation phase (without solar grazing), off-farm impacts associated with the Project are estimated to total **$9.04 million**, being a reduction in the purchase value of agricultural goods and services.

While not fully quantified, the above reduction in agricultural expenditure is offset by expenditure related to the Project during the operational phase. For example, assuming that slashing under the solar panels is required for vegetation control, the annual cost is estimated as $193,799 (machinery costs and labour), totalling $4.05 million over the 30 years of the operation phase.

With an allowance for solar grazing the impacts on agricultural productivity are as follows:

- Increase of net income over the 35-year operation period is estimated of **$2.47 million** (up by $7.48 million); and
- Off farm impacts, being an increase in the purchase of agricultural goods and services, is estimated as **$4.09 million** (up by $4.94 million).

Impacts on agricultural resources: soil and water

Due to the low disturbance of the soil during the operation phase, impacts on the soil beyond those incurred during the construction phase are likely to be minimal. It is unlikely that any significant direct or indirect impacts on the soil resources will be incurred. Maintenance of ground cover with existing pasture to the extent possible, will reduce the operation impacts, especially on the crests and slopes.

No impact to groundwater resources is expected. No significant adverse impacts on surface water during the operation phase are anticipated, provided that appropriate stormwater retention and treatment measures are in place and rehabilitation of areas disturbed during the construction phase and appropriate groundcover is maintained.

Biosecurity risks

Any activity during operation (such as inspections, maintenance and repairs) that requires access of personnel, vehicles or machinery to or from the solar panel area or transmission line easement poses a degree of potential biosecurity risk to agricultural operations in the vicinity of the Project. The level of the risk will vary depending on the activity, timing in relation to agricultural production cycle and the proximity of the activity to land used for agricultural enterprises.

A detailed plan for vegetation management and weed control is recommended in addition to a ground cover management plan. Within these plans, a diverse array of strategies are recommended, avoiding an over reliance on any one measure due to the likelihood of plants developing resistance or tolerance to control measures. The development of accelerated herbicide resistance within the Project area is highly likely if herbicides are used as the primary means of weed control.

The risks can be mitigated to acceptable levels during the operation phase with carefully planning, design and implementation of mitigation measures. Biosecurity mitigation measures have been developed to address these risks, in Section 6.1.5.

Agri-voltaics

International research has shown that solar grazing can be undertaken with little loss of production compared to open grazing, provided that the Project design and construction specifically accommodates grazing.

Data on solar grazing in Australia is very limited, and its outcomes are uncertain. Further scientific research is required to quantify the impact of solar grazing on the productivity of sheep in a range of Australian production environments. It is acknowledged that anecdotal evidence suggests that the productivity of sheep with solar grazing may exceed that of non-solar grazing in some areas. However, it is considered that the most likely outcome is that productivity is at best equivalent to slightly below that of open grazing (normal practices for grazing pastures).

Based on the limited, largely anecdotal experiences in comparable production environments, as the 'worst case', solar grazing in the Project area is likely to be undertaken with minimal loss of production compared to open grazing, provided that the Project design and construction specifically accommodates grazing with sheep.

Based on lessons from other solar projects in NSW, measures to facilitate solar grazing with sheep on the Project area have been included in the AIA to improve the success of this venture, if it is pursued.

Impacts on horticulture / cropping

On a more local level, while horticulture / cropping was not observed on a permanent basis in areas adjoining the Development Footprint, it is best practice that specific to horticultural and cropping operations, a 30m setback be included in the solar farm layout to mitigate any potential heat island effect (*Large-Scale Solar Energy Guideline* (DPHI, 2022)).

Solar arrays affect air and soil temperatures, primarily this is expected to be restricted to the solar array perimeter. While it is considered that any offsite temperature increase would be marginal, the Applicant proposes to incorporate a 30m set back from panels, where horticulture / cropping activities are demonstrated to be present prior to Project approval.

Relevant boundaries at this time include two sections, as shown in Figure 6-16, along the Project perimeter totalling approximately 2km and located:

- Northern Project portion: north-east boundary
- Northern Project portion: south-west boundary

It is noted that the setback applies to solar panels only; fencing, access and construction areas are not included.

Operational impact summary

Overall, it is expected that the operation phase of the Project will have a limited impact on agricultural productivity of the broader region and state of NSW. No significant impact to critical mass thresholds of agricultural enterprises as needed to attract and maintain investment in agricultural industries, support services and infrastructure are predicted.

It is not expected that predicted changes to the local climate by 2050 will have a significant effect on the outcomes of above assessment. Cumulative impacts with other major projects in the region are considered in Section 6.12.

Figure 6-16 Horticultural setbacks being considered

Residential development

Goulburn is also a 'regional city' for the purposes of the State Environmental Planning Policy (Transport and Infrastructure) 2021; Clause 2.42 requires that solar projects within 10km of the site demonstrate they are located to avoid significant conflict with existing or approved residential or commercial uses of the land surrounding the development. They must demonstrate they do not have a significantly adverse impact on the regional city's capacity for growth, or scenic quality and landscape character.

Furthermore, the Solar Guidelines (DPHI 2024a), require the applicant consider whether the proposed development would impact the right for neighbouring landholders to develop their land for the purposes of any of the following permitted land uses:

- Residential accommodation
- Tourist and visitor accommodation
- Eco-tourist facility.

Land in the vicinity of the Project area is primarily zoned RU1 Primary Production, with other areas to the north and north east zoned RU6 Transition. Goulburn Airport immediately north of the site is zoned SP2 Infrastructure. The Project is well south of areas of residential expansion areas shown in local planning instruments (refer to Figure 2-2 and further discussion of the policy context, Section 2.2.3).

There are 182 non-associated residential receivers identified within a 4km radius of the site. There are also six associated receivers. Visual impacts have been assessed as low for all non-associated receivers that required detailed assessment. Public view points have similarly been assessed as having a low visual impact due to the Project. The Project's impact on scenic quality and landscape character is localised and not considered significant. Noise impacts, similarly, show compliance with construction, operation, vibration and road noise criteria. As such, no significant impact on the amenity of the locality is anticipated, such that residential (including tourist and visitor accommodation) development would be precluded. It is noted that the lifestyle and amenity values for nearby rural residents are valued highly, as evidenced in consultation activities. As such the Project layout has sought to achieve these low-level impacts as part of the site selection and preliminary layout planning.

The key impact on nearby residential development during the construction phase will be from the construction traffic program on the local road network and noise generated during construction. The traffic impacts have been minimised by rationalising the haulage routes and access points, refer to Section 6.7.

Transport corridors, including rail and airports

The Goulburn-Mulwaree Local Strategic Planning Statement (August 2020) intends to ensure planning decisions protect essential infrastructure assets, including freight corridors, from encroachment of more sensitive or unsuitable land uses. (Planning Principle 1).

Road and rail

The Project is located 8.6kms from the Hume Highway, which connects the region with Sydney, Melbourne and Canberra. The Main Southern Railway line also passes through Goulburn, crossing to south of the Hume Highway, where the Goulburn-Bombala Railway line splits off and passes within approximately 2.3km west of the Project area.

The Project haulage route will be primarily from Port of Newcastle. Oversize/overmass (OSOM) vehicles may travel from the Port of Melbourne or the Port of Newcastle for the delivery of larger components including the transformer.

Construction and operational impacts have been addressed by the Traffic Impact Assessment, summarised in Section 6.7, and are not duplicated here. The mitigation measures in included in Section 6.7.4, verify the road network is safe to accommodate the Project's requirements and will be maintained in good condition.

Airport

Early consultation with the Council raised potential for interaction between the solar farm and Goulburn Airport. The Goulburn Airport is privately-owned and located on the Project's immediate north. The airport has a paved runway and secondary grass runway and services many different aircraft types; it does not accept larger commercial flights from Sydney or Canberra. It is limited to flight training, skydiving and private flights. Community concerns, particularly from near neighbours, were also raised that the presence of the solar farm may influence the emergency decisions of pilots, who may veer toward surrounding properties to avoid potential collision with solar farm infrastructure.

The Civil Aviation Safety Authority (CASA) generally advise that large scale solar farms are very unlikely to be a hazard to aircraft operations unless they are very close to, and aligned with, an airport's approach or take off paths (within 2 nautical miles). The airport is on the Project's northern boundary, planes would approach and take off in close proximity, but flight paths are not aligned with the solar farm. Advice received specific to this Project on 8 August 2025 from CASA was that while the location is near Goulburn Aerodrome, that a solar installation at that distance is unlikely to pose a hazard to aircraft operations and that if the Goulburn Airport operator has concerns about glare, they should request a solar glare analysis. CASA stated they cannot comment on the project as part of the EIS process as there is no restriction to glare levels prescribed in legislation, but they generally apply the Federal Aviation Administration Policy (FAA) guidelines for the assessment of such installations. These guidelines apply in circumstances when reflected solar glare may affect aircraft operations.

A glare analysis has been undertaken with respect to the flight paths; glint and glare have been examined in Section 6.5 of this EIS. Using this information, an aviation report has been undertaken to estimates the policy adherence of the glare analysis according to the 2021 U.S. Federal Aviation Administration Policy. This aviation report shows the project as 'PASS'. There is no Air Traffic Control Tower at this airport, so the result for the Air Traffic Control Tower is N/A. The Applicant has forwarded the glare analysis to the operator (7 August 2025).

Consultation with the airport owner has been ongoing since the Scoping stage. Some northern areas of the Project area were removed early on to allow for airport redevelopment works. It is possible a 1km extension to the runway will be developed in future, increasing the distance between planes and the solar farm. In consultation with the airport operator, the Applicant was told that it would be unlikely planes would veer to the right as they took off; they must maintain a flight path straight down the runway until they reach a height of 500ft. They would be well clear of the solar panel by the time they reach that height. If the 1km extension of the runway is approved, there would be even more distance between planes and the panels. It is noted that the aerodrome operator must report all Obstacle Limitation Surfaces (OLS) penetrations (permanent and temporary) to CASA for a hazard assessment.

Mineral exploration

A single mining exploration licence applies to the site, being EL9048, held by Aurum Metals Pty Ltd. This title is no longer active. The site is now the boundary of the EL9704 held by Tarago Exploration Pty Ltd (refer to Figure 6-14). This title was granted on 30 September 2024 and expires on 30 September 2027. It is noted that the site is on the eastern edge of the EL and therefore on the limit of any future anticipated mining area.

Engagement attempts to reach Tarago Exploration Pty Ltd have occurred to seek comment about the project however a response has not been received. A response noting the contact for further correspondence was received from the license holder in August 2025.

The solar farm would essentially sterilise exploration and mining activities for the operational life of the Project. In decommissioning, the vast majority of the Development Footprint would be returned to agriculture or other appropriate land use, including potential for exploration and mining activities. The exception to this is the areas proposed for formal subdivision to delineate areas for Transgrid assets within the substation area of

approximately 32 ha. In consideration of the benefits of the Project and likelihood for mining in these areas, the impacts to this activity in the region are considered non-significant.

6.4.4. Land Use Conflict Risk Assessment

Land Use Conflict Risk Assessment (LUCRA) enables a quantified site-specific conflict assessment approach to land use planning and development assessment. A LUCRA in accordance with the DPI *Land Use Conflict Risk Assessment Guide* (DPI, 2011) was undertaken to consider the impacts above and rank their compatibility with existing or planned land uses. The LUCRA assessment is primarily used to consider impacts on agriculture but can be expanded to consider compatibility with other nearby land uses (such as residential use, transport, etc).

The assessment aims to identify and rank potential land use conflicts to ensure they are adequately managed. Where expected conflicts are adequately managed, the rights of the existing and proposed land uses can be protected. The conflict risk ratings matrix produces a traffic light risk level from 1 (rare probability and negligible impact = green) to 25 (almost certain probability and severe impact = red) as indicated by Table 6-13.

The summary LUCRA table is provided in Table 6-14 and demonstrates that the risks, with mitigation measures considered, are predominantly low level. Highest mitigated risks are associated with biosecurity (spread of weeds) and potential for fires to spread and affect surrounding properties. The latter is addressed in more detail in Section 6.9.2. All conflicts are considered able to be managed with high confidence.

Table 6-13 Quantitative LUCRA risk rating matrix.

Traffic light matrix; high (red), moderate (orange), low risk (green)

Consequence	**Probability**				
	A Almost certain	B Likely	C Possible	D Unlikely	E Rare
1 Severe	25	24	22	19	15
2 Major	23	21	18	14	10
3 Moderate	20	17	13	9	6
4 Minor	16	12	8	5	3
5 Negligible	11	7	4	2	1

Table 6-14 Summary of LUCRA

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
Construction								
Landholders (both involved and non-involved) concerned with **traffic on local roadways** within and surrounding the Project area; congestion, travel times, ability to move machinery and livestock and damage to roads.	B	3	17	Assessment of potential traffic risks, impacts and mitigation measures will be included in the EIS. Development and implementation of a Traffic Management Plan (TMP) and a Road Dilapidation Report (RDR) as part of TMP. Liaison with GMC and Transport NSW regarding maintenance requirements of roads. Ongoing consultation with stakeholders.	D	4	5	Monitoring and reporting of traffic to stakeholders. Any complaints/incidents are investigated, and rectification measures implemented for future activities.
Landholders (both involved and non-involved) concerned with **biosecurity issues (introduction and/or spread of pests, weeds and diseases)** arising from the Project area and construction activities	A	3	20	Development and implementation of detailed, site specific biosecurity management actions under the Biodiversity Management Plan (BMP) and Pest and Weed Management Plan (as sub plan to BMP). Biosecurity plan to categorises risks for priority for response and specify response actions and time by category.	D	3	9	Monitoring and reporting of biosecurity measures and incidents to stakeholders. Response to incidents within specified timeframes within biosecurity plan.
Landholders (both involved and non-involved) concerned with perceived negative **water quality and quantity (surface and ground water) impacts** arising from the Project area and	D	2	14	Assessment of potential water risks, impacts and mitigation measures will be included in the EIS. Development and implementation of water management plans as component of the Project Environmental Management Strategy (EMS).	D	4	5	No impacts on ground water. No significant impacts on surface water quantity or quality. Monitoring and reporting of water quantity and quality to stakeholders – nil

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
construction activities.				Compliance with the mitigation measures is likely to reduce the risks, so unlikely that any significant impact would occur on water quality and quantity. Development of a water sourcing plan for construction use.				exceedance of targets.
Landholders (both involved and non-involved) concerned with **dust** generated from construction; impacts on human health, livestock, pastures and crops.	D	3	9	Assessment of potential dust risks, impacts and mitigation measures will be included in the EIS. A key component of mitigation will be the use of dust suppression measures (e.g. watering). Compliance with the mitigation measures is likely to reduce the risks, so unlikely that any significant impact would occur on air quality.	E	5	1	Monitoring and reporting of air quality to stakeholders.
Landholders (both involved and non-involved) concerned with **disturbance of livestock** from construction noise and machinery movements.	D	3	9	Highest risk is with horses, followed by cattle and lowest risk is with sheep. It is likely that significant numbers of horses and cattle are/will be present on non-involved landholdings surrounding the Project area. Therefore, horses and cattle should be the focus of planning, mitigation measures and communications/stakeholder engagement. Assessment of potential noise risks, impacts and mitigation strategies will be undertaken via a Noise Impacts Assessment. This will support the development and implementation of a Noise Management Plan (NMP).	D	5	2	Communication with landowners should prevent incidents. Nil complaints/incidents. Any complaints/incidents are investigated, and rectification measures implement for future activities. Monitoring and reporting of noise to stakeholders – nil exceedance of targets.

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
				Communication with landholders to enable livestock to be moved if operations could possibly disturb livestock. Compliance with the mitigation measures is likely to reduce the risk along with ongoing consultation with landholders.				
Landholders (both involved and non-involved) and general community concerned with **fire risk and fire fighting** on the Project area.	C	1	22	Assessment of potential bushfire risks, impacts and mitigation measures will be included in the EIS. A detailed Fire Safety Study (FSS) and Emergency Plan (EP) will be completed for the Project. The EP includes a Bushfire Management Plan. A Bushfire Emergency Management of Operations Plan (BFEMOP) will be prepared as part of the EMS. The BFEMOP details the management of bushfire risk throughout the life of the Project. The FFS, EP and BFEMOP will be prepared in consultation with NSW Fire and Rescue and Rural Fire Service. Work proactively with local Rural Fire Service, with active participation in local brigade and assistance neighbouring landholders in bushfire planning and management. Two critical suggested components of BFEMOP are detailed below. • An APZ, with a minimum width of 10-12m around Project infrastructure is expected to significantly reduce the probability of a fire starting in the Project area spreading to	D	3	9	No fires spreading from the Project area.

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
				surrounding lands. • Project to retain on an ongoing basis, personnel, equipment and water sources for fighting fires on the Project area and surrounding lands.				
Operation								
Landholders (both involved and non-involved) and general community concerned with **fire risk and fire fighting** on the Project area.	C	1	22	See details for fire risk and fire fighting under Construction above in this table.	E	4	3	No fires spreading from the Project area. Fires from adjoining lands do not spread to the Project area.
Landholders (non-involved) concerned with implications of **fire starting on their property entering the Project area**.	C	1	22	See details for fire risk and fire fighting under Construction above in this table.	D	3	9	Fires from adjoining lands do not spread to the Project area.
Landholders (both involved and non-involved) concerned with **biosecurity issues (introduction and/or spread of pests, weeds and diseases)** arising from operations on the Project area.	B	3	17	See details for biosecurity issues under Construction above in this table. Overall, the risks with operation phase are lower than during construction due to the lower disturbance and lower frequency/intensity of activities on Project area and surrounds.	E	4	3	Monitoring and reporting of biosecurity measures and incidents to stakeholders. Response to incidents within specified timeframes within biosecurity plan.

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
Landholders (both involved and non-involved) concerned with potential **development of herbicide resistance in grass weeds** subjected to control in the Project area and spread of resistant weeds to surrounding lands.	A	2	23	Development and implementation of a Pest and Weed Management Plan (as sub plan of BMP). Planning to focus on integrated weed management, including strategies to reduce/delay the onset of herbicide resistance. Monitoring of herbicide resistance.	D	3	9	Weed management is effective, without reliance on herbicides.
Landholders (non-involved) concerned with the perception that **market value of their land will be adversely impacted** due to the construction and operation of the Project.	B	3	17	With appropriate design and implementation of mitigation measures for impacts on agricultural production, Project impacts on land values are likely to reflect predominantly impacts on visual amenity. As such mitigation of impacts on visual amenity will be critical to addressing this issue and are outside the scope of this AIA. These matters will be considered in detail within the EIS. Ongoing consultation with landholders and commitment of Project management to address concerns.	E	3	6	Communication with landholders and addressing all concerns raised.
Landholders (both involved and non-involved) concerned with **reduced opportunities for expansion/development of agricultural enterprises**.	B	3	17	Areas outside the Development Footprint but within the Project area have no ongoing restrictions on land use or management. The Project is not expected to have any significant impact on the ability to establish or operate agricultural enterprises on surrounding land.	E	4	3	Communication with landholders and addressing all concerns raised. Any complaints/incidents are investigated, and rectification measures implemented for future activities.

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
				Compliance with a range of mitigation measures to avoid any notable ongoing impact on agricultural production on adjoining or nearby lands. The Applicant will be responsible for decommissioning, rehabilitation and restoring the Project area to pre-existing land use and LSC Class. This will see the Project area returned to agricultural land use at the end of the Project's operation phase.				
Landholders (both involved and non-involved) concerned with perceived negative **water quality and quantity (surface and ground water)** impacts.	D	2	14	Assessment of potential water risks, impacts and mitigation measures will be included in the EIS. Development and implementation of water management plans as component of the Project Environmental Management Strategy (EMS). Compliance with the mitigation measures is likely to reduce the risks, so unlikely that any significant impact would occur on water quality and quantity. Development of a water sourcing plan for operational use.	D	4	5	No significant impacts on ground water. No significant impacts on surface water quantity or quality. Monitoring and reporting of water quantity and quality to stakeholders – nil exceedance of targets.
Landholders (non-involved) concerned with the perception that **public liability insurance accessibility and costs for their Farm operations will be adversely impacted** due to the construction and operation of the	C	3	13	See details for fire risk and fire fighting under Construction above in this table. Project operations team to provide documentation to landholders (involved and non-involved) to confirm mitigation measures to assist in landholders dealings with their insurers.	D	4	5	No notable impact on accessibility and cost of public liability insurance for landholders (involved and non-involved).

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
Project.				Ongoing communication with landholders (involved and non-involved) on impact of Project on public liability insurance, accessibility and premiums.				
Landholders (both involved and non-involved) concerned with impacts on **agriculture-based tourism and accommodation**.	C	3	13	Assessment of potential water risks, impacts and mitigation measures will be included in the EIS. Ongoing stakeholder consultation and address concerns raised.	E	4	3	Communication with landholders and addressing all concerns raised.
Landholders (non-involved) concerned with implications of **contaminants (dust and crop protection chemicals) emanating from their landholdings** moving onto the Project area and impacting the operations.	C	4	8	Ongoing maintenance of the solar panels and other Project infrastructure that could be impacted by operator. Landholders develop and implement risk mitigation strategies to minimise off-site movement of dust and crop protection chemicals.	D	5	2	No implications for Project operations or performance.
Landholders (both involved and non-involved) concerned with **disturbance of livestock and impacts on humans from noise** generated from power inverter and transformers, array trackers and maintenance activities.	D	3	9	Highest risk is with horses, followed by cattle and lowest risk is with sheep. It is likely that significant numbers of horses and cattle are/will be present on non-involved landholdings surrounding the Project area. Therefore, horses and cattle should be the focus of planning, mitigation measures and communications/stakeholder engagement. Assessment of potential noise risks, impacts and mitigation strategies will be undertaken via a Noise	D	5	2	Monitoring and reporting of noise to stakeholders – nil exceedance of targets.

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
				Impacts Assessment. This will support the development and implementation of a Noise Management Plan (NMP). Communication with landholders to enable livestock to be moved if operations could possibly disturb livestock. Compliance with the mitigation measures is likely to reduce the risk along with ongoing consultation with landholders.				
Landholders (both involved and non-involved) and general community concerned with **impacts of the solar infrastructure on long term productivity of soil and soil biology**, with flow on effects to surrounding landholdings.	C	2	18	Assessment of potential water risks, impacts and mitigation measures are addressed in this AIA and the EIS. The EMS for the Project will support a range of detailed plans that address soils. Compliance with mitigation measures in management plans within EMS is expected to reduce the potential conflicts. Project operator of the Project area will be responsible for decommissioning, rehabilitation and restoring the Project area to pre-existing land use and LSC Class. It is understood that this will see the Project area returned to agricultural land use at the end of the Project's operation phase.	E	3	6	Monitoring and reporting of soil health to stakeholders.
Landholders (non-involved) concerned with their **livestock entering the Project area and**	D	4	5	Livestock proof boundary fence for the Project area installed and maintained. Daily monitoring of the Project area, facilitating	D	5	2	Where livestock incursions occur, livestock owners identified, and fencing is repaired within 12 hours and livestock

Activity and Potential Conflict	Initial Risk Rating (unmitigated)			Risk Reduction Management Strategies (mitigation measures)	Final Risk Rating (mitigated)			Performance Targets
	Probability	Consequence	Rating		Probability	Consequence	Rating	
causing damage to infrastructure.				identification of any livestock incursions. Prompt notifications to livestock owners and safe return of the livestock to owner's landholdings.				safely returned within 24 hours.

6.4.5. Key limitations and uncertainties of the assessment

Detailed design flexibility

It is noted that for utility solar farm developments, the detailed design stage commences only after approval has been granted. It will be informed by further studies and will be subject to commercial tendering and procurement processes to arrive at the final design and construction program. This will ensure the Project is optimised in terms of yield and efficiency, within the parameters of the approval.

To address uncertainty regarding the Project design, the assessment considers a realistic 'worst case' scenario by assessing impacts assuming the entire Development Footprint is impacted for the life of the Project, without allowance for the two types of works within the Project:

- Temporary works (during construction phase only)
- Long term works (for operation phase of the Project).

While the above '*worst case'* approach has been adopted in the preparation of this AIA for assessing impacts, guidance is provided to enable *best practice* with respect to agriculture for all phases of the Project.

Agrivoltaics

Similarly, the implementation of agrivoltaics is not assumed in the assessment of agricultural impacts. Measures to facilitate solar grazing with sheep on the Project area have been included in the AIA to improve the success of this venture. *Best practice* measures are included in the mitigation strategies below to assist this outcome.

Consultation and property inspections

Consultation and property inspections were limited to only involved landholdings and landowners. Neighbouring and adjacent landholdings, not involved in the Project, were viewed to the extent possible from public roadways and property of involved landowners.

Cumulative impacts

Cumulative impacts with other major projects in the region are considered in Section 6.12.

6.4.6. Safeguards and mitigation measures

The assessments above have demonstrated that risks in relation to maintaining soil capability, agricultural productivity and other land uses, including transport, residential development and mining are highly manageable and unlikely to produce significant offsite effects at the local and regional levels.

The management of these risks is largely related to:

- The management of soil and water resources, including vegetation management and management of pests and disease, these are set out below
- The management of fire risks – this is addressed in more detail in Section 6.9 and mitigation strategies are not duplicated here
- The management of amenity for neighbours – this is addressed in more detail the sections below and mitigation strategies are not duplicated here:
    - Section 6.7 Traffic impacts
    - Section 6.5 Visual and landscape impacts
    - Section 6.6 Noise and vibration impacts
    - Section 6.10 Socio economic impacts.

Further detail regarding the development of plans to proactively mitigate impacts to soil, water, land capability and agriculture is included within the specialist AIA and Soil Verification reports (Appendix F.3 and F.4). The full consolidated set of all mitigation measures is provided in Appendix B.

Table 6-15 Land compatibility mitigation measures

ID	Mitigation measures	Project stage
LC 1	A 30m set back from panels to the site boundary would be applied, where horticulture / cropping activities are demonstrated to be present on adjacent land prior to Project approval.	Design
LC 2	The array layout would be designed to allow sufficient space between panels to establish and promote groundcover beneath the panels, allow for implementation of weed controls and ground cover management activities. Specific planning for agrivoltaics, if adopted, would be included, such as row spacing / heights / wiring.	Design
LC 3	An Environmental Management Strategy (EMS) would be developed for the Project. The EMS will provide the framework for all specific management plans required for the Project.	All stages
LC 4	Impacts on the involved landholdings would be addressed by the development and implementation of a detailed Property Management Plan (PMP). The PMP would be central to the agreement between the Applicant and the involved landholder for access to the Project area. It would cover site access and movements (personal, vehicles and machinery), agricultural infrastructure, biosecurity requirements, management of livestock disturbance and fire management. For the decommissioning phase, an updated PMP would be developed. Specific planning for agrivoltaics, if adopted, would be included. This would cover fencing, stock watering and reticulation, pasture management, mustering and shearing requirements.	All stages
LC 5	A Soil and Water Management Plan (SWMP) (with site-specific erosion and sediment control plans) would be prepared, implemented and monitored during the Project, in accordance with the 'Blue Book' (Landcom, 2004) to minimise soil (and water) impacts. Specific guidance is provided in Appendix F.3 & F.4. The following broad principles for management of soil erosion would be utilised: Construction phase • Maintain ground cover at 70% or above wherever possible • Utilise existing landform, avoiding unless necessary, broadscale recontouring of the lands • Where recontouring is necessary, utilise soil and LSC assessments to guide works and erosion control measures • At locations where high disturbance (earthworks) are necessary, such as for internal roads, cable trenching, localised erosion and sediment controls will be placed in accordance with the Landcom (2004) guidelines • Erosion and sediment controls will be kept within the approved Development Footprint • Preservation and stabilisation of drainageways and minimisation	Construction and operation

ID	Mitigation measures	Project stage
	of the extent and duration of any surface disturbance will be prioritised during construction • Revegetate disturbed areas as soon as possible in accordance with Landcom (2004) guidelines • Conduct regular monitoring across the Project area and use results to guide adaptive management. <u>Operation phase</u> • Maintain ground cover at 70% or above where possible • Implement standard erosion and sediment control measures on all disturbed areas • It is expected that the area of disturbance with regular operations will be very low • Significant disturbance is expected only with major maintenance or repair works • Conduct regular monitoring across the Project area and use results to guide adaptive management.	

LC 6	Highly sodic soils would be avoided (refer to Figure 3-10) unless remediation has been shown to be successful and the proposed impacts would not lead to unacceptable structural damage or pollution risks. This may include consideration of construction works methods as well as the final infrastructure layout and operational monitoring.
	For the remediation and management of sodic soils within the development footprint:
	• Disturbed areas:
	  ○ Ground cover be maintained at 70% where possible
	  ○ Disturbance be minimised and all topsoil to be stripped and stored from disturbed areas for replacement after completion of construction
	  ○ Standard temporary erosion and sediment control measures are to be put in place for high disturbance areas.
	  ○ Where sodic soils are subject to high impact disturbance activity, it is recommended to apply limestone/gypsum mix as detailed by RCC (2025)
	  ○ Where potential erosive impacts have been identified due to the disturbance of sodic subsoils in locations of significant disturbance, soil amelioration should be undertaken as part of remediation earthworks
	• Trenched areas:
	  ○ Removal and stockpiling of topsoil, separate from subsoil, application of limestone/gypsum blend to subsoil prior to backfilling the trench and replacement of topsoil as last layer in backfilling
	• An environmental officer be onsite during construction and early operating phase, at least until all disturbed areas have been rehabilitated.
		Design, Construction and Operation

ID	Mitigation measures	Project stage
LC 7	A Groundcover Management Plan would be developed in consultation with an agronomist and to ensure final land use includes perennial grass cover establishment across the site as soon as practicable after construction and maintained throughout the operation phase. The plan would cover: • Soil handling, restoration and preparation requirements • Plant species selection • Soil preparation • Pasture establishment techniques - to be established prior to construction with appropriate soil amelioration and nutrition and weed control requirements having been addressed prior • Maintenance and monitoring requirements • Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements (i.e. a target of 70% live grass cover would apply to protect soils, landscape function and water quality) • Additional measures would be implemented where practical when live grass cover falls below 70% • Grass cover would be monitored on a fortnightly basis using an accepted methodology • Contingency measures to respond to declining soil or groundcover condition (i.e. any grazing stock would be removed from the site when cover falls below the target of 70% live ground cover) • Identification of baseline conditions for rehabilitation following decommissioning • Preserve the native composition of areas where native pasture is dominant as much as possible.	Construction and operation
LC 8	All above ground infrastructure would be removed upon decommissioning, with the exception of substation infrastructure, cabling greater buried deeper than 500mm and tracks or other structures that the landholder wishes to retain. A Rehabilitation Plan would be prepared to ensure the Development Footprint is returned to at least or better than pre-solar farmland and soil capability during the decommissioning stage. The plan would include: • Identification and quantification of potential soil resources for rehabilitation • Optimisation and recovery of useable topsoil and subsoil during stripping operations • Management of soil reserves in stockpiles so as not to degrade the resource • Establishment of effective soil amelioration procedures to maximise the availability of soil reserve for future rehabilitation	Operation and decommissioning

ID	Mitigation measures	Project stage
	works • Returning the land to its pre-solar capability LSC rating • Development of completion criteria and monitoring reporting. The plan would be developed with reference to the base line soil testing and the *Land and soil capability assessment scheme: second approximation* (OEH, 2012). Soil monitoring during operation will provide certainty regarding the ability to meet the plan's targets. A Decommissioning plan would be prepared. This plan would include the following key considerations: • Hardstand surfaces, access tracks and other bare areas not required for post Project land use are to be rehabilitated to pasture which may include de-compaction (ripping and sub soil amelioration) addition of topsoil, restored drainage, and restoration of native vegetation to pre-construction conditions to the extent practicable • Where potential erosive impacts have been identified due to the disturbance of sodic subsoils in locations of significant disturbance, soil amelioration should be undertaken as part of remediation earthworks. Standard temporary erosion and sediment control measures are to be put in place for high disturbance areas • Underground infrastructure (such as cables and footings) would be removed to ensure they present no issues with agricultural land use • Any contamination or waste would be removed or managed in consultation with the landowners and according to government agency regulations • Any significant residual weed infestations should be controlled during the decommissioning process. Information is provided in Appendix F.3 & F.4 to inform these plans and specifically soil striping and works in highly sodic areas.	
LC 9	A Pest and Weed Management Plan would be developed as part of the Biodiversity Management Plan (BMP). This will address weeds, pest animals, diseases of animals and pests and diseases of plants.	All stages
LC 10	Adjacent agricultural land use For land adjacent to the Project area, procedures would be developed and implemented for the construction phase so that potential impacts on livestock are avoided where possible and appropriately managed where unavoidable. Procedures will be incorporated in the Noise Management Plan (NMP) as part of the EMS. Regular communication would be undertaken regarding the construction schedule and activities that may cause livestock disturbance, enabling management of livestock and where required modification of construction schedule.	Construction

6.5. Landscape and visual including glare

6.5.1. Approach

The Landscape Character and Visual Impact Assessment was prepared by Iris Visual Planning + Design. The assessment is summarised below and appended in full in Appendix F.5. As required by the Project SEARs, the aim of the assessment was to:

- Assess the landscape and visual impact of the Project in accordance with the *Large-Scale Energy Solar Guideline* (DPHI, 2022) and the Technical Supplement – Landscape and Visual Impact Assessment (DPHI, 2022)
- Assess in detail visual impacts of all components of the project on surrounding residences and key locations
- Detail measures to mitigate and/or manage potential impacts.

As the Project site boundary has changed slightly since the Scoping Report was prepared, the preliminary visual impact assessment was updated. There is no guidance for the assessment of lighting impacts on views at night in the Large-Scale Solar Energy Guideline or DPE Technical Supplement (DPE 2022). However, some of the concepts in the *AS4282 Control of the obtrusive effects of outdoor lighting* (2023) have been used for this assessment. As there is no specific guidance for the consideration of cumulative impacts in relation to landscape character and visual impact in the Large-Scale Solar Energy Guideline or Technical supplement (DPE 2022), this assessment follows the guidance provided in the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2021).

The assessment is informed by community consultation activities undertaken as a part of the Project's Community and Stakeholder Engagement Plan. This included direct discussions with adjacent landholders about visual impacts, visits to seven private landholders, to take photographs and prepare photomontages to assist in communicating the potential visual impacts of the project. To address concerns regarding the accuracy of preliminary bare earth renders and photomontages, several double stacked hay bales with orange witches' hats (to match the maximum height of the panel array), were positioned at several locations across the proposed solar array area, to communicate the location and height of the Project in the vicinity of close neighbours. In addition, specific information was provided to specific land holders to demonstrate the accurate positioning and height of the panel arrays in the 3D model.

Figure 6-17 Hay bale and witches hat marking the closest point to a neighbour

Landscape character and visual assessment

Field work, community consultation, terrain modelling and photomontages were undertaken to establish the existing landscape character of the area and its sensitivity. The purpose of community consultation is to establish key landscape features, areas of scenic quality and key public viewpoints valued by the community. The preliminary assessment stage is used to identify viewpoints in the public and private domain that require a detailed assessment.

The preliminary assessment includes:

- Application of Preliminary Assessment Tools
- Viewshed mapping, to understand areas of the site that would be visible from surrounding lands.

The detailed assessment stage is used to undertake a comprehensive assessment of the visual impacts on viewpoints identified through the preliminary assessment. This stage is undertaken through five stages:

- Stage 1: Refine and classify viewpoints
- Stage 2&3: Determine visual magnitude and visual sensitivity
- Stage 4: Determine visual impact
- Stage 5: Performance objectives and mitigation

In addition to the proposed PV arrays, the associated infrastructure has the potential to contrast with the existing visual landscape. This has been assessed as ‘associated infrastructure’.

The following figure outlines the visual impact assessment process as in the Large-Scale Solar Energy Guideline, Technical Supplement -Landscape and Visual Impact Assessment, 2022.

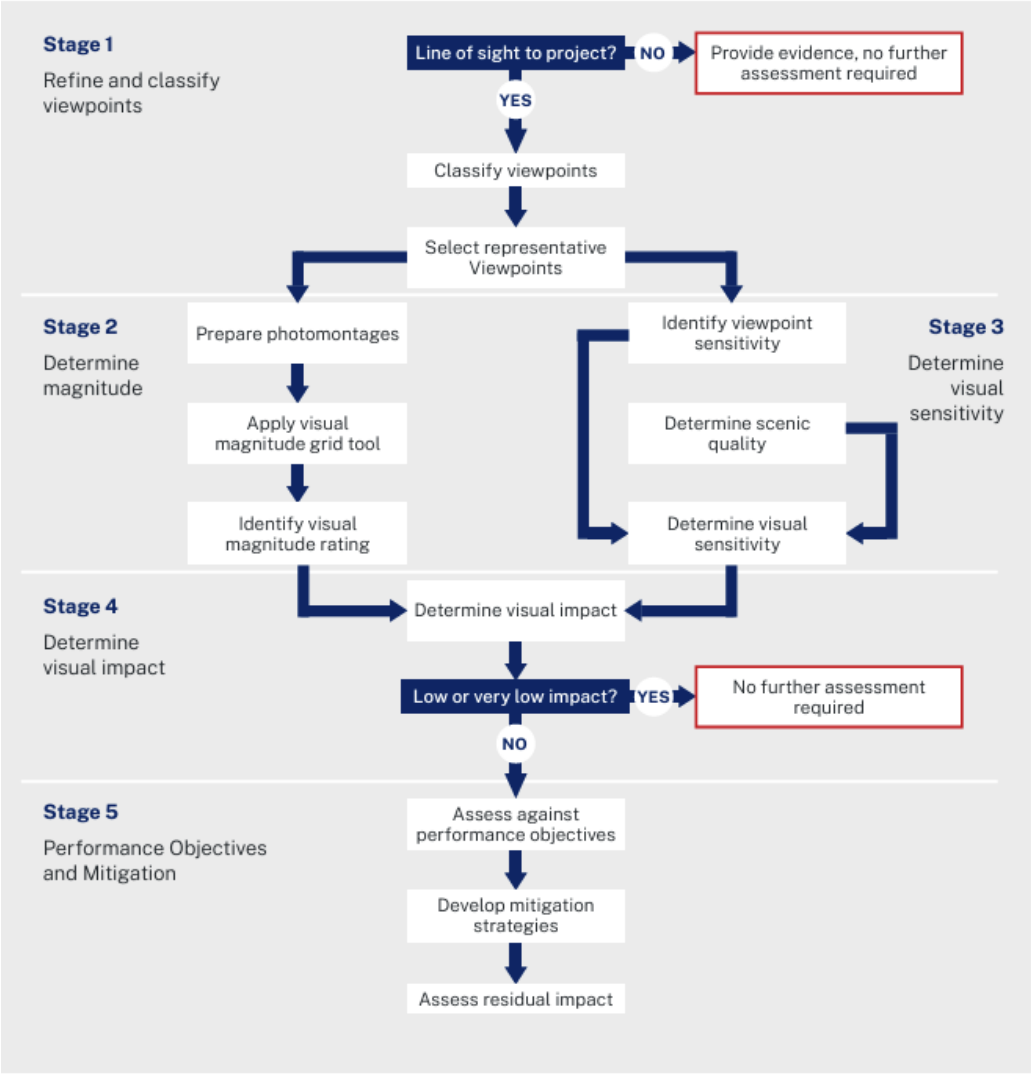


Figure 6-18 Detailed visual assessment process (source: Large-Scale Solar Energy Guideline, Technical Supplement -Landscape and Visual Impact Assessment, 2022)

Glint and Glare

The glint and glare assessments were undertaken using Solar Glare Hazard Analysis Tool (SGHAT) developed by Sandia National Laboratories. The SGHAT is used to evaluate glare resulting from solar farms at different receivers, based on proximity, orientation and specifications of the PV modules. This tool is recognised by the Australian Government Civil Aviation Safety Authority (CASA).

SGHAT is used to indicate the nature of glare that can be expected at each potential receiver. Glare can be broadly classified into three categories and presented by the following three colours:

- Green Glare: Low potential for temporary after-image
- Yellow Glare: Potential for temporary after-image
- Red Glare: Retinal burn, not expected for PV.

6.5.2. Existing environment

Landscape character

The Project area is in a rural location in the Southern Tablelands of NSW, approximately 6km south of regional city of Goulburn. The Project area is located on gently undulating agricultural land, including pasture and arable fields with several dams, seasonal gullies, the Gundary and Saltpetre creeks, and Mulwaree River. The majority of areas within and surrounding the Project area have been cleared and improved for agricultural use. The Project area is surrounded by rising hills to the east and west.

The following three Landscape Character Zone have been identified (Figure 6-20):

1. Gundary undulating rural plains Landscape Character Zone
2. Mulwaree River and Gundary Creek rural valley Landscape Character Zone
3. Bushland and forested hills Landscape Character Zone

The majority of the Project area is situated within the Gundary undulating rural plains Landscape Character Zone. This landscape consists of the gently undulating land which rises above the low-lying valleys of the Mulwaree River and Gundary and Saltpetre creeks. It has mostly been cleared for agricultural use, including pastoral grazing, equine activities, and arable farmland, creating areas that have an open, rural landscape character. Several non-rural lands, including the Goulburn Airport to the north, a car racing track along Braidwood Road and a poultry farming with large sheds and silos to the south are located within the surrounding area.Rows of mature trees located along fence lines (often exotic pines) form part of the landscape features. Vegetation is generally found along the road verges, scattered within pasture fields and around some rural dwellings. Several existing transmission lines intersect this landscape, including a 330kV transmission easement that extends north-south through the Project area.

Refer to Figure 6-19 showing character images of the Gundary undulating rural plains rural valley Landscape Character Zone.

Figure 6-19 Gundary undulating rural plains rural valley Landscape Character Zone – character images

Land zoning and land use

Land use and land zoning factor into the landscape character; the Project area is zoned RU1 Primary Production. The landscape within the Project area and immediate surrounds are used for agricultural practices including grazing on native and exotic / improved vegetation. Rural residential properties are located throughout the agricultural lands.

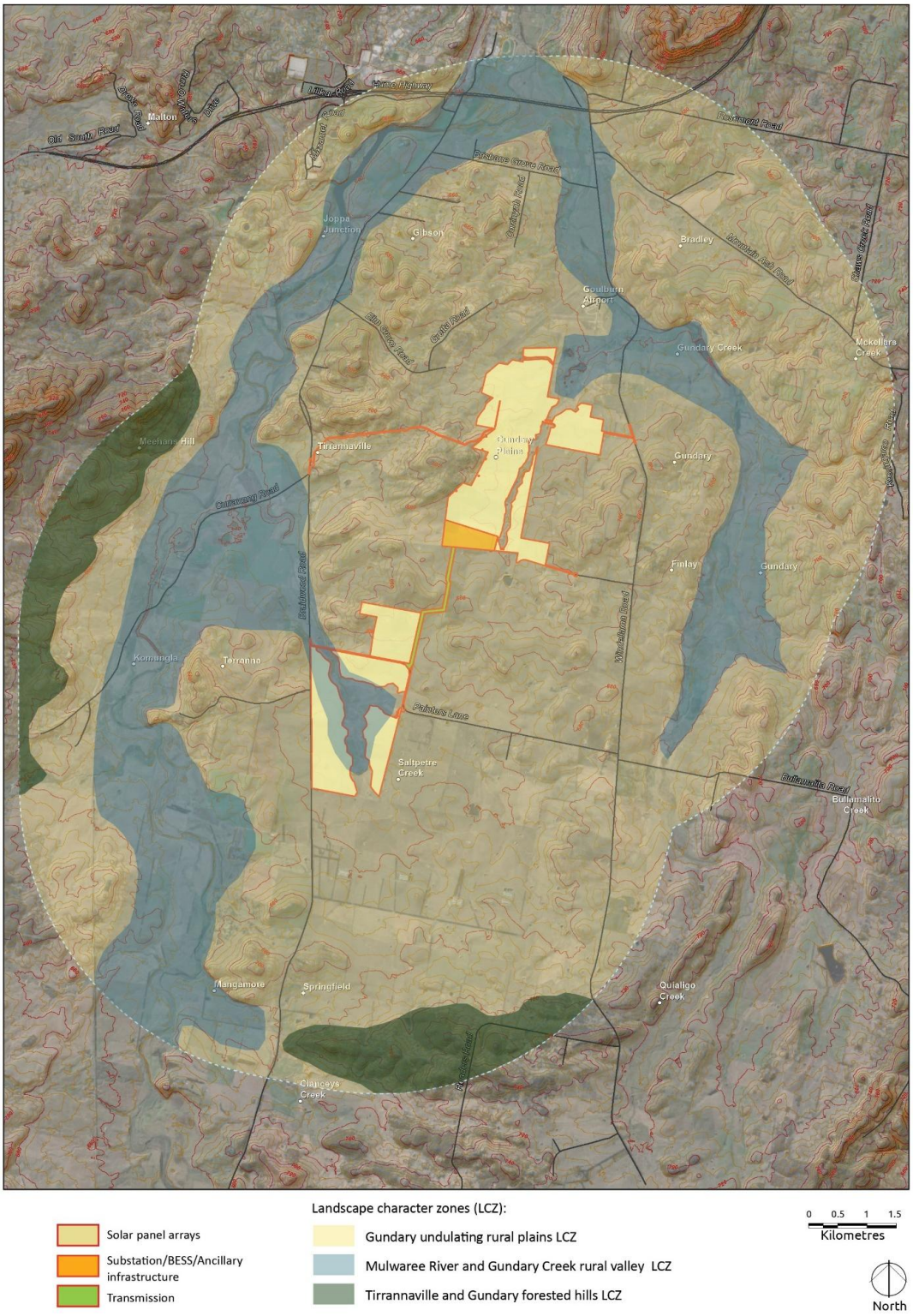


Figure 6-20 Landscape character zones (Source: Iris 2025)

Table 6-16 Visual magnitude thresholds

Number of cells occupied	Visual magnitude rating
1-6	Very low
7-12	Low
13-21	Moderate
22-30	High
31+	Very high

6.5.3. Potential visual impacts (Stage 4)

The results above (from Stage 2&3) are used determine the visual impact of the solar farm (Stage 4), specific to those receivers most affected, as set out below.

Proportionate visual assessment – private dwellings

The DPHI Technical Supplement (2022) includes three progressively detailed stages to assess solar farm visual impacts. This includes a:

1. Simple visual assessment – Conduct a basic assessment using worst-case assumptions about the likely magnitude and visual sensitivity. Proceed to undertake an intermediate assessment if impacts could be moderate or higher.
2. Intermediate visual assessment – Produce wireframes to more accurately determine the magnitude rating. Proceed to undertake a detailed assessment if impacts continue to be moderate or higher.
3. Detailed visual assessment – Prepare photomontages and undertake field visits to more accurately assess scenic quality and determine the effectiveness of existing or proposed screening in mitigating potential impacts.

Simple assessment

A simple assessment was undertaken for all dwellings within 4km of the Project area. For the purposes of this analysis, the solar panel heights have been modelled at a maximum height of 2.9m.

The results of the simple assessment are included in Appendix C of the Landscape Character and Visual Impact Assessment (Appendix F.5). Locations with a potential visual impact of moderate or high proceeded to an intermediate assessment. There were 22 dwellings near the northern section of the Project area and nine dwellings near the southern section that required intermediate assessment.

Intermediate assessment

The results of the intermediate assessment are included in Appendix D of the Landscape Character and Visual Impact Assessment (Appendix F.5). The intermediate assessment determined that six dwellings (3 to the north and 3 to the south) potentially have a moderate visual impact. As a result they proceeded to a detailed assessment.

Detailed assessment

A detailed assessment was undertaken for the six identified dwellings. A summary of the detailed visual impact assessment is included in Table 6-17 below, with the full assessment included in Appendix F of the Landscape Character and Visual Impact Assessment.

The assessment was iterative in that a setback was applied to R5 to reduce the impact level to low. On this basis, no further mitigation, such as the planting of vegetation screening, was required. Photomontages from

specific residential receivers were provided to those most affected by the Project but are not reproduced in the EIS. The residual visual impacts of the project are low for all private viewpoints.

Table 6-17 Summary of detailed visual impact assessment for private dwellings (Source, Iris 2025)

	Viewpoint sensitivity				Magnitude of change		
ID.	Viewpoint type	Viewpoint sensitivity	Scenic quality	Visual sensitivity	Occupied cells	Magnitude level	Determine visual impact level
Northern site							
R005	Primary view from future dwelling zoned R1	Moderate	Low	Moderate	4	Very low	Low
R007	Primary view from dwelling zoned R1	Moderate	Low	Moderate	3	Very low	Low
R030	Primary view from dwelling zoned R1	Moderate	Low	Moderate	8	Low	Low
R031	Primary view from dwelling zoned R1	Moderate	Low	Moderate	14	Low	Low
R032	Primary view from dwelling zoned R1	Moderate	Low	Moderate	11	Low	Low
Southern site							
R082	Secondary view from dwelling zoned R1	Low	Low	Low	14	Low	Low
R082	Primary view from dwelling zoned R1	Moderate	Moderate	Low	11	Low	Low
R082	Primary view from dwelling zoned R1	Moderate	Moderate	Moderate	11	Low	Low
R083	Primary view from dwelling zoned R1	Moderate	Low	Moderate	5	Very low	Low
R084	Primary view from dwelling zoned R1	Moderate	Low	Moderate	5	Very low	Low

Public viewpoints

Six public viewpoints were selected, representing public locations where the Project would potentially be visible. Photomontages were prepared and these viewpoints were assessed according to the detailed visual assessment process.

A summary of the detailed visual impact assessment for the four public viewpoints is provided in Table 6-18 below. Overall, this assessment identified very low visual impacts from most of the roads surrounding the Project site. There was a low visual impact identified from Painters Lane, in the view from a section of the lane which passes through the project site. The location of the viewpoints assessed is shown in Figure 6-21. Key montages are provided from 1, 3 and 6 as shown in Figure 6-22, Figure 6-23 and Figure 6-24.

Table 6-18 Summary of detailed visual impact assessment for public viewpoints (Source: Iris 2025)

	Stage 3 – Viewpoint sensitivity				Stage 2– Magnitude of change		
View location	**Viewpoint type**	**Viewpoint sensitivity**	**Scenic quality**	**Visual sensitivity**	**Occupied cells**	**Magnitude level**	**Determine visual impact level**
Viewpoint 1 –Gretta Road, view east	Local sealed road	Very low	Low	Very low	5	Very low	Very low
Viewpoint 2 – Windellama Road Road, view southwest	Local sealed road	Very low	Low	Very low	1	Very low	Very low
Viewpoint 3 - Windellama Road, view northwest	Local sealed road	Very low	Low	Very low	5	Very low	Very low
Viewpoint 4 – Gundary Lane	Local sealed road	Very low	Low	Very low	0	None	Low
Viewpoint 5 – Painters Lane	Local sealed road	Very low	Low	Very low	-	Low	Low
Viewpoint 6 – Painters Lane	Local sealed road	Very low	Low	Very low	24	Moderate	Low

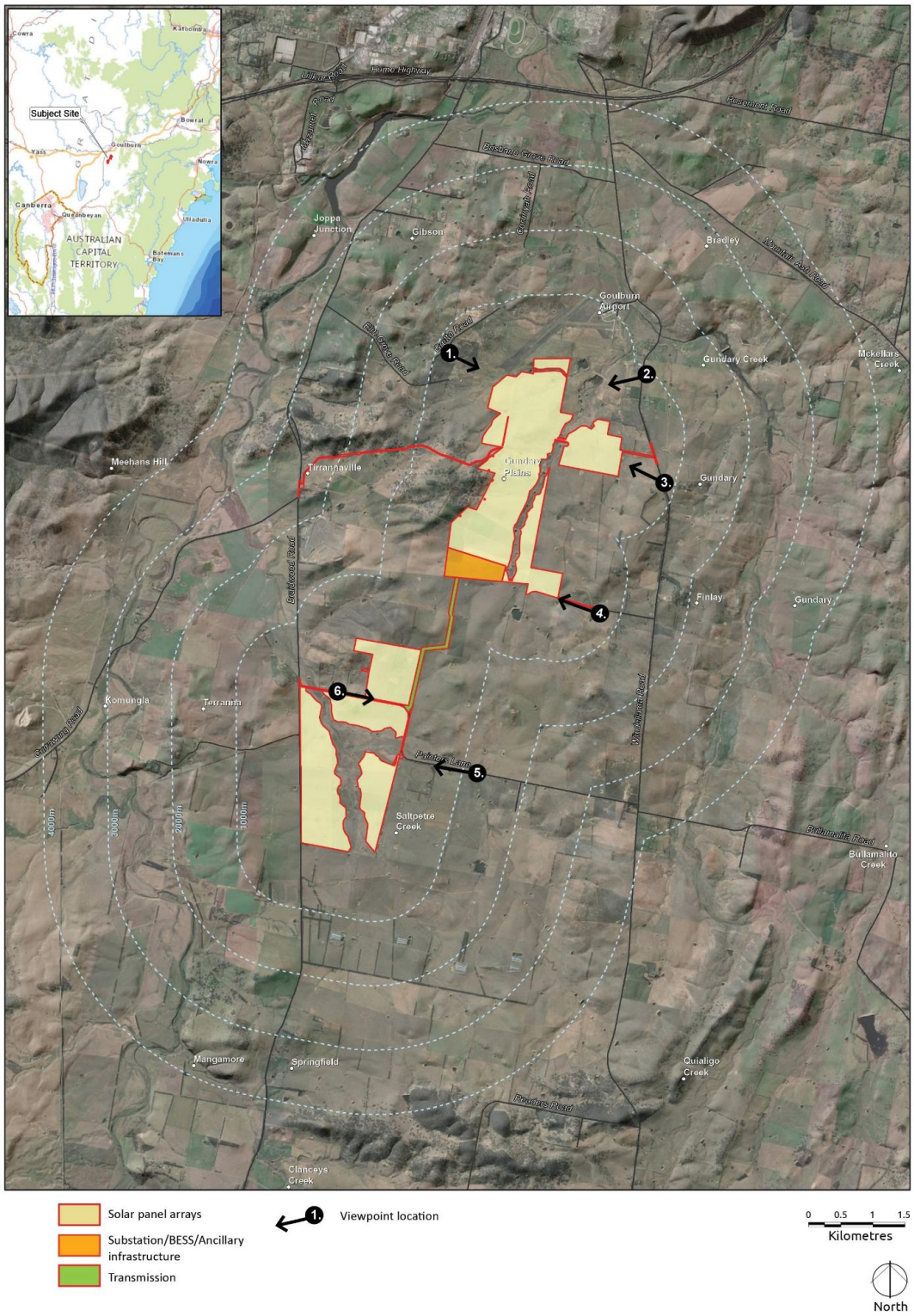
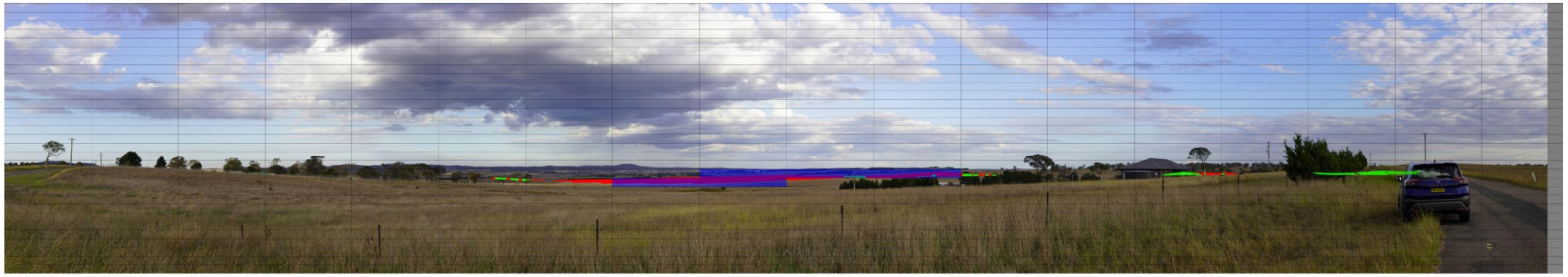


Figure 6-21 Location of public viewpoints

Solar farm highlighed in silhouette with magnitude grid overlay tool and occupied cells highlighted



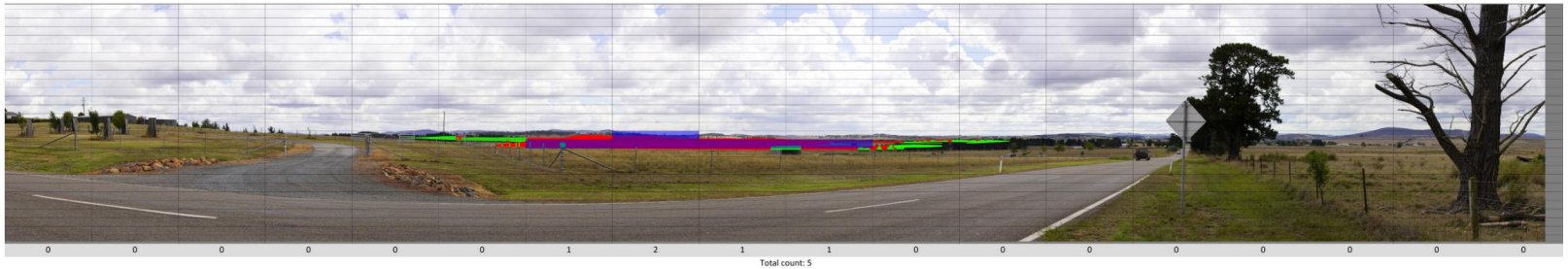
This photomontage was prepared by inserting a 3D model of the solar arrays into a 180-degree photograph. The solar arrays have been modelled at the maximum 60 degree tilt, at a maximum height of 2.9 metres (which woud be the maximum height of the panels). The base image is a composite of 12 photographs taken in portrait format with a 50 mm focallength. The 180-degree photomontage is overlain by a grid of cells (1 degree x 10 degrees) according to the requirements of the Large-Scale Solar Guideline, Technical Supplement (DPHI 2022). Any cell which is occupied by 25% or more of the solar array area is counted as an occupied cell and is used to identify the magnitude of change.

Detailed visual impact assessment:

No.	Development height	Viewpoint type	Viewpoint sensitivity	Scenic quality	Visual sensitivity	Occupied cells	Magnitude rating	Impact rating
1.	2.9 metres	View from local sealed road	Very low	Low	Very low	5	Very low	Very low

Figure 6-22 Viewpoint 1 – Gretta Road, view east

Solar farm highlighed in silhouette with magnitude grid overlay tool and occupied cells highlighted



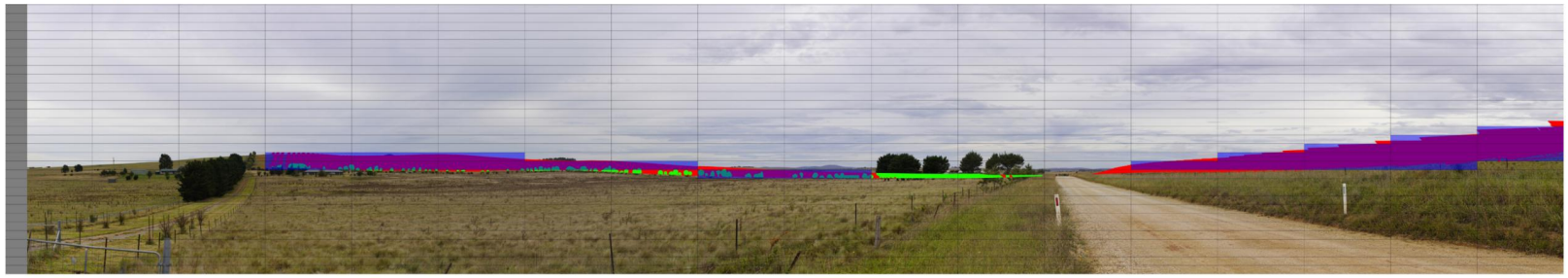
This photomontage was prepared by inserting a 3D model of the solar arrays into a 180-degree photograph. The solar arrays have been modelled at the maximum 60 degree tilt, at a maximum height of 2.9 metres (which woud be the maximum height of the panels). The base image is a composite of 12 photographs taken in portrait format with a 50 mm focallength. The 180-degree photomontage is overlain by a grid of cells (1 degree x 10 degrees) according to the requirements of the Large-Scale Solar Guideline, Technical Supplement (DPHI 2022). Any cell which is occupied by 25% or more of the solar array area is counted as an occupied cell and is used to identify the magnitude of change.

Detailed visual impact assessment:

No.	Development height	Viewpoint type	Viewpoint sensitivity	Scenic quality	Visual sensitivity	Occupied cells	Magnitude rating	Impact rating
3.	2.9 metres	View from local sealed road	Very low	Low	Very low	5	Very low	Very low

Figure 6-23 Viewpoint 3 – Windellama Road, view northwest

Solar farm highlighed in silhouette with magnitude grid overlay tool and occupied cells highlighted



This photomontage was prepared by inserting a 3D model of the solar arrays into a 180-degree photograph. The solar arrays have been modelled at the maximum 60 degree tilt, at a maximum height of 2.9 metres (which woud be the maximum height of the panels). The base image is a composite of 12 photographs taken in portrait format with a 50 mm focallength. The 180-degree photomontage is overlain by a grid of cells (1 degree x 10 degrees) according to the requirements of the Large-Scale Solar Guideline, Technical Supplement (DPHI 2022). Any cell which is occupied by 25% or more of the solar array area is counted as an occupied cell and is used to identify the magnitude of change.

Detailed visual impact assessment:

No.	Development height	Viewpoint type	Viewpoint sensitivity	Scenic quality	Visual sensitivity	Occupied cells	Magnitude rating	Impact rating
4.	2.9 metres	View from local sealed road	Very low	Low	Very low	24	Moderate	Low

Figure 6-24 Viewpoint 6 – Painters Lane

Night lighting

Night lighting has the potential to pollute the night sky. Due to the relatively isolated location of the Project, very little existing sources of lighting are present in the night-time landscape of the subject land. Isolated receivers within the subject land experience a dark night sky with minimal light sources.

The Project area and surrounding land can be described as an area of **A2: Low district brightness** (refer to the *AS4282:2019 Control of the obtrusive effects of lighting*).

There is limited permanent lighting proposed as a part of the project. Any security lighting associated with the BESS and operations and maintenance building, for example, would be consistent with the lighting associated with homesteads and dwellings scattered across this rural landscape.

Due to the rural landscape and distance between the Project area and neighbouring dwellings, there would also not be any light spill onto neighbouring residences.

Glint and glare assessment

Glint and glare during construction would be temporary. The assessment has focused more on operational impacts to residences, public roads and the Goulburn airport, as set out below.

Residential dwellings

The main focus of the glint and glare assessment is yellow glare, which can occur from PV panels. Red glare is not expected for PV and green glare has a low potential to cause after image and deemed negligible. Residential receivers within 4km of the subject land were assessed in accordance with the Technical Supplement and the Guidelines.

The results of the GlareGauge SGHAT analysis for dwellings surrounding the northern and southern areas of the Project are included in full in Appendix F.5. They identify the predicted risk of glare in minutes per year and the total potential glare risk in hours per year for each receiver. The analysis identified the following:

- 15 dwellings with a potential low glare effect
- Five dwellings with a potential moderate glare effect
- no dwellings with a high potential glare effect.

Further consideration of the likely visibility of the project from these five dwellings identified as having the potential for a moderate glare effect (R2, R30, R31, R38 and R190) was then undertaken. When considering the visibility of the panel arrays from those dwellings, the impacts were all reduced to low glare impact level due to intervening vegetation or landforms:

- R2 - This dwelling has a partial view of the project and is located over 2.5km from the project. Due to intervening vegetation, it is unlikely that the reflecting area of the solar farm would be clearly visible.
- R30 - There is unlikely to be a view of the reflecting area of the solar farm due to position of the dwelling in relation to existing intervening trees.
- R31 - This dwelling has a partial view of the reflecting area of the solar farm due to some intervening trees. The area reflecting yellow glare is likely to be visible, however, the area reflecting green glare is obstructed by vegetation.
- R38 - This dwelling is not within the visual catchment of the project, and therefore, there would not be a view to the PV arrays causing the potential glare effect.
- R190 – This dwelling has a partial view to the reflecting area of the solar farm due to intervening landforms and this reduces the glare impact to low.

This is substantiated by modelling and photography as shown in the Visual assessment Appendix F.5 (and its appendices F and G) and summarised below.

Figure 6-25 Detailed results of glare analysis considering project visibility - surrounding dwellings

ID	Annual green glare (min.)	Annual yellow glare (min.)	Total glare (minutes)	Total glare (hrs)	Maximum minutes per day	Revised glare impact level
R2	338	0	338	5.6	<10	Low
R30	550	0	550	9.1	<10 visible	Low
R31	Not visible	350	350	5.8	<10	Low
R38	-	-	-	-	0	No impact
R190	530	40	570	9.5	<10	Low

Public roads

Public roads within 1km of the Project Area were assessed for potential glare impacts.

For Gretta Road, a risk of 372 hours per year of glare, on sunrise between October and March, and less than 10 minutes a day, was identified. The areas of the array reflecting are not visible from most of Gretta Road due to the landform and intervening vegetation. However, where visible, this area would be seen in the distance, about 900 to 1400m, and not in a view directly along the road.

From Elm Grove Road, there is a risk of 25.9 hours of glare per year identified, on sunrise between November and February, and just over 10 minutes a day, was identified. The reflecting areas of the solar farm are mostly out of view from areas of Elm Grove Road within 1km of the Project, due to the orientation of the road, intervening landform, buildings and vegetation. However, if glimpses are visible, the reflecting areas would be seen in the distance, and not in a view directly along the road, which is oriented northwest and not directly towards the project.

From Painters Lane there is a risk of glare during sunrise and sunset as this unsealed road passes between two areas of the solar farm. The SGHAT analysis identifies 134 hours per year of glare. This glare would mostly occur in the section of the lane between these two panel arrays, with the areas of the solar farm PV array directly adjacent to the road mostly having the potential to cause glare effect. Some existing semi-mature screening vegetation along the northern side of Painters Lane would provide screening.

There is no glare risk identified from Braidwood Road.

Goulburn airport

The SGHAT software has been used to estimate the policy adherence of this glare analysis with the 2021 U.S. Federal Aviation Administration Policy. This Policy is used by CASA in Australia for considering solar farm developments in the vicinity of airports. This aviation report shows the project as 'PASS' (Appendix F.5).

Consultation with CASA and the Goulburn Airport has been undertaken to communicate the results of low glint and glare impacts. CASA noted that they:

> *"… cannot comment on the project as part of the EIS process as there is no restriction to glare levels prescribed in legislation. CASA generally applies the FAA guidelines for the assessment of such installations. …"*

The Applicant has forwarded the glare analysis to the operator demonstrating low impacts; 7 August 2025).

Cumulative visual impact

The Gundary Solar Farm is a 400MW solar farm with energy storage and associated infrastructure proposed for a site to the east of Windellama Road. This project is being assessed as a State Significant Development, the EIS has been exhibited and at the time of writing, DPHI are assessing the application.

There is the potential for a cumulative landscape character and visual impact with this project. The Gundary Solar Farm is located in the Gundary undulating rural plains Landscape Character Zone and parts of the Mulwaree River and Gundary Creek rural valley Landscape Character Zone. Together these projects would alter parts of the rural plains and rural valley, within two separate valleys. These projects both avoid the more sensitive Tirrannaville and Gundary forested hills Landscape Character Zone.

Landscape character impacts are particularly relevant to the protection of the area's scenic character, noting that the northern section of the Project is within the 10km Goulburn buffer that triggers *State Environmental Planning Policy (Transport and Infrastructure) 2021 Clause 2.42: Determination of development applications for solar or wind electricity generating works on certain land.* It states:

> *(2) Development consent must not be granted unless the consent authority is satisfied that the development…*
>
> *(b) is unlikely to have a significant adverse impact on the regional city's—*
>
> *(ii) scenic quality and landscape character*.

Overall, the changes to the affected Landscape Character Zones would be as follows:

- Gundary undulating rural plains Landscape Character Zone

  Together the Gundary and Merino solar farm projects would cause a moderate magnitude of change to this Landscape Character Zone. The geographic area that would be occupied by the two projects would be a larger, but in visually separate valleys and set within a broader rural landscape. This landscape has a precedent of development and energy infrastructure that increases the capacity of this landscape to absorb development particularly. The Gundary undulating rural plains Landscape Character Zone has a low sensitivity. Overall there would be a moderate-low cumulative landscape character impact on this Landscape Character Zone.

- Mulwaree River and Gundary Creek rural valley Landscape Character Zone

  These projects would cause a low magnitude if change as the panel arrays would be set back from the low-lying riparian areas so that the geographic area altered by these projects would be small. This Landscape Character Zone has a low sensitivity. Overall, there would be a low cumulative landscape character impact on this Landscape Character Zone.

It is noted that the Gundary Solar Farm Landscape Character and Visual Impact Assessment identifies a moderate landscape character impact for this project on the Gundary Plains. This Landscape Character Zone covers both the rural plains and rural valley areas of the study area for this project and extends further west to more open plains that are less influenced by existing development such as the Goulburn airport and speedway. Overall, it is considered that there would not be a significant cumulative landscape character impact caused by these two projects.

The Merino Solar Farm and Gundary Solar Farm projects are unlikely to both be visible from any dwelling within the study area. This is due to landform and intervening vegetation. These projects may, however, be seen sequentially from vehicles travelling along Windellama Road, and when travelling around the surrounding areas. The Merino Solar Farm project has limited visibility from Windellama Road and is not prominent in views from most roads within the study area. As such, there is unlikely to be a cumulative visual impact caused by these two projects.

Key uncertainties of the assessment

The impact of changes in the landscape or to particular views can be subjective. This assessment follows the standardised assessment method prescribed in NSW for utility scale solar farms.

The glint and glare assessment is based on a theoretical worst-case scenario and does not consider weather conditions, intervening elements such as vegetation and built structures. The assessment is considered conservative.

6.5.4. Mitigation measures

With the implementation of the following measures in Table 6-19, which form commitments of the Project, the impacts to landscape character and visual amenity are considered acceptable.

Table 6-19 Visual impact mitigation measures

ID	Mitigation measures	Project stage
LV1	Lighting during construction would be designed and operated in accordance with AS/NZS 4282:2023 Control of the obtrusive effects of outdoor lighting.	Construction
LV2	All lighting associated with the project will be designed and operated in accordance with AS/NZS 4282:2023 Control of the obtrusive effects of outdoor lighting.	Operation
LV3	The solar inverter stations, switch rooms, battery enclosures, office and maintenance building, and water tanks will be a neutral colour, such as green or grey, to reduce their prominence in views from surrounding dwellings where visible.	All stages

6.6. Noise

The Construction and Operational Noise Assessment was prepared by Renzo Tonin and Associates. The assessment is summarised below and appended in full in Appendix F.6.

6.6.1. Approach

As required by the SEARs, noise modelling was undertaken against established noise criteria, for the construction and operational phases of the proposal. The criteria are outlined in the following documents:

- NSW 'Interim Construction Noise Guideline' (ICNG – DECC, 2009)
- NSW 'Noise Policy for Industry' (NPfI – EPA, 2017)
- NSW 'Road Noise Policy' (RNP – DECCW, 2011).

The nearest receivers were identified via aerial imagery, verified onsite through the community consultation process and other site investigations. Those with potential for highest noise impacts were modelled. No noise monitoring was undertaken to establish existing background noise. However, to ensure a conservative assessment, the quietest rural background noise levels were used to assess day, evening and night noise impacts (called Rating Background Levels; RBLs). Rating Background Levels are shown in Table 6-20 and identified receivers and their corresponding distances from the Project area are shown in Table 6-21.

The equipment and activities specified in Section 3 of the EIS were modelled separately for construction and operation. These results were compared to the appropriate policies cited above.

Cumulative noise impacts with other projects in the area are considered in Section 6.12.

Feasible measures have been proposed based on the results. A Draft Construction Noise Management Plan has not been determined necessary as the Assessment found no exceedances against any applicable criteria.

6.6.2. Existing environment

The locality is sparsely populated with the existing noise sources generally consisting of:

- Local road noise from Braidwood Road and Windellama Road
- Agricultural activities such as motorbikes, tractors and farm vehicles
- Aviation noise from the nearby Goulburn Airport.

Background noise varies over the course of any 24-hour period, typically from a minimum at 3am in the morning to a maximum during morning and afternoon traffic peak hours. Therefore, the Noise Policy for Industry (NPfI) requires that the level of background and ambient noise be assessed separately for the daytime, evening and night-time periods. The NPfI defines these periods as follows:

- Day is defined as 7:00am to 6:00pm, Monday to Saturday and 8:00am to 6:00pm Sundays & Public Holidays
- Evening is defined as 6:00pm to 10:00pm, Monday to Sunday & Public Holidays
- Night is defined as 10:00pm to 7:00am, Monday to Saturday and 10:00pm to 8:00am Sundays & Public Holidays.

Potential noise impacts are then assessed against the Noise Management Levels for a particular receiver. When a noise exceeds the Noise Management Level at a receiver, that receiver is considered to be 'noise affected'. Noise Management Levels are given by the Interim Construction Noise Guideline (ICNG), and are shown below in Table 6-20 for each noise period. A receiver is 'highly noise affected' when sound reaches 75 dB(A), regardless of the attributed Noise Management Levels.

Table 6-20 Rating background levels and noise management levels for all identified receivers

Time of day	Minimum Rating Background Level (RBL) dB(A)	Noise Management Level (NML) dB(A)	Highly noise affected dB(A)
Day	35	RBL + 10 = 45 (Residential) RBL + 35 = 70 *(Commercial)*	75
Evening	30	RBL + 5 = 35	75
Night	30	RBL + 5 = 35	75

Table 6-21 Receivers assessed for noise (as per Figure 6-26)

ID	Description
B1 (Goulburn Airport)	Commercial property located approximately 900m north of the Project area
R3	Residential property located approximately 610m west of the Project area
R4	Residential property located approximately 820m west of the Project area
R5	Residential property located approximately 800m north of the Project area
R7	Residential property located approximately 800m north of the Project area
R27	Residential property located approximately 1,000m east of the Project area
R28	Residential property located approximately 470m east of the Project area
R30	Residential property located approximately 150m east of the Project area
R31	Residential property located approximately 260m east of the project area and approximately 350m north of the access road from Windellama Road.
R32	Residential property located approximately 550m east of the project area approximately 440m south of the access road from Windellama Road.

ID	Description
R38	Residential property located approximately 850m east of the project area and approximately 630m north of Painter Lane access road
R40	Residential property located approximately 1,050m east of the project area and approximately 250m north of Painter Lane access road
R44	Residential property located approximately 540m east of the project area and approximately 270m south of Painter Lane access road
R45	Residential property located approximately 930m east of the project area and approximately 270m south of Painter Lane access road
R64	Residential property located approximately 540m east of the project area
R65	Residential property located approximately 280m east of the project area
R79	Residential property located approximately 600m south of the project area
R82	Residential property located approximately 230m west of the project area
R83	Residential property located approximately 340m west of the project area
R84	Residential property located approximately 630m west of the project area
R85	Residential property located approximately 675m west of the project area
R101	Residential property located approximately 2500m west of the project area and approximately 300m north from the access road from Braidwood Road
R172	Residential property located approximately 2100m west of the project area and approximately 250m from the access road from Braidwood Road
R181	Residential property located approximately 480m east of the project area approximately 300m south of the access road from Windellama Road.
R187	Residential property located approximately 2000m west of the project area and approximately 300m north from the access road from Braidwood Road
RH/R100	Residential property located approximately 2200m west of the project area and approximately 100m from the access road from Braidwood Road

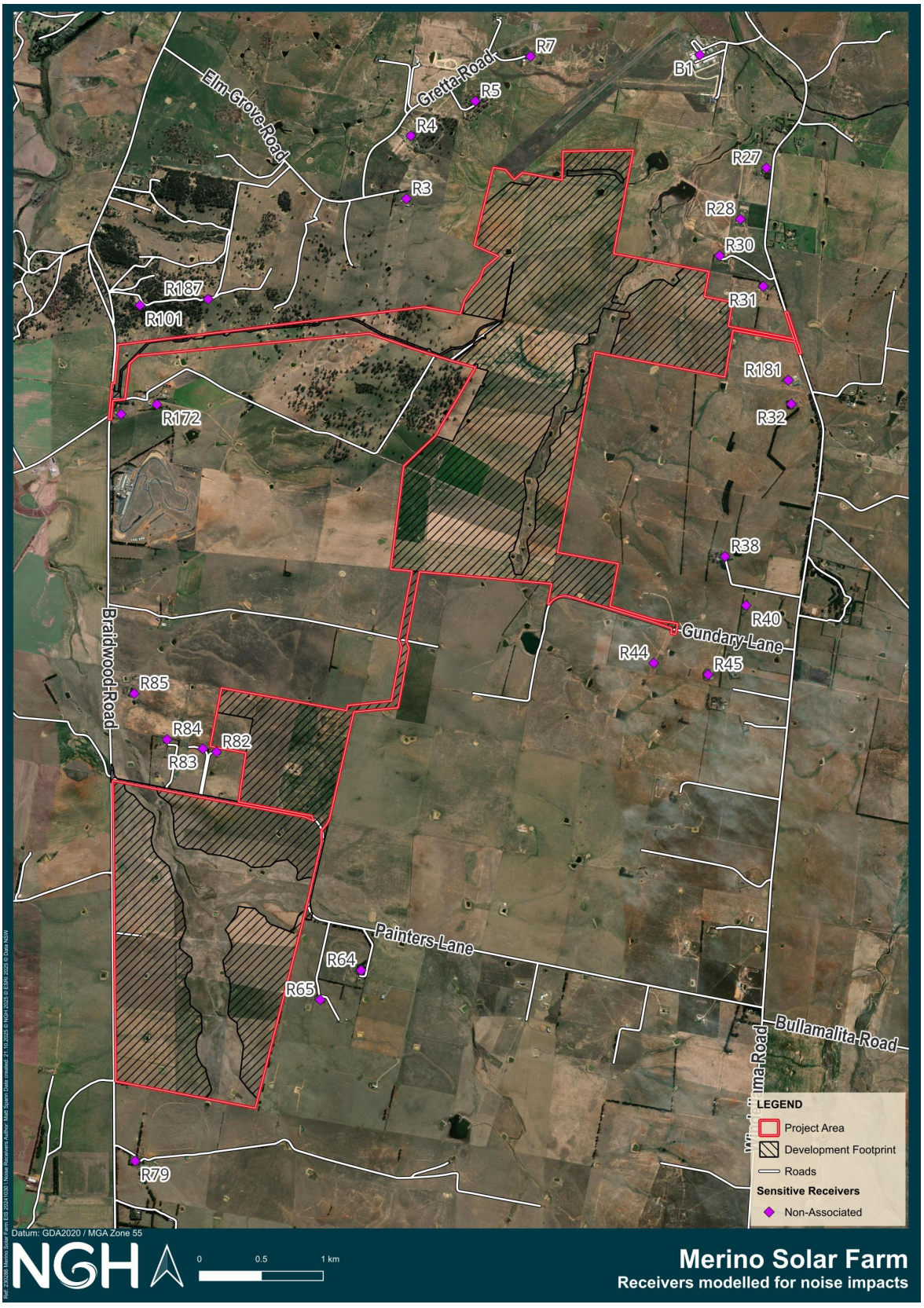


Figure 6-26 Receivers selected for noise modelling

6.6.3. Potential impacts

The predicted noise impacts of the Project were assessed separately for:

- Construction of the solar farm
- Operation of the solar farm, including:
  - Intrusive noise
  - Noise amenity
  - Sleep disturbance noise
- Road traffic noise (separately for construction and operation).

Construction noise assessment

As set out in Section 3 of the EIS, equipment used during construction would include earth-moving equipment for civil works, diesel generators, trucks and cranes with similar noise outputs to farm machinery such as tractors. Pile driving for the solar panel foundations would be undertaken using a machine which screws or hammers poles into the ground, similar to that used for driving farm fence poles into the ground. Predicted noise levels of plant and the modelled noise levels at specific receiver locations are shown in the two tables below. A list of typical construction equipment required for solar farm developments, the number of each required, and their corresponding sound outputs is shown below in Table 6-22.

Table 6-22 Typical construction equipment and sound power levels

Plant item	Plant description	Number of items	L_{Aeq} Sound power Levels, dB(A) re.1pW (single item)
General construction works			
1	Concrete saw	3	120
2	Trencher	1	117
3	Paving machine	2	112
4	Hand tools - powered	4	111
5	Drum roller	2	109
6	Padfoot roller	2	109
7	Dump truck	3	108
8	30t Excavator	2	107
9	Concrete pump	2	107
10	Concrete vibrator	2	100
Civil construction works			
11	Small pile driving rig	8	114

Plant item	Plant description	Number of items	L_{Aeq} Sound power Levels, dB(A) re.1pW (single item)
12	Crane	3	110
13	Drum roller	3	109
14	Padfoot roller	3	109
15	Wheeled loader	3	109
16	Dump truck	5	108
17	30t Excavator	11	107
18	Grader	6	107
19	Chain trencher	4	104
20	Water truck	6	104
21	Telehandler	6	98
22	Forklift	6	90

The model shows the predicted noise levels at each receiver by plant item as well as by modelling the worst-case scenario (the three noisiest plant operating concurrently). It is noted that given construction would only occur during standard day hours as outlined above, noise impacts have only been assessed during daytime Noise Management Levels presented in Table 6-20.

Noise emissions were predicted by modelling the noise sources, receiver locations, topographical features of the intervening area, and possible noise control treatments. The model calculates the contribution of each noise source at each specified receptor point and allows for the prediction of the total noise from a site.

Noise levels at any receptors resulting from construction would depend on the above parameters and the type and duration of construction being undertaken. Furthermore, noise levels at receivers would vary substantially over the total construction program due to the transient nature and large range of plant and equipment that could be used.

The predicted noise levels for each receiver identified in Table 6-21 for both the construction of access roads and the solar farm itself are presented in Table 6-23 and Table 6-24. Based on the predicted noise levels presented, the construction Noise Management Levels would not be exceeded any of the receivers identified. All receivers are predicted to be below the highly noise affected level of 75 dB(A).

Table 6-23 Predicted construction noise levels for receivers B1 to R64

Plant item	Predicted $L_{Aeq\ (15\ min)}$ Construction Noise Levels, dB(A) Receiver														
	B1	R3	R4	R5	R7	R27	R28	R30	R31	R32	R38	R40	R44	R45	R64
NML	*70*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*
Construction of access roads															
Concrete saw	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Trencher	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Paving machine	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Handtool-powered	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Drum roller	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Padfoot roller	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Dump truck	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
30t Excavator	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Concrete pump	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Concrete vibrator	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Up to 3 (noisiest) plant operating concurrently	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**
Construction of solar farm															
Small pile driving rig	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Crane	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Drum roller	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Padfoot roller	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Wheeled loader	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Dump truck	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
30t Excavator	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Grader	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Chain trencher	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Water truck	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Telehandler	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Forklift	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Up to 3 (noisiest) plant operating concurrently	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**

Table 6-24 Predicted construction noise levels for receivers B82 to R7

Plant Item	Predicted $L_{Aeq\ (15\ min)}$ Construction Noise Levels, dB(A) Receiver										
	R65	R79	R82	R83	R84	R85	R101	R172	R181	R187	RH
NML	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*	*45*
Construction of access roads											
Concrete saw	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Trencher	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Paving machine	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Handtool-powered	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20

Drum roller	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Padfoot roller	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Dump truck	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
30t Excavator	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Concrete pump	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Concrete vibrator	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Up to 3 (noisiest) plant operating concurrently	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**
Construction of solar farm											
Small pile driving rig	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Crane	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Drum roller	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Padfoot roller	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Wheeled loader	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Dump truck	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
30t Excavator	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Grader	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Chain trencher	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Water truck	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Telehandler	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Forklift	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Up to 3 (noisiest) plant operating concurrently	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**

Operational noise

Noise impact from the general operation of the proposed solar farm is assessed against the NSW Noise Policy for Industry' (NPfI). The assessment procedure in terms of the NPfI has two components:

- Controlling intrusive noise impacts in the short-term for residences
- Maintaining noise level amenity for residences and other land uses.

In accordance with the NPfI, noise impact should be assessed against the Project noise trigger level which is the lower value of the *Project intrusiveness noise levels* and *Project amenity noise levels*.

Intrusive noise impacts

The intrusiveness of a noise source may generally be considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (represented by the $L_{Aeq,15}$ min descriptor) does not exceed the background noise level (i.e., the Rating Background Level, RBL) measured in the absence of the source by more than 5 dB(A). The Project intrusiveness noise level, which is only applicable to residential receivers, is determined as follows:

$L_{Aeq,15}$ min Intrusiveness noise level = Rating Background Level (RBL) plus 5 dB(A).

Table 6-25 NPfI Intrusive Noise Levels at Residential Receivers, dB(A)

Period	RBL, dB(A)	Intrusiveness Noise Level, $L_{Aeq,15\ min}$, dB(A)
Daytime	35	35+5 = 40
Evening	30	30+5 = 35
Night-time	30	30+5 = 35

Noise amenity impacts

The project amenity noise levels for different time periods of a day are determined in accordance with Section 2.4 of the NSW NPfI. The NPfI recommends amenity noise levels ($L_{Aeq,\ period}$) for various receivers including residential, commercial, industrial receivers and sensitive receivers such as schools, hotels, hospitals, churches and parks. These "recommended amenity noise levels" represent the objective for total industrial noise experienced at a receiver location. Amenity noise levels for the project are shown below in Table 6-26.

Table 6-26 NPfI Project amenity noise levels, dB(A)

Type of Receiver	Indicative Noise Amenity Area	Time of Day	Recommended Amenity Noise Level	
			$L_{Aeq,\ Period}$	$L_{Aeq,\ 15min}$
Residence	Rural	Day	50 – 5 = 45	45 + 3 = 48
		Evening	45 – 5 = 40	40 + 3 = 43
		Night	40 – 5 = 35	35 + 3 = 38
Commercial premises	All	When in use	65 – 5 = 60	60 + 3 = 63

Type of Receiver	Indicative Noise Amenity Area	Time of Day	Recommended Amenity Noise Level	
			$L_{Aeq, Period}$	$L_{Aeq, 15min}$
(e.g. Goulburn Airport)				

Project noise trigger levels

In accordance with the NPfI, the Project noise trigger level for the operational phase is the lowest of the *Project intrusiveness noise level* and *Project amenity noise level*, as outlined in Table 6-25 and Table 6-26 above. As the intrusiveness noise level does not cover commercial receivers, the amenity noise level is applied to the Goulburn Airport. All other residential receivers have been applied the intrusiveness noise level, which provides the lowest, or most conservative, benchmark for considering operational noise impacts. Operational noise trigger values are summarised below in Table 6-27.

Table 6-27 Nominated operational noise trigger values

Receiver Type	$L_{Aeq\ 15min}$ Project Noise Trigger Level		
	Day	Evening	Night
Residences	40	35	35
Goulburn Airport	63	63	63

Operational noise sources

Noise emissions were predicted by modelling the noise sources, receiver locations, topographical features of the intervening area, and possible noise control treatments using the CadnaA (version 2023) noise modelling computer program. The program calculates the contribution of each noise source at each specified receptor point and allows for the prediction of the total noise from a site. The operational equipment modelled is shown below.

Table 6-28 Noise sources during operation

Source	Description	Quantity	Sound power level (dB(A))
Tracker	NEXTracker motor	1,812	82
Inverter	Power Electronics Inverter Freemaq PCSM GEN 3 4200kVA	141	92
Inverter	Power Electronics Inverter Freesun HEM GEN 3 4202kVA	141	88
Battery storage units	Autarsys Nucleons	425	84
Substation	300MVA Transformer	2	99
Light vehicles		10	88

Further to the above sound power levels, the NPfI states that a noise may be particularly annoying (i.e., inherently tonal, low frequency, impulsive or intermittent) then an adjustment of an additional 5dB(A) should be considered to 'penalise' the noise for its annoyance. For the assessment relating to the Merino Solar Farm, the noise from the inverters and transformers are considered tonal in nature, and therefore the 5 dB(A) has been applied.

The NPfI required noise predictions consider the below meteorological conditions, which may be considered 'noise-enhancing':

- Standard meteorological conditions – 0.5 m/s wind velocity and no temperature inversion. Considered acoustically neutral
- Slight to gentle breeze – 3 m/s wind velocity at 10 m from ground level between each noise source and each noise receiver (as per NPfI default wind conditions). Wind direction was based on wind travelling from the source to the receiver
- Moderate temperature inversion – applicable for noise predictions during night-time periods only.

The assessment indicates that predicted operational noise levels at all the previously identified receivers comply with the nominated criteria under all scenarios and meteorological considerations. Therefore, no further noise mitigation measures are required to reduce operational noise impacts. Refer to Table 6-29.

Table 6-29 Operational noise compliance at all receivers

Receiver Location	$L_{Aeq, 15min}$ Project Noise Trigger Levels			Predicted Operational Noise Levels, $L_{Aeq, 15min}$			Comply? (Yes/No)
	Day	Evening	Night	Calm & Isothermal Conditions	Slight to Gentle Breeze	Moderate Temperature Inversion[1]	
Receiver R30	*40*	*35*	*35*	27	28	28	Yes
Receiver R31	*40*	*35*	*35*	21	23	23	Yes
Receiver R181	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R32	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R38	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R40	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R44	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R45	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R64	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R65	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R79	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R82	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R83	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R84	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R85	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver RH	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R172	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R101	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R187	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R3	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R4	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R5	*40*	*35*	*35*	<20	<20	<20	Yes
Receiver R7	*40*	*35*	*35*	<20	<20	<20	Yes

Notes: 1. Applicable for the night time period only

Sleep disturbance assessment

During the night-time period, only mechanical plant will be operating, including battery stacks, inverters and transformers. Noise emissions from these plant items are continuous with no potential for high peak noise level events. Therefore, the maximum noise levels experienced at the identified receivers will be like the operational predictions above. No sleep disturbance noise exceedances are expected at nearby receivers.

Road traffic noise

Noise impact from the potential increase in traffic on the surrounding road network due to construction and operational activities is assessed against the NSW 'Road Noise Policy' (RNP). The RNP sets out criteria to be applied to types of road and land uses. These noise criteria are to be applied when assessing noise impact and determining mitigation measures for sensitive receivers that are potentially affected by road traffic noise associated with the construction and operation of the subject site, with the aim of preserving the amenity appropriate to the land use. The criteria from the RNP relevant to the proposed Merino Solar Farm are as below in Table 6-30.

Table 6-30 RNP road traffic noise criteria

Road category	Type of Project / land use	Assessment criteria (dB(A))	
		Day 7am - 10 pm	Night[1] 10pm–7am
Freeway / arterial / sub-arterial roads	Existing residences affected by additional traffic on existing freeways / arterial / sub-arterial roads generated by land use developments	$L_{Aeq,\ 15\ hr}$ 60 (external)	$L_{Aeq,\ 9hr}$ 55 (external)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use developments	$L_{Aeq,\ 15\ hr}$ 55 (external)	$L_{Aeq,\ 9hr}$ 50 (external)

1. As construction works are only proposed to be undertaken during the day, nighttime traffic noise impacts were not assessed.

Vehicle access to the subject site will be primarily from Painters Lane via Braidwood Road, and Windellama Road, with secondary access via Gundary Lane for OSOM vehicles and Transgrid traffic. Based on functionality, Painters Lane and Braidwood Road are considered local roads, while Braidwood Road is considered sub-arterial.

Anticipated peak vehicle movements per day during the peak construction period are shown below in Table 6-31.

Table 6-31 Anticipated construction traffic volumes

Vehicle Type	Daily Peak Vehicle Movements (two-way)
Light Vehicle (car / 4WD)	670
Rigid Truck	14
Truck and Dog	4
Semi-trailer	38
B-Double	6
Other OSOM Vehicle	2
Total	**734**

During the operational stage, vehicle access to the site will be light vehicles for staff access, maintenance vans or delivery trucks which would occur on an irregular basis. Traffic noise impacts during the operational stage of the project would be minimal and were not assessed further.

The Road Noise Policy states that for existing residences and other sensitive land uses affected by additional traffic on existing roads, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'.

Existing traffic volumes obtained from the Traffic Impact Assessment discussed further in Section 6.7 were used to model existing and proposed traffic noise impacts. Results of these predictions are presented below.

Table 6-32 Predicted construction traffic noise on public roads

Receiver	Criteria	Traffic Movements		Speed (km/h)[1]	Distance to Road[2]	Predicted noise level		Exceed
		Existing	Future			Existing	Future	
Braidwood Road	$L_{Aeq\ 15hr}$ 60	2,202	2,562	100	20 m	63	63	No
Windellama Road	$L_{Aeq\ 15hr}$ 55	1,428	1,788	100	20 m	59	60	No
Painters Lane	$L_{Aeq\ 15hr}$ 55	N/A[3]		100	20 m	N/A	53	Yes

Notes *1. Based on posted speed limit*

2. Based on closest typical distance from façade of dwelling to the road

3. Existing traffic volumes on Painters Lane are unknown, as such construction traffic volumes from Table 6-31 have been used

From Table 6-32 above, existing and future traffic noise levels are above the relevant criteria for both Braidwood Road and Painters Lane. However, the noise contribution from construction traffic is not expected to increase noise levels by more than the 2 dB threshold given in the Road Noise Policy. Furthermore, residences are generally located more than 20 m from the roads, site access points and the Development Footprint where traffic may be moving internally.

Gundary Lane has not been assessed as this road would only be used for OSOM and Transgrid traffic (1% of overall project traffic) and would therefore have negligible noise impacts. Therefore, traffic noise levels because of the construction works would not adversely contribute to the existing traffic noise levels at the most affected residences along the surrounding roads.

Cumulative impacts

Cumulative impacts are discussed in Section 6.12 of this EIS.

6.6.4. Key uncertainties of the assessment

Where uncertainty was present, the assessment has taken a precautionary approach:

- Rather than use actual noise logging, which may be impacted by highway and farm machinery noise, the quietest rural background noise level was assumed
- To understand the interaction of equipment used in the construction program, the three noisiest plant were modelled as operating concurrently.

These measures provide a conservative outcome and ensure noise mitigation strategies will similarly be conservative, reducing noise impacts on neighbours.

6.6.5. Mitigation measures

While no exceedances are predicted for any non-associated receivers, a range of reasonable and practical measures can be implemented to further minimise any potential noise impacts of the Project, as set out below in Table 6-33.

Table 6-33 Safeguards and mitigation measures to manage noise and vibration for non-associated receivers.

ID	Mitigation measures	Project stage
N1	A noise management plan will be prepared and implemented as part of the CEMP. The Noise Management Plan would include the following precautions to reduce noise: • All engine covers would be kept closed while equipment is operating. • Where possible use less noisy plant and equipment. • Provide special attention to the use and maintenance of 'noise control' or silencing kits fitted to machines to ensure they perform as intended. • Plant and equipment should be properly maintained. • Avoid any unnecessary noise when carrying out manual operations and when operating plant. • Switch off plant when not in use. • Trucks should not be left idling where possible. • As far as possible, heights from which materials are dropped, into or out of trucks, would be minimised. • Machines found to produce excessive noise compared to industry best practice would be removed from the site or stood down until repairs or modifications can be made.	Pre-construction and construction
N2	Establish a complaints procedure, including signage and other means to advertise the contact number regarding complaints. Respond to complaints in a timely manner and keep relevant parties informed of progress.	All stages

6.7. Transport and access

6.7.1. Assessment approach

Traffic access option analysis

Being located between two transport corridors, and having a clear northern and southern Project area, the Project has numerous possible access points.

Several local constraints affect access, including hydrology, the amenity value of local laneways and the potential for cumulative impacts with nearby Gundary Solar Farm, if both projects are approved and construction programs overlap. As such, in advance of the Traffic Impact Assessment, an options analysis was undertaken by Amber Organisation Pty Ltd to evaluate the site access options. This resulted in the following proposed Project accesses:

- North section
  - One northern access off Windellama Road
  - One emergency access option, solely to provide additional access and egress in an emergency
- South section
  - Four access points off Painters Lane, accessed from Braidwood Road only; between 60m and 2.45 km east of Braidwood Road. No construction of operational traffic would be allowed to travel further east on Painters Lane while entering or exiting the Project.
- Substation
  - One limited use substation access off Gundary Lane, for Over Size Over Mass movements and then light vehicle operational access directly to the substation.

Amber worked with EDP to propose a traffic breakdown between these accesses to inform the detailed Traffic Impact Assessment.

Traffic impact assessment

After the site access points were determined, the Traffic Impact Assessment was completed by Amber Organisation to assess the construction, operational, and decommissioning traffic impacts, and the access arrangements of the Project. The assessment is summarised below appended in full in Appendix E.6 of this EIS.

The assessment responds to the SEARs listed in Appendix A and details how road impacts of the Project traffic, particularly from heavy vehicle use and oversize/over mass (OSOM) vehicles, will be avoided or managed using road-use management strategies.

The Traffic Impact Assessment provides:

- An assessment of the peak and average traffic generation, including light vehicles, heavy vehicles, heavy vehicles requiring escort, high risk heavy vehicles requiring escort and construction worker transportation
- An assessment of the likely transport impacts to site access routes, road capacity, conditions, safety and intersection performance, taking into consideration the above listed vehicles, site access points and any crown land
- A concept route analysis for heavy vehicles requiring escort and high-risk heavy vehicles requiring escort
- A cumulative traffic assessment of traffic from nearby developments
- Details of measures to mitigate potential impacts developed in consultation with the relevant road authorities).

The traffic assessment has been undertaken in accordance with the TfNSW Guide to Traffic Impact Assessments and relevant Austroads Guidelines and has included consultation with TfNSW and Council. Consultation is summarised separately in Section 5.2 of this EIS.

6.7.2. Existing environment

Road network

The proposed Project area would be accessed via the Hume Highway to Goulburn, then via Bungonia Road and Windellama and Braidwood Roads. Refer to Figure 6-27 for the extent of the local road network, as outlined below.

- Windellama Road and Braidwood Road are the major connections in the local area. Both are sealed, two-lane carriageways with a sign posted speed limit of 100 km/hr, and both run in a general north-south alignment. Braidwood Road is also a state road, while all other roads are local roads.
- Gundary Lane is a sealed road providing two-way access off Windellama Road, in a general east-west alignment. It has a sign posted speed limit of 100 km/hr.
- Painters Lane is unsealed within the Project area, and has a variable width between 6-7 m, providing two-way vehicle movements. It has a default speed limit of 100 km/hr.

As outlined in this EIS, the Project area consists of two distinct areas – the northern and southern sections of the area. The northern section includes minimal road frontage, and is located between Goulburn Airport, Windellama Road and Braidwood Road. The southern section is bordered by Braidwood Road to its west, Painters Lane to its north, which connects to Braidwood Road and Windellama Road to the east.

There are three key intersections that would be utilised by Project traffic, and of which have been assessed in the Traffic Impact Assessment. These are outlined below in Table 6-34 and are shown on Figure 6-28.

Table 6-34 Key intersections

Intersection	Configuration	Details
Braidwood Road / Bungonia Road / Ottiwell Street	Cross intersection	'Give Way' signage and line marking provided for vehicles exiting Bungonia Road or Ottiwell Street. A slip lane is provided for vehicles travelling south on Braidwood Road turning left into Bungonia Road.
Braidwood Road / Painters Lane	T-intersection	Priority controlled with vehicles exiting Painters Lane required to give way. No turn treatments provided.
Windellama Road / Gundary Lane	T-intersection	Priority controlled with vehicles exiting Gundary Lane required to give way. Unsealed basic right turn treatment provided.

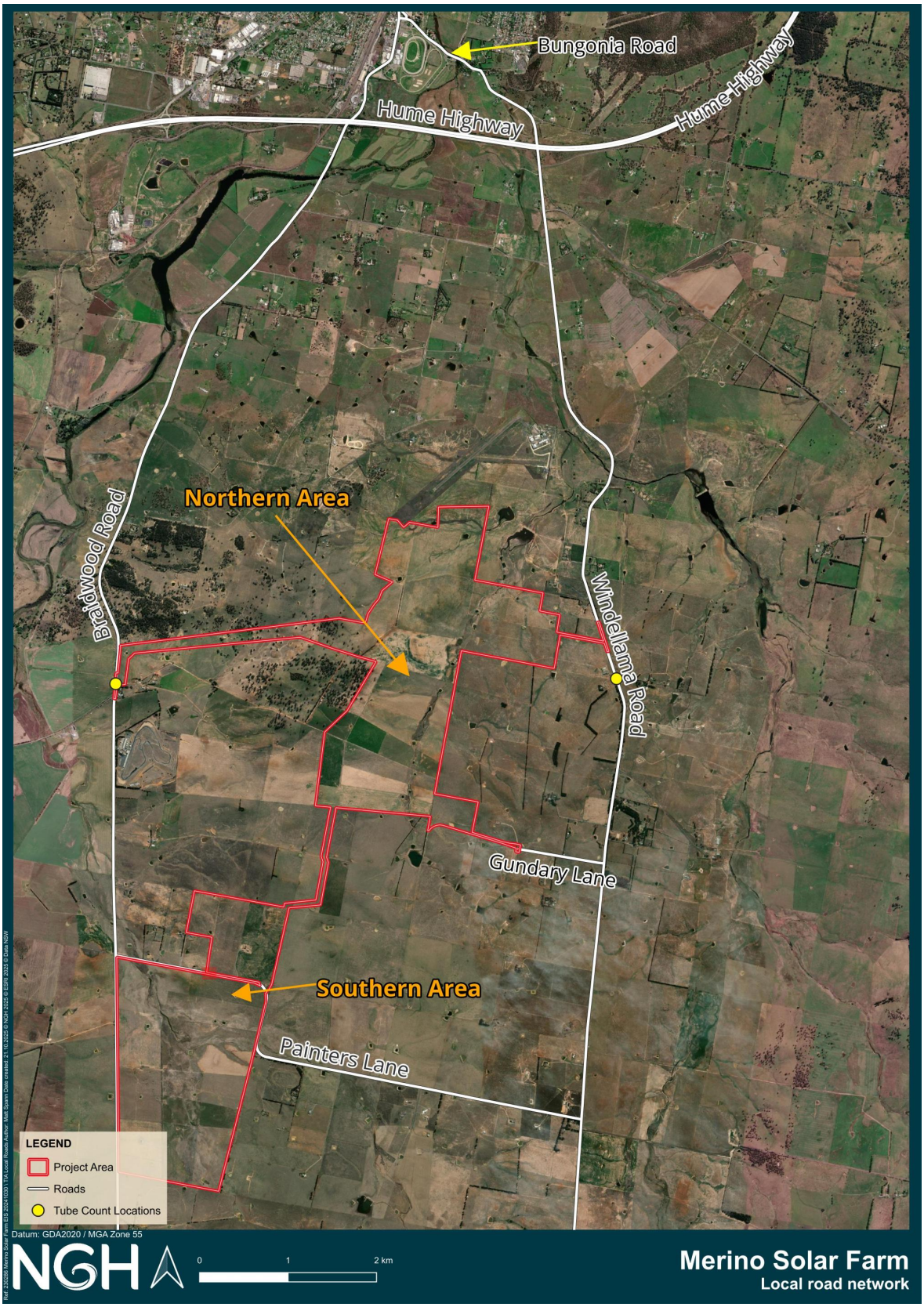


Figure 6-27 Local road network

Traffic volumes

Tube count surveys on Braidwood Road and Windellama Road were undertaken to determine the existing traffic levels. The tube counts were undertaken from Thursday 21 November to Thursday 28 November 2024, in locations shown above in Figure 6-27.

Braidwood Road

The tube count for Braidwood Road was undertaken approximately 140 m north of Currawang Road. The survey results are summarised in Table 6-35.The survey results indicate that Braidwood Road currently experiences a moderate level of daily traffic of which, approximately 20% is heavy vehicle traffic. Overall, Braidwood Road would be able to accommodate an increase in traffic.

Table 6-35 Braidwood Road traffic volumes

	Weekday traffic (vpd)	Weekend AM peak traffic (8AM-9AM) (vpd)	Weekend PM peak traffic (3PM-4PM) (vpd)	85th Percentile speed	Heavy Vehicle Percentage
Northbound	1,086	96	111	104.1 km/hr	20.4
Southbound	1,116	79	77	100.4 km/hr	
Both directions	2,202	176	189	101.8 km/hr	

Windellama Road

The tube count for Windellama Road was undertaken at approximately 878-742 Windellama Road. The survey results are summarised in Table 6-36. The survey results indicate that Windellama Road currently experiences a moderate level of daily traffic of which, less than 10% is heavy vehicle traffic. Overall, Windellama Road would be able to accommodate an increase in traffic.

Table 6-36 Windellama Road traffic volumes

	Weekday traffic (vpd)	Weekend AM peak traffic (8AM-9AM) (vpd)	Weekend PM peak traffic (3PM-4PM) (vpd)	85th Percentile Speed	Heavy vehicle percentage
Northbound	701	92	56	105.8 km/hr	8.8
Southbound	727	31	76	99.5 km/hr	
Both directions	1428	123	132	102.3 km/hr	

Public transport

There are no public transport services offered on Braidwood or Windellama Roads. There are however, several school bus stops within the vicinity of the Project area, as summarised below in Table 6-37.

Table 6-37 School bus service summary

Bus service	Road name	Location of bus stops	Time period
S685 S687	Braidwood Road	Braidwood Road near Painters Lane intersection and Currawong Road intersection.	8:10am – 8:20am 3:50pm – 4:30pm
S684 S688	Windellama Road	Windellama Road near Gundary Lane intersection, Painters Lane intersection, and at private property access new proposed Windellama Road site access.	8:15am – 8:20am 3:55pm – 4:05pm

Restricted vehicle access

The TfNSW Restricted Vehicle Access Map for the surrounding area shows that the Project area has access to the B-Double and Class 1 OSOM approved road network via the Hume Highway and Braidwood Road. Both Windellama Road, Gundary Lane and Painters Lane are unrated for B-double and Class 1 OSOM access.

It is noted that there is a restricted access location on Bungonia Road which has been identified as the Lansdowne Bridge which crosses over the Mulwaree River. The bridge has been replaced in 2019 and Goulburn Mulwaree Council are now the relevant road authority. It is understood that use of the new bridge by Class 1 OSOM vehicles is permissible subject to a detailed vehicle loading analysis for OSOM and implementation of measures imposed by Council.

Special purpose vehicles (SPVs) are those built for a purpose other than carrying goods, such as mobile cranes, concrete pumps or drill rigs. The Project has access to the **SPV Level 6** (5-axle All Terrain Cranes up to 60 tonnes) approved road network via Braidwood Road, with the same conditions applying to the Landsdown Bridge as above.

Crash history

A review of the TfNSW Centre for Road Safety Crash and Casualty Statistics database for all injury crashes within the surrounding area of the Project shows a total of 11 crashes resulting in injury have been recorded in a five-year period from 2019-2023. Of these, nine occurred on Braidwood Road, with one each occurring on Windellama Road and Painters Lane. The recorded number of crashes meets the criteria for classification as a 'Black Spot' under the Australian Government's *Black Spot Program*.

However, given the large search area, the associated traffic volumes on the roads, the road classifications, and the rural high-speed nature of the surrounding roads, Amber Organisation have concluded that the road network is currently operating in a relatively safe manner.

6.7.3. Potential impacts

Impacts of the Project on local traffic could include:

- Damage to the road assets, including Baldon Road which is a Council asset
- Delays for local traffic
- Increased risks to road users.

Impacts are most relevant to peak construction, when Project traffic volumes would be at their highest, but operational impacts are also considered where relevant in the assessment below.

Construction impacts

Traffic volumes and distribution

The Project description in Section 3 details that the construction of the Project is anticipated to commence in in 2027 and would take approximately 24 months. Construction would be undertaken during the standard hours of:

- Monday – Friday: 7:00AM – 6:00PM
- Saturday: 8:00AM – 1:00PM
- No works on Sundays or public holidays

Any construction outside of these normal working hours would only be undertaken with prior approval from relevant authorities and consultation with impacted road users.

The peak construction period expected to occur for up to 12 months. A construction workforce of up to 500 full-time equivalent personnel would be on-site during the peak construction phase. As detailed in Section 6.10, it is anticipated that construction workforce would be sourced from localities within approximately a one-hour drive of the Project Area.

A combination of non-high-risk OSOM vehicles would be required during construction, including, but not limited to, graders, cranes, drum rollers, concrete pumps, excavators, compacts, pile driving rigs and trenching equipment. Control buildings and the switchroom would also be delivered by vehicles considered non-high-risk OSOM.

Many of the above required vehicles would not contribute to daily trips, as once arrived, they would remain onsite until no longer required. These movements, when occurring, would do so outside of the peak site access hours.

High-risk OSOM deliveries would originate from the Port of Melbourne or Port of Newcastle and would include components such as transformers. These vehicles would exceed Class 1 mass and/or dimension requirements and would be subject to separate permit applications and regulations. These vehicles would constitute the smallest percentage of vehicles accessing the Project site.

Materials including gravel and reinforcing steel, and equipment such as cranes, excavators, and trench diggers, as well as water required during construction will be sourced from within the surrounding area where practicable. Construction also may include mobile concrete batching plant(s), and office buildings and substations for the construction and operational phases (e.g. maintenance) of the Project.

Construction traffic generated by the Project on a day-to-day basis can be broadly separated into the following categories as outlined in Table 6-38.

Table 6-38 Standard construction traffic

Vehicle	Definition
Light vehicles	The use of light vehicles will be associated with transporting the workforce to/from the Project area. A conservative vehicle occupancy of approximately 1.5 people per car has been adopted to calculate the light vehicle traffic generation noting the workforce would be encouraged to carpool. All light vehicles are expected to approach the Project area from the north before equally splitting to the northern or southern sections of the site, as per Table 6-40.
Heavy vehicles	
Rigid trucks	Rigid trucks will be used to deliver raw materials and smaller plant and have a typical length between 8 and 13m. Trips would be split evenly to the northern or southern sections of the site with all vehicles approaching from the north.
Truck and dog	Truck and Dog vehicles consist of a rigid truck towing either a dog trailer or a pig trailer and are not more than 19m in length. A dog trailer is a trailer with axles at either end of the trailer, a pig trailer has the axles centred on the trailer. These vehicles will be utilised to transport the majority of quarry materials to/from the site. Trips would be split evenly to the northern or southern sections of the site with all vehicles approaching from the north.
Semitrailers	Semitrailers will be used to transport larger equipment and materials. These vehicles consist of a truck and a single trailer with a total length of 19m. Plant would be transported from the Port of Newcastle to the site equally split to the northern or southern sections of the site, with all vehicles expected to reach the Project areas from the north.
B-Doubles	B-Doubles will also be used to transport larger plant. B-Doubles consist of a truck with two trailers and have a maximum length of 26m. Plant would be transported from the Port of Newcastle to the site equally split to the northern or southern sections of the site, with all vehicles expected to reach the Project areas from the north.
Non-high-risk OSOM (not requiring escort)	Class 1 OSOM vehicles which can operate on the approved network outlined in Section 6.7.2, subject to travel conditions, as well as vehicles built for a purpose other than carrying goods such as a mobile crane, a concrete pump or drill rig which are defined as Special Purpose Vehicles (SPVs) and can also operate on the relevant approved networks subject to travel conditions. Plant would be transported from the Port of Newcastle to the site equally split to the northern or southern sections of the site, with all vehicles expected to reach the Project areas from the north.

The peak hour for construction traffic will occur at the start and end of the day when workers are transported to/from the Project area. The assessment expects most workers to arrive on-site between 6:00am and 7:00am and depart between 5:00pm and 7:00pm, however, the Traffic Impact Assessment conservatively assumed that the evening peak hour Project traffic is the same as the morning peak, and the evening peak hour occurs from 6:00pm to 7:00pm.

It is anticipated that during peak construction the Project would generate up to 670 light vehicles and 64 heavy vehicles per day. Table 6-39 summarises the forecast traffic volumes expected to be generated during the construction period of the Project.

Overall, the Project is expected to generate up to 344 vehicles per hour in the morning and evening peak hours during the peak construction period, with an average of 174 vehicles per hour during the average construction period

Table 6-39 Traffic generation during construction period

Vehicle type		Average construction period		Peak construction period	
		Daily (vph)	Peak hour (vph)	Daily (vph)	Peak hour (vph)
Light Vehicle		334	167	670	335
Heavy Vehicles (HV)	Rigid Trucks	12	2	14	2
	Truck and dog	4	1	4	1
	Semitrailer	18	2	38	4
	B-Double	4	1	6	1
	Non-high risk OSOM	4	1	2	1
	HV Subtotal	*42*	*7*	*64*	*9*
Total		**376**	**174**	**734**	**344**

In addition to the above, it is anticipated that up to five high-risk OSOM vehicles (those requiring a traffic escort) would be required during the construction phase.

Traffic distribution and site access

It is expected that all Project traffic accessing the site would travel from Braidwood Road in Goulburn before either turning onto Bungonia Road (which continues as Windellama Road) or continuing on Braidwood Road. During the morning peak all vehicle trips would be toward the site and in the evening peak all vehicle trips would be away from the site. Most heavy vehicle trips would be distributed throughout the day and would be split evenly between inbound and outbound trips.

The resulting traffic distribution between site access points, as given in Figure 6-28, are presented below in Table 6-40.

Table 6-40 Site access distribution

Project area	Access number	Site access name	Access type	Proportion of Project traffic (%)
Northern section	1	Windellama Road	Primary	49
	2	Braidwood Road	Emergency only	0
	3	Gundary Lane	Secondary – Transgrid and OSOM only	1
Southern section	4	Painters Lane West	Primary	20
	5	Painters Lane North		10
	6	Painters Lane South		10
	7	Painters Lane East		10

The TIA assumes that 95% of the workforce for the construction of the Project would be in Goulburn, 4% located in Sydney, and 1% located in Canberra. However, due to accommodation constraints discussed in Section 6.10, construction staff in reality may be sourced from other localities up to an hour from the Project Area, including the Southern Highlands, the Upper Lachlan Shire, Yass, and Queanbeyan and other towns in the ACT border corridor.

Given that workers arriving from these localities may do so from the south, access provisions will be required in the Traffic Management Plan prepared for the Project to ensure that these workers do not turn into the site access points from the south. For example, the below turning movements would be prohibited:

- A right-turn onto Painters Lane from the south of Braidwood Road
- A left turn onto either Painters Lane or access point #1 from Windellama Road.

These turning movements are not permissible as there are not adequate turning treatments provided from southern directions. Instead, construction workforce will need to arrive from a northerly direction, as indicated in Figure 6-28.

Materials and equipment will generally be sourced from within Goulburn where practicable, followed by Sydney and Canberra. All larger plant and solar farm and BESS components are expected to be delivered from the Port of Newcastle (excluding High-Risk OSOM loads).

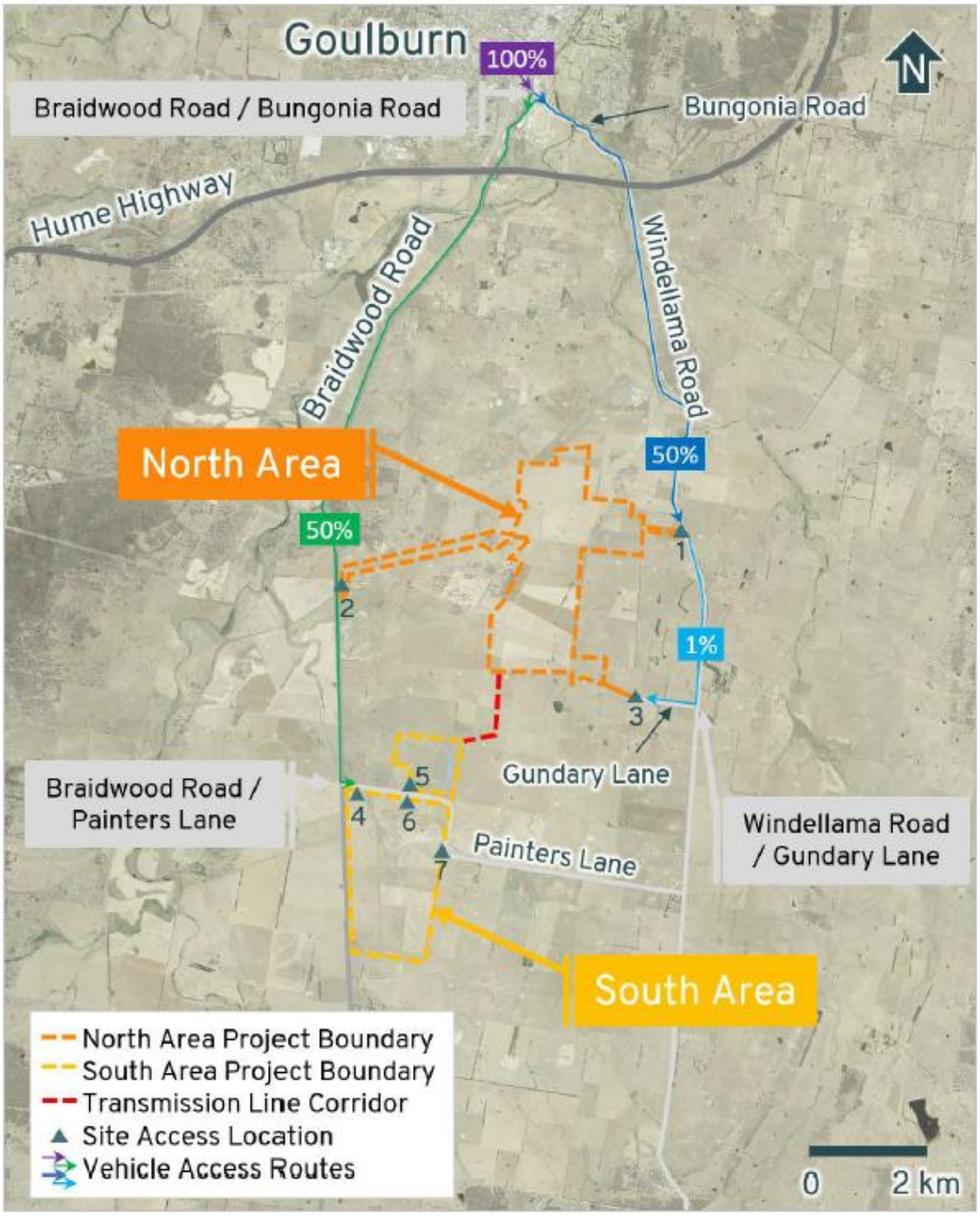


Figure 6-28 Site access points and key intersections

Cumulative impacts

The primary traffic impact of the Project is generated during construction which is anticipated to commence in 2027 and take approximately 24 months. A summary of the major projects proposed in the surrounding area is assessed in Table 14 of the Traffic Impact Assessment. Of these projects, four have the potential to generate additional traffic along Braidwood or Windellama Roads in the vicinity of the Project area during the construction period. These projects are:

- Gundary Solar Farm
- Woodlawn Bioreactor Modification 7
- Woodlawn Bioreactor Modification 6
- Woodlawn Advanced Energy Recovery Centre

The assessment reviewed potential cumulative impacts of traffic generated by the above projects and concluded that there is an expected minimal impact on the operation of the road network. The nearest of the above projects, the Gundary Solar Farm, is currently in the response to submissions phase, and is expected to generate up to 38 heavy vehicle and 63 light vehicle movements during the morning peak hour, with all vehicles travelling from the north via the Braidwood Road/Bungonia Road intersection and passing the Windellama Road site access (#1).

Intersection performance

To determine the ability of the road network to accommodate the traffic expected to be generated during the peak construction period, an analysis of the operation of the Windellama Road site access (#1) and the Braidwood Road/Painters Lane intersection was carried out using the SIDRA computer modelling program[10].

The modelled traffic volumes at AM and PM peak hours consisted of the sum of the following:

- Existing surveyed traffic volumes along Braidwood and Windellama Roads, adjusted by a 1.5% compounded annual growth rate to reflect the end of the construction period in 2029
- Cumulative impacts associated with the above listed projects
- Construction traffic volumes outlined within Table 6-39.

Results of the SIDRA modelling are presented as 'Level of Service' (LoS) which is a qualitative measure used to describe the operating conditions of a section of road or an intersection. Levels of Service are designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays) and represent the perception of the road conditions by motorists including speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. The result of SIDRA analysis for each intersection are presented below.

<u>Windellama Road site access (#1)</u>

- The intersection is expected to operate with minimal queue lengths on all legs of the intersection
- The overall average delay at the intersection is 3.8 and 1.7 seconds in the morning and evening peak hours respectively
- The intersection is expected to operate with good level of service (LOS A)

<u>Braidwood Road/Painters Lane intersection</u>

- The intersection is expected to operate with minimal queue lengths on all legs of the intersection
- The overall average delay at the intersection is 3.9 and 3.4 seconds in the morning and evening peak hours respectively
- The intersection is expected to operate with good level of service (LOS A).

[10] Software used to model intersection performance.

Accordingly, the intersections are expected to be able to readily accommodate the traffic movements generated during peak construction, even when considering cumulative traffic movements associated with the Gundary Solar Farm and other nearby projects.

Turn treatments

The requirement to provide turn facilities at the intersection of Braidwood Road and Painters Lane is primarily generated during the morning peak hour when the workforce access the site, which occurs from 6:00am to 7:00am.

The associated traffic volumes have been plotted within the *Austroads Guide to Traffic Management* chart which shows that the site access would require a short Auxiliary Left (AUL(s)) turn treatment to facilitate traffic turning left onto Painters Land from Braidwood Road. As there is not expected to be any traffic arriving from south along Braidwood Road, a right-turn treatment is not required.

Given the large proportion of construction traffic that would use the Windellama Road site access (#1), the access has been assessed as an intersection to determine the need for a turn treatment. Assessment indicates that this access would require a short Channelised Right (CHR(s)) turn treatment. As there is not expected to be any traffic arriving from south along Windellama Road, a left-turn treatment is not required.

The AUL(s) and CHR(s) treatments would be designed and constructed in accordance with the requirement of the Austroads Guide, including suitable allowance for B-double vehicles.

Sight distance

The required Safe Intersection Sight Distance (SISD) is the minimum sight distance which should be provided along a major road at any intersection and is based on the design speed limit of a given major road and the associated reaction time of a road user.

Given the sign posted speed limits of Braidwood and Windellama Roads being 100 km/hr, a design speed limit of 110 km/hr is applied, as per the Austroads *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*. Assuming a reaction time of 2.5 seconds, a SISD of 300 m is required. Refer to Table 6-41 below:

Table 6-41 SISD Assessment

Intersection	Required sight distance	Existing sight distance
Braidwood Road/Painters Lane	North – 300 m South – 300 m	North – greater than 300 m South - greater than 300 m
Windellama Road/Gundary Lane	North – 300 m South – 300 m	North – approx. 210 m due to crest South - greater than 300 m

From the table above, it is clear that the intersection of Windellama Road and Gundary Lane does not meet the minimum requirements for SISD. However, given the volume of traffic using this intersection is anticipated to be in the order of three to four vehicles a day, and these vehicles would be exiting to the north, this SISD is deemed appropriate and Project traffic would not be expected to pose any safety issues at this intersection.

Furthermore, all site access points, except for Gundary Lane, were assessed to ensure suitable SISDs are maintained (these are included in Table 26 of the Traffic Impact Assessment and are not duplicated here). Vehicles are expected to be able to safely enter the road network from all site access locations with no further requirements.

Heavy vehicle routes

Specialist solar farm and BESS plant is expected to be delivered from the Port of Newcastle. Figure 6-29 below shows the overview of the proposed route to the site from the Port. The route overview is provided in more detail in Appendix F.7.

Figure 6-29 B-double access route from the Port of Newcastle

The route utilises roads that are designated for B-Double vehicles as outlined within the TfNSW Restricted Access Vehicle Map. It is noted that Bungonia Road, Windellama Road and Painters Lane are currently unrated and would require approval from Goulburn Mulwaree Council for B-Double vehicles to operate along this road.

Both Bungonia Road and Windellama Road are suitable for heavy vehicle access and would require no upgrade to facilitate heavy vehicles.

Painters Lane would require widening to a minimum general width of 7.0 m (or as agreed to with Goulburn Mulwaree Council) between Braidwood Road and Painters Lane access east (#7) to facilitate heavy vehicle access. Proposed construction traffic volumes on Painters Lane are within the range for consideration of sealing, however due to the temporary nature of construction, it is considered acceptable for Painters Lane to remain unsealed.

Gundary Lane is proposed to only be used for OSOM access and Transgrid traffic only, and as such, would be subject to less than 10 vehicle trips per day. This limited use would not necessitate upgrades to provide access.

High-Risk OSOM route assessment

Oversize-Overmass (OSOM) vehicles will be required to transport larger plant to the site, such as substation transformers and earthmoving equipment. Such equipment would be delivered from either the Port of Melbourne or the Port of Newcastle. Overviews of the suitable routes are provided below in Figure 6-30 and

Figure 6-31. Overall, five OSOM vehicle movements would be required during the construction period. The largest vehicle configuration that may be used has been considered in the route assessment.

Port of Newcastle

On the potential access route to site, there are three State Road projects that are currently under construction, being the Hexham Straight Widening, the Port to REZ upgrades, and Newcastle Inner City Bypass. All are expected to be completed prior to the planned commencement of Merino Solar Farm construction in 2027.

The assessment of the access route identified that the vehicle can access the site with suitable traffic management measures. A review of the key constraints along the route concluded no upgrades or treatments outside of the above-mentioned State Road projects would be required to facilitate OSOM access. The route also has seven potential vertical clearance issues, however consultation with a qualified OSOM specialist would be required to confirm these limitations prior to the route being finalised.

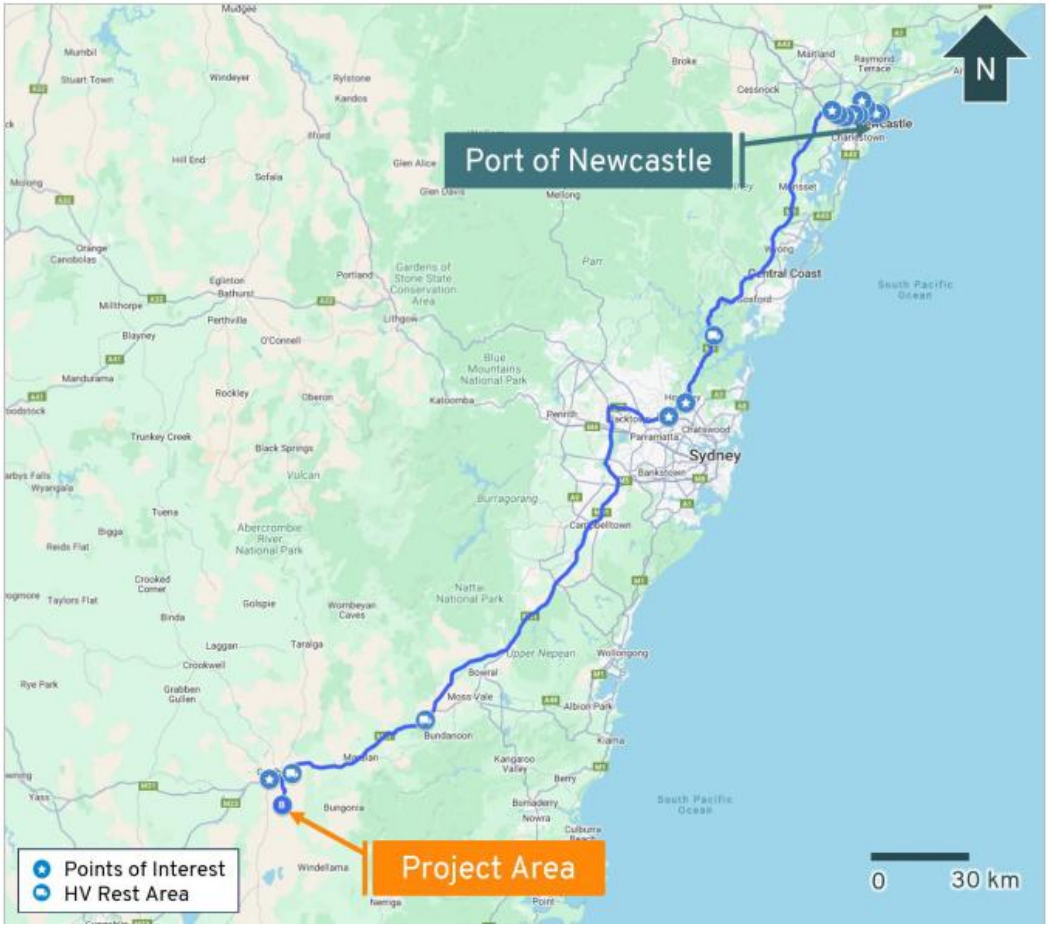


Figure 6-30 Port of Newcastle OSOM Route

Port of Melbourne

The assessment of the access route identified that the OSOM vehicle is able to access the site with minor civil works, temporary signage relocation and suitable traffic management measures at two locations on the route. Works would require the installation of temporary hardstand areas at:

- The intersection of Somerville Road and Fairbairn Road in Sunshine West, Victoria

- The intersection of the Northern highway and Bradford-Kilmore Road in Kilmore, Victoria.

These works, along with required Victorian approvals and permitting would be secured should this route be utilised. Works proposed in Victoria are considered feasible but not assessed in this EIS.

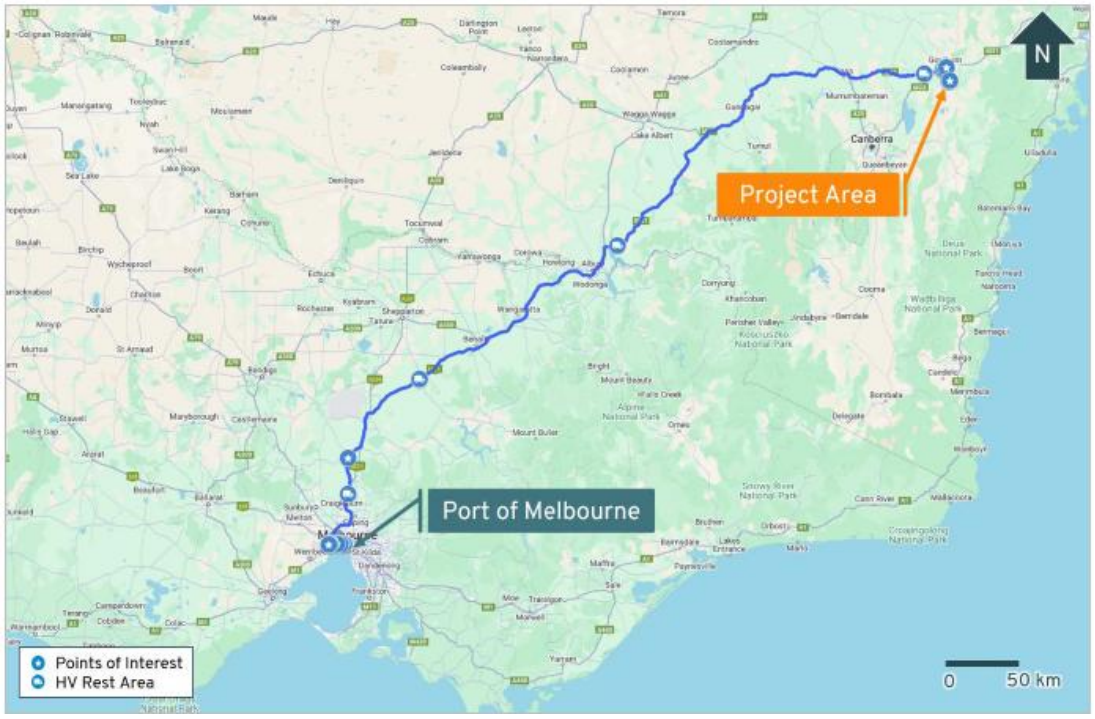


Figure 6-31 Port of Melbourne OSOM route

Operational impacts

During operation, the solar farm is expected to generate up to 20 vehicle trips per day associated with maintenance and operation services. The solar farm is expected to be operated by 10-12 FTE staff, with additional casual staff for maintenance of inverters/BESS, and vegetation/landscape maintenance, which would result in a negligible change to the traffic environment. There would also be occasional light commercial vehicles delivering parts to the site but only as required for maintenance.

Decommissioning impacts

At the end of the operational life of the project, it is understood that most above ground infrastructure would be dismantled and removed from the project site. The site would be reinstated as close as possible to its original state, retaining the current Land Soil Capability for continued agricultural or other appropriate land use.

Traffic generation during decommissioning would be similar to the traffic generation during the average (non-peak) construction period. A comprehensive Traffic Management Plan would be prepared prior to the decommissioning phase in conjunction with the relevant road authorities. This would aim to ensure adequate road safety and road network operations are maintained.

6.7.4. Mitigation measures

The key mitigation strategies that will manage traffic and access impacts relate to:

- Use of designated access points and haulage routes, as are now incorporated in the Section 3 Project description
- Upgrades to roads and intersections, as are now incorporated in the Section 3 Project description
- Development of traffic management plans, in consultation with Transport for NSW, as set out below.

Table 6-42 Safeguards and mitigation measures to manage traffic and access

ID	Mitigation measures	Project stage
T1	A Traffic Management Plan (TMP) is to be developed and include the following measures: • Prior to construction, a pre-condition survey of the relevant sections of the existing road network should be undertaken in consultation with Council. • During construction, the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the Project would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction. • Neighbours of the Project are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access. • Heavy vehicles should avoid travel during peak bus operating times to limit the interaction of larger vehicles and vulnerable road users. • It is recommended that any OSOM vehicle trips be timed so that they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application. • Vehicles transporting construction staff to site will not be able to enter the Site from the south. The below turning movements into site are prohibited: o A right-turn onto Painters Lane from the south of Braidwood Road o A left turn onto either Painters Lane or access point #1 from Windellama Road.	All stages

ID	Mitigation measures	Project stage
T2	The implementation of a community information and awareness program would assist in managing the traffic impacts. Prior to construction commencing and during the construction period, a program of consultation shall be initiated to ensure local residents are aware of construction traffic accessing the project. This program may include elements of the following as appropriate to the phase of works and may include: • Press releases in local newspapers. • Specific emails, newsletters and individual letter drops to neighbouring residents along the access route to the project. • Provision of a website providing details of the status of works and contact details for complaints or enquiries. • Provision of key contacts, including out of hours contact information to residents, schools, public activities and business operating alongside the local route. • Neighbours consultation regarding the timing of major deliveries which may require additional traffic control and disrupt access.	
T3	If deemed necessary, specific warning signs advising of the changed traffic operations and heavy vehicles are to be appropriately located on approaches to and from the transport routes on Council roads. These should warn existing road users of changed traffic conditions. The use of day warning notices where signs are activated on a specific day to warn local road users of construction activities may also be applied	Construction
T4	On-site traffic protocols would be included in the TMP and include: • On-site speed restrictions • Appropriate dust suppression measures • Maintenance program for on-site access tracks to ensure safe access • Loading and unloading to occur within the work area • No streets or roads would be used for material storage at any times • Sufficient car parking to be provided within the Development Footprint to ensure vehicles do not park on the surrounding road network • All car parking and loading areas to be designed in accordance with the relevant Australian Standard (2890 series) and Council requirements.	All stages
T5	A driver code of conduct is to be implemented as a measure to maintain safety within and around the site to include: • All vehicles would enter and exit the site in a forward direction • Heavy vehicle movements should avoid peak bus operating times to limit the interaction of larger vehicles and vulnerable road users • Safety initiatives for impacts to residential areas and/or school bus zones • Utilisation of only the designated transport routes	Pre-construction

ID	Mitigation measures	Project stage
	• Construction vehicle movements are to abide by finalised schedules are agreed by the relevant authorities • All permits for working within the road reserve must be received from the relevant authority prior to works commencing.	
T6	The required turn treatments will be undertaken prior to construction commencing and includes: • Upgrading the Braidwood Road and Painters Lane intersection to provide an AUL(s) turn • Construction of a CHR(s) turn treatment at the Windellama Road site access (#1) • Widening of Painters Lane to a minimum of 7.0 m from Braidwood Road to the Painters Lane site access east (#7)	Pre-construction
T7	Two locations along the Over Size Over Mass vehicle haul route have also been identified for works, if the Port of Melbourne haulage route is used. All necessary assessment and permits to satisfy Victorian legislation would be sought, if this haul route is used.	Pre-construction

6.8. Water

A Flood Assessment Report was undertaken by Footprint Sustainable Engineering Pty Ltd (Footprint) to understand surface water impacts, particularly, how the local catchment functions with regard to water flow paths and flooding. The Development Footprint was then modelled to understand how this infrastructure affects:

- The velocity of run off (or its erosive potential)
- Flooding extent.

The purpose of the analysis was to define the flood behaviour, including depth of inundation, flood velocity and flood hazard within the Project area. This work is undertaken in tandem with the development of the high level concept layout and ensures infrastructure would not be located in areas that exacerbate risks of flooding, changes to local hydrology or exacerbate erosion (and therefore affect water quality). Re-running the model 'post development' demonstrates the effect of the Project on flood behaviour. The Flood Assessment Report has been provided as Appendix F.8 and is summarised below.

In addition to the Flood Assessment Report, a Water Cycle Management Study (WCMS) is progressing in tandem with Project design to inform the specific requirements that will be required to achieve a *neutral or beneficial impact* on water quality (as is required for projects in the Sydney Drinking Water catchment). A WCMS is not a requirement of the SEARs (Appendix A) but is understood to be an expectation of WaterNSW. Consultation is continuing to ensure that the study meets agency expectations. The commitment to undertake a WCMS is captured as a performance objective in the mitigation measures.

This chapter is supplemented with a desktop analysis of surface water, groundwater resources and water supply to fully evaluate the Project's potential to impact water supply and water quality.

6.8.1. Approach

The existing hydrology and flood behaviour was characterised. This included modelling flood depths in terms of 'hazard vulnerability'. Flood conditions were modelled at both the 5% and 1% Annual Exceedance Probability (AEP) (used to describe how likely a flood is to occur in a given year[11]) to the Probable Maximum Flood (PMF) for the pre-development, or existing, flood conditions. The model was re-run for the 1% AEP, assuming infrastructure would be in the Development Footprint, to see how proposed infrastructure affected the predicted flooding events.

Hydrological modelling was conducted using the computer software DRAINS[12]. Modelling accounts for storage and retardance of flows that occurs within an area, slope, roughness and factor rainfall depth data and temporal patterns. Rainfall data was derived in accordance with Australian Rainfall and Runoff (2019) using the Bureau of Meteorology's 2019 Rainfall IFD online data system.

Surface and groundwater resources, groundwater dependent ecosystems, acid sulfate soils, adjacent licensed water users and water access were investigated by desktop assessment. Water usage has been assessed at a high level using expected worst case water requirement estimates.

[11] For example, a 5% AEP flood represents a 5% risk this flood level would occur, in any one year.

[12] DRAINS is a hydraulic modelling software program which incorporates Australian Rainfall and Runoff guidelines and is inclusive of sub-catchments and overflow and runoff routes.

6.8.2. Existing environment

Surface water

There are 16 dams within the Development Footprint, and 38 within the wider Project Area. At this stage, no dams will be removed as part of the development. Further assessment of impacts (specifically biodiversity) and modelling (specifically hydrology) would be required to support the removal of dams. If removed, the intention would be to reinstate them within the Development Footprint, to retain the same surface water collection volume / stock watering capacity.

The largest waterway within the Subject area is Saltpetre Creek, which becomes a 6th order stream, under the Strahler Stream Order classification, in the southern portion of the site. Saltpetre Creek enters the site from the east and is joined by an unnamed waterway of 5th order. The Creek then exits the Site to the northwest towards Braidwood Road. The northern portion of the Subject area contains an unnamed 3rd order intermittent waterway that drains to Gundary Creek, north of the site. This waterway contains a number of artificial farm dams along its length. There are also a number of smaller 1st and 2nd order streams, which can be seen in Figure 6-32.

There are no wetlands mapped as occurring within or adjacent to the Subject area.

Groundwater and water entitlements

The Subject Land contains one active bore for water supply purposes. The bore is located within Lot 1 DP 593528 (Bore ID GW115760.1.1). The Project does not propose use of this bore.

Several other water supply bores are located nearby the Subject Land (refer to Figure 6-32). There is no mapped groundwater vulnerability around the Project area.

Ther are no active groundwater sharing plan for the Goulburn LGA. There is once active water sharing plan (WSP) that covers the Involved Lands, being the *Greater Metropolitan Region Groundwater Sources 2023* plan.

The maximum harvestable rights for dam water on the property equates to 69 ML/year (WaterNSW, 2025), which would be taken from existing onsite dams.

Groundwater Dependant Ecosystems (GDEs)

Groundwater Dependent Ecosystems (GDEs) include ecosystems which may rely on the surface expression of groundwater (including surface water ecosystems that may have a groundwater component) and ecosystems which may rely on the subsurface presence of groundwater (including vegetation ecosystems). There are no mapped terrestrial GDEs within the Subject area, however there is one high-potential aquatic GDE mapped within the southern portion of the Subject area, along Saltpetre Creek (See Figure 6-32; GDEs on this map are represented by 5th and greater Strahler order streams).

Acid sulfate soil

The Project area is not mapped within a known area of acid sulphate soils and the probability of encountering acid sulphate soils within this locality is extremely low as a result.

Naturally occurring asbestos

The Project area is not mapped within a known area of naturally occurring asbestos.

Salinity

Salinity is the accumulation of salt in land and water that damages the natural and built environment. Many areas within Australia naturally have salinity, however human activities can cause these levels to rise.

The Project area is not mapped in the NSW salinity map. Soil testing of the site undertaken for the scoping report confirmed that the soils on site are non-saline however, several areas of highly sodic soils have been identified (addressed in Section 6.4).

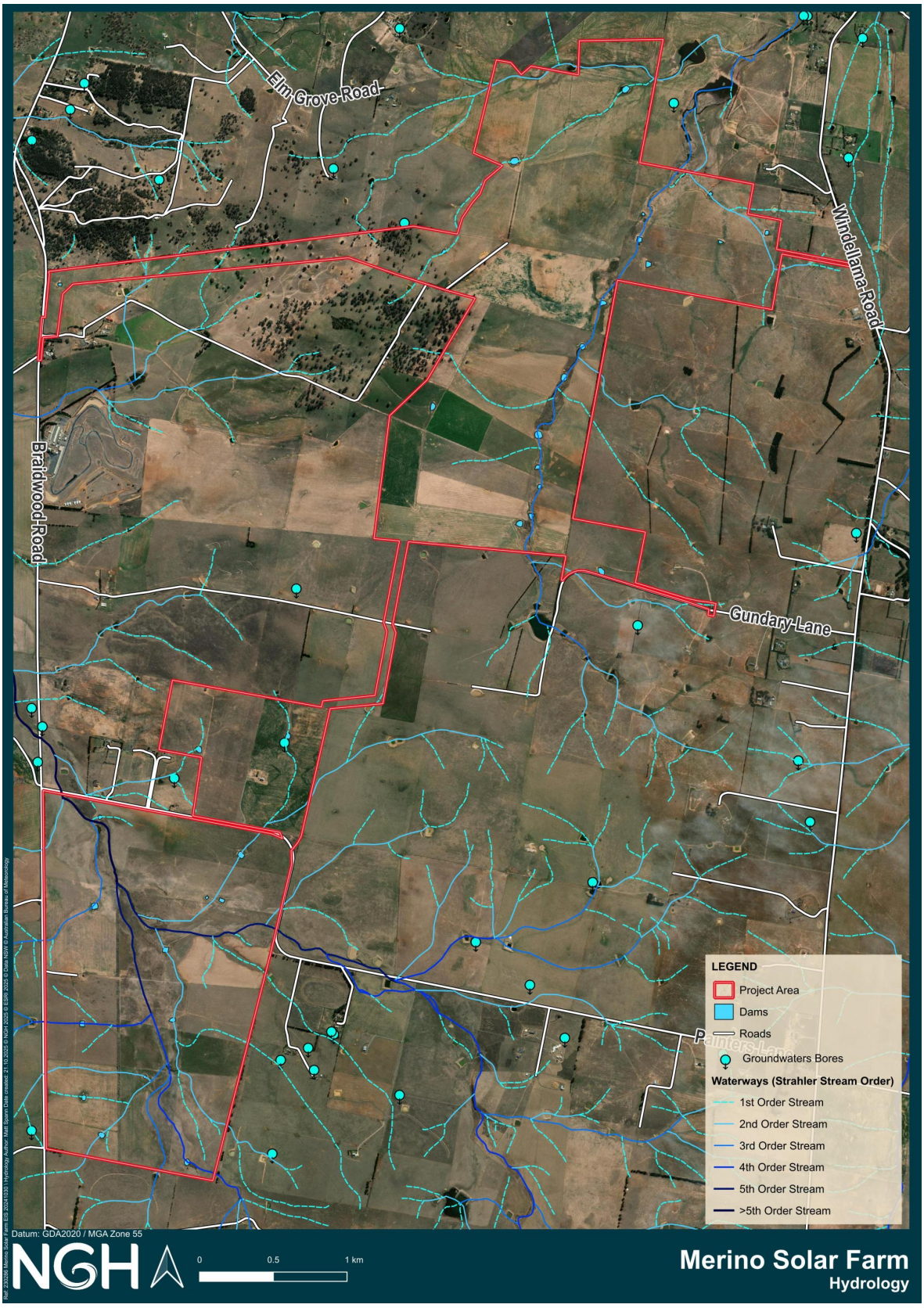


Figure 6-32 Hydrology of the Project Area

Flood hazard & existing flood conditions

The Project area is not located within any flood prone land mapping available for the Goulburn Mulwaree Local Government Area. However, watercourses within the site are known to be prone to flooding. Modelling undertaken in the Flood Assessment Report shows that existing flooding conditions over the Project area are characterised by shallow depth and low velocity flows, except along watercourses and major depressions, where flow depths and velocities increase. This is particularly evident along Saltpetre Creek in the southern portion of the Project area. Flood depth and velocity then inform the flood hazard of an area, which is mapped in accordance with the following criteria; H1 to H6 as per Table 6-43. This 'pre-development' flood hazard mapping has been used to define exclusion zones and inform the concept infrastructure layout and, in this way, minimises the Project's impact on flood behaviour.

Table 6-43 Flood hazard vulnerability classifications

Hazard vulnerability classification	Description
H1	Generally safe for vehicles, people and buildings
H2	Unsafe for small vehicles
H3	Unsafe for vehicles, children and the elderly
H4	Unsafe for vehicles and people
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure.

Mapping from the Flood Assessment Report shows that pre-development flood hazard is variable between the three modelled scenarios (5%, 1% and PMF), but the hazard is generally greater along Saltpetre Creek where it exits the western extent of the property. Figure 6-33 to Figure 6-35 below show the pre-development flood hazard levels, according to the above criteria, for each of the modelled scenarios.

Impact of climate change

The flood assessment also considered the impacts of climate change on the flood regime within the Project area. Assuming a 30-year operational period of the Project, a 2055 planning horizon was considered.

To simplify the assessment, a rainfall increase of 20% was applied to the 1% AEP flood model. Results showed that flood levels over the Project area would increase in the order of 10-20mm as result of the increased rainfall, except for along watercourses, where flood increases of up to 100mm are anticipated.

Refer to Figure 6-36 below that shows the modelled flood hazard for the 20% increase in rainfall climate change scenario.

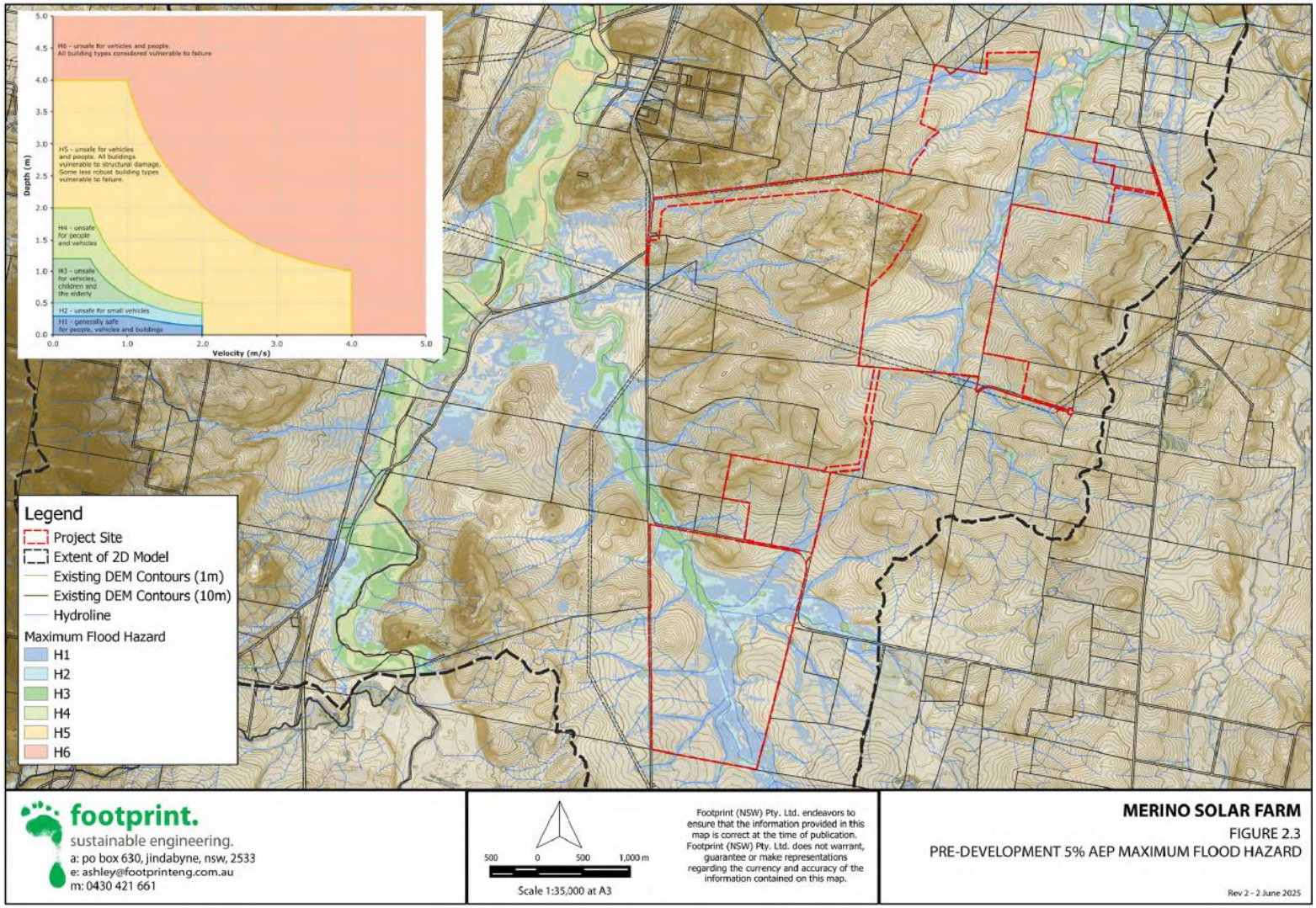


Figure 6-33 Pre-development 5% AEP maximum flood hazard

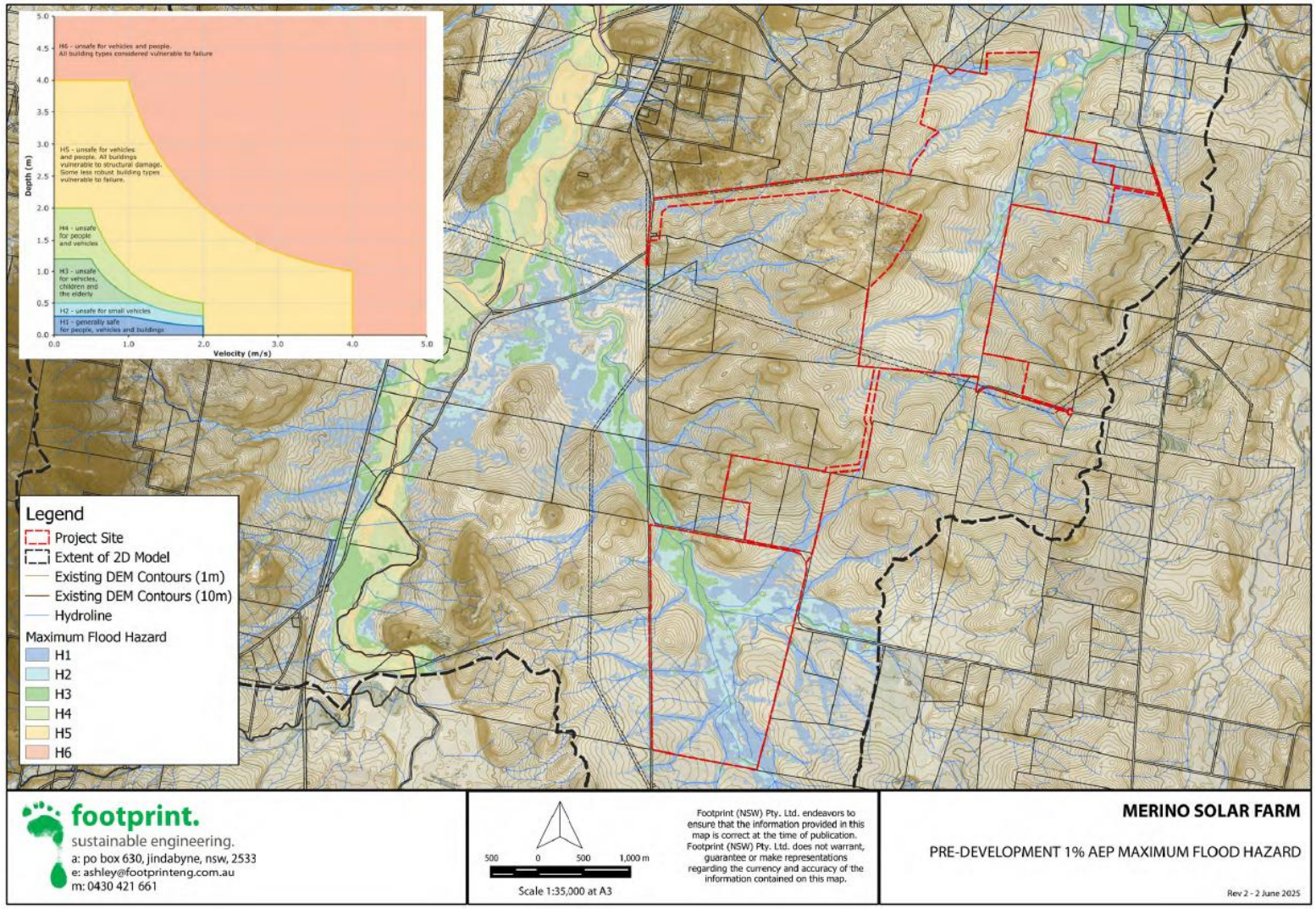


Figure 6-34 Pre-development 1% AEP maximum flood hazard

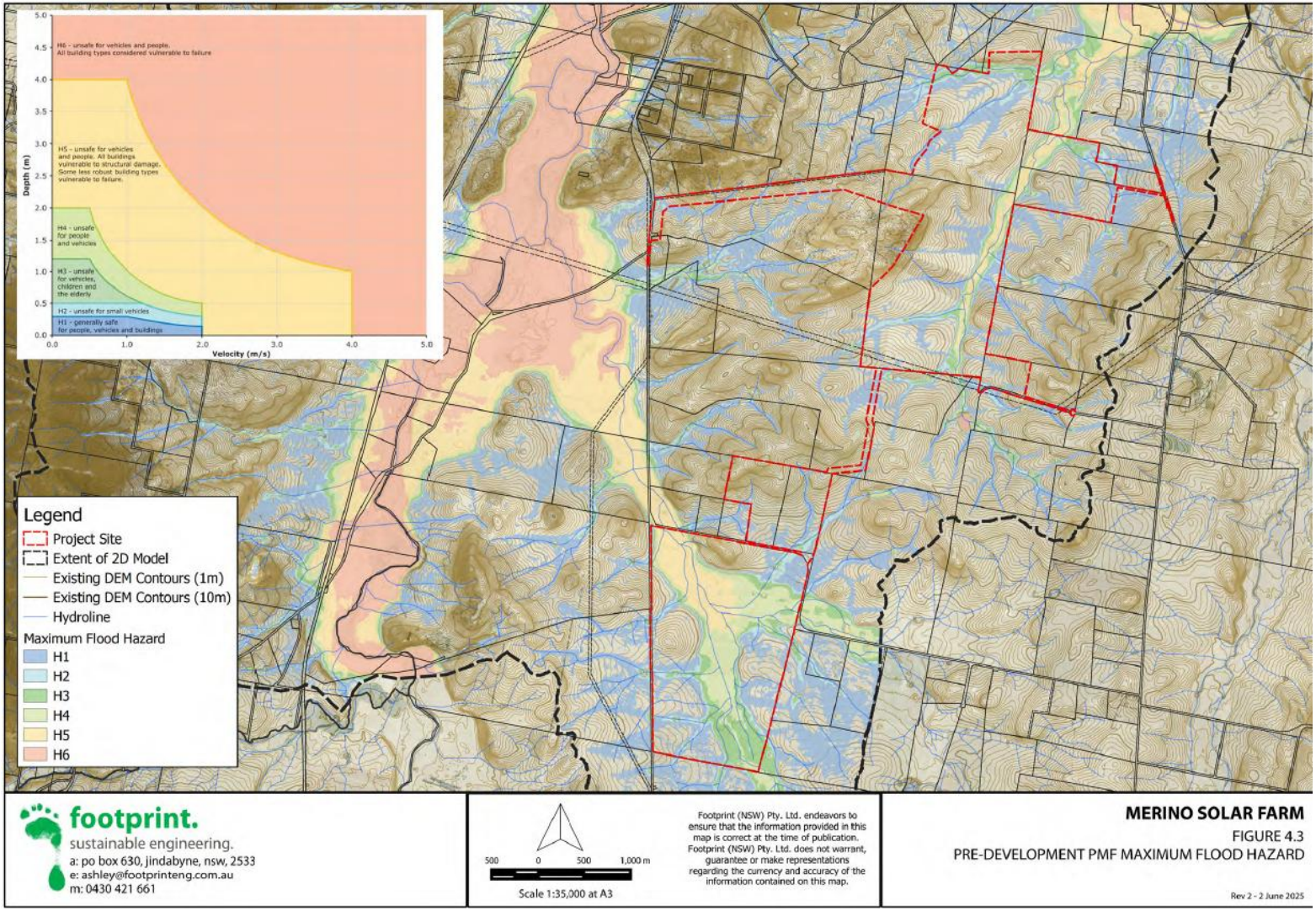


Figure 6-35 Pre-development Probable Maximum Flood maximum flood hazard

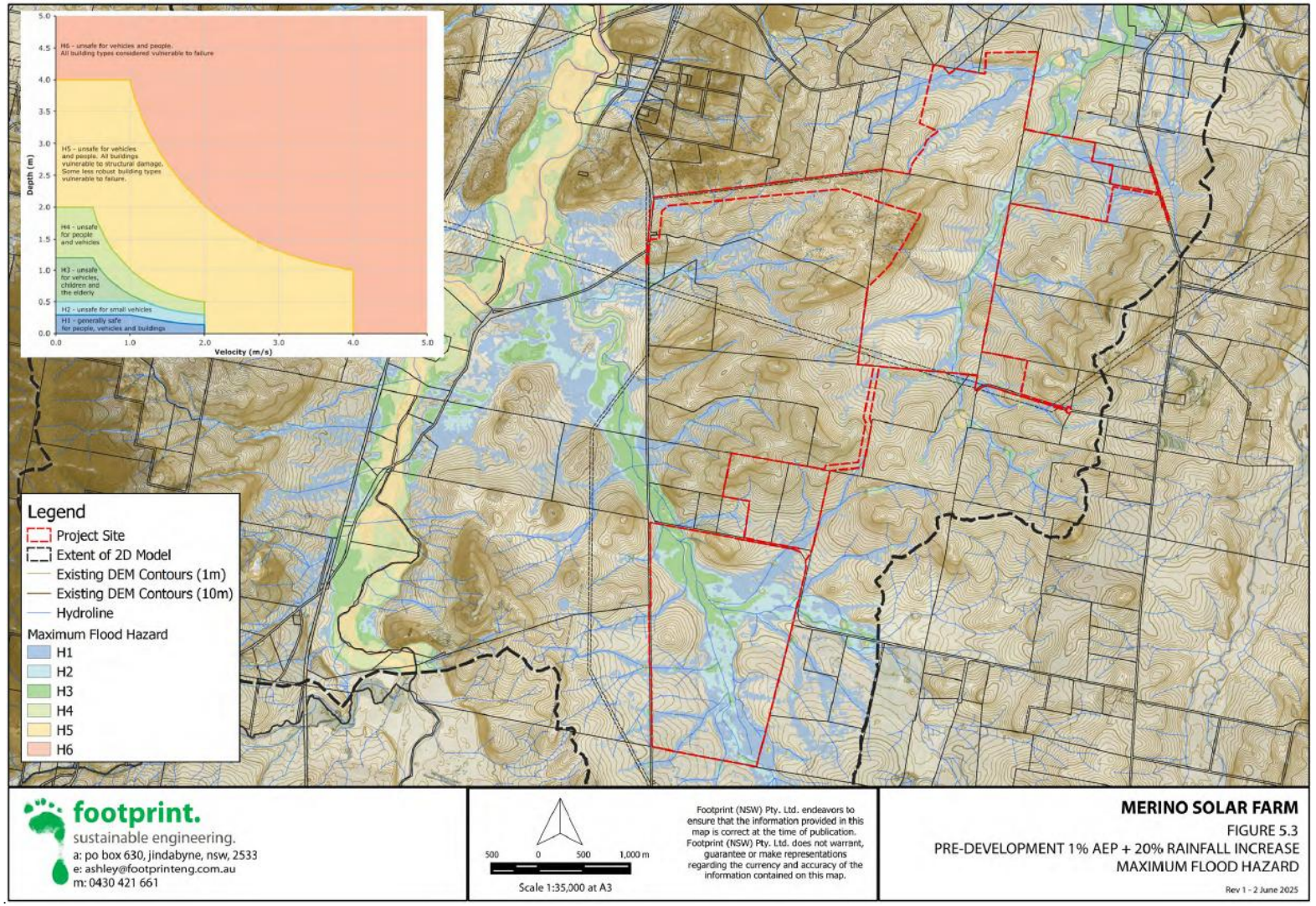


Figure 6-36 Pre-development 1% AEP maximum flood hazard under the climate change scenario

6.8.3. Potential impacts

Construction and decommissioning

Surface water risks

The construction phase has potential to impact water quality and quantity. Construction of the solar farm would disturb soils and potentially lead to sediment or other pollutants being present in runoff, mobilising and entering local waterways, adversely impacting on water quality. Activities that may contribute to this include:

- Excavations for the construction of internal roads and associated drainage, parking areas, footings for onsite substation, inverters and maintenance building and footings for temporary staff amenities and offices during construction
- Trenching for underground cable installation
- Construction of waterway crossings
- Construction of solar panel arrays over a 3rd and 4th order unnamed stream in the south-west of the site
- Construction of hardstand areas and access tracks would result in soil compaction, consequently reducing soil permeability, increasing surface water runoff and the potential for concentrated flows.

As set out in Section 6.4, these risks are well understood for the site, with reference to base line soil surveys, ground-truthed land soil capability mapping and remediation strategies which have been developed through the Agricultural Impact Assessment and Soil and Land Classification Verification.

During construction, as much groundcover as possible would be retained and protected, by rationalising laydown areas and tracks. Only discrete footprints would be levelled where required or footings or hardstand areas. Groundcover and the soil profile would remain largely undisturbed in areas where the solar arrays would be mounted, as arrays would use steel piles that are driven or screwed into the ground rather than excavated footings (refer to Section 6.4).

Surface water would still drain via the ephemeral drainage lines. The 2nd order waterways would not be altered by the proposal with the exception for the construction of crossings for the internal roads and for the installation of underground cables. Crossings would be constructed to maintain existing flow conditions and would likely consist of fords for 1st and 2nd order streams, and culverts for larger Strahler orders. No Key Fish Habitat would be impacted by waterway crossings.

Both the northern unnamed waterway, Saltpetre Creek and its 5th order tributary would remain largely unaffected by the development, with the exception of two crossings constructed on the northern waterway. These crossings would facilitate access from Gundary Lane to the substation and BESS area, and access from the Windellama Road access (#1) to the western array area in the northern Project area.

The construction phase would entail the following water pollution risks that will require management:

- A hydrocarbon spill risk from use and re-fuelling of construction vehicles and machinery
- On-site concreting for building and equipment foundations
- Wash off from curing asphalt pavement and road seal
- Storage and use of paints, cleaning solvents and other chemicals
- Pesticide and herbicide storage and use
- Fertilisers used for revegetation
- Runoff from waste materials.

Sediment and chemical pollutants which enter the drainage lines present on the site have the potential to flow towards either Gundary Creek or the Mulwaree River and be further transferred into the Wollondilly River.

During the decommissioning stage, the potential impacts on water quality and quantity would be similar to or less than construction. It is likely the risk and area of disturbance during decommissioning would be less than construction due the existing access tracks and reduced ground disturbance required, as footings and cables greater than 500mm deep would remain in place.

Activities with the potential for adverse water quality impacts would be managed through the development of site-specific sediment control plans and spill control plans during the construction, operation and decommissioning phases. Additionally, impacts to local water quality can be minimised by ensuring erosion and sediment control plans include measures to ensure 'Blue Book' (Landcom, 2004) criteria are met prior to discharge of water offsite.

Groundwater risks

Groundwater interception is not anticipated for the cut and fill components of the site (required to establish tracks the footings for the substation and battery facilities) however, final design will take more detailed geotechnical surveys into consideration. Driven piles to support solar array are expected to be driven to 'refusal point' which, based on preliminary results, is expected to be around 1.5– 3 m and unlikely to encounter groundwater. It is noted that this depth will also depend on the capacity of the piles.

Groundwater resources could be impacted by deep excavations; however, the existing environment does not indicate that local groundwater is particularly vulnerable. Additionally, minimal excavation is proposed for slab footings, and the excavation depths involved in the Project would avoid physical impacts to the groundwater resource, as it is likely footings will instead be built up on pads to ensure buildings are out of appropriate flood levels.

Similarly, contamination of groundwater with chemicals and fuels would be highly unlikely, subject to appropriate storage and handling, and formal spill procedures (spill management is captured in mitigation measures in Section 6.9.1).

Subject to the implementation of the Blue Book measures in the SWMP (refer to Section 6.4.6), the proposed works are not considered likely to significantly affect surface water quality at or downstream of the site, or groundwater quality.

Clearing of trees can impact on groundwater; saline groundwater can move up through the soil profile if there is a reduction in water uptake and transpiration by trees in the landscape. No tree clearing is proposed during construction.

Impacts on groundwater during decommissioning would be similar or less than construction. These works are also considered low risk.

Under the EP&A Act Section 4.41(g), SSDs do not require 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 Water Management Act 2000. Aquifers interference is not anticipated, as above.

Water supply

During construction, the water requirements would total approximately 60ML, over a period of approximately 24 months (peaking for approximately 12 months). Refer to Table 6-44 for anticipated water use requirements and proposed water sources.

Table 6-44 Estimated water requirements for civil component construction.

Resource	Estimated quantity	Sources
Non-potable water for road construction and dust suppression for the construction period	60ML	Truck delivery Harvestable rights from dams and water tanks
Potable water for the construction period	60ML	Goulburn's bulk water supply Water contractors Bottled water

Non-potable water would be obtained from existing onsite dams in the first instance. There are 16 dams within the Development Footprint that may be used for onsite water requirements. Water extraction would not result in the removal of a dam. They are used as a water source currently (stock use).

The Project area has a maximum harvestable dam right of 69 ML/year, as per the WaterNSW harvestable rights dam capacity calculator and it is expected that approximately 42% of this total volume (16 of the total 38 dams), up to 29 ML/year, would be able to be met.

Where water requirements cannot be met from onsite surface water stocks, non-potable water may also be supplied by water contractors or council facilities. This would be organised by the Project engineering procurement and construction contractor.

Potable water would be imported to the site during the construction period. Drinking water required for construction could be sourced and purchased directly Goulburn's bulk water supply. The potable water supply would be augmented by rainwater collected in tanks installed beside site buildings as constructed. Any requirement for potable water would be limited and confined to the construction phase and is not anticipated to put pressure on local drinking water supplies.

Water for concreting and on-site amenities requires potable water and this would arrive embedded in the premixed concrete or via truck from a potable water source. Concrete batching is available via local suppliers.

The estimates in Table 6-44 are upper limits that take into account drought conditions, where water use may increase particularly with increased requirement for dust management and track construction. Given the construction period of 24 months and minimal water use required for construction, this is considered low risk.

Flooding hazard

During construction sections of the site may be at risk of temporary minor flooding during high rainfall events and high flows within the vicinity of the sites 3rd to 6th order waterways, particularly along Saltpetre Creek and the northern unnamed 3rd order stream.

Temporary localised flooding has the potential to interfere with construction and decommissioning and poses a safety risk for workers onsite. The Project has potential to create the following hazards in the event of a localised flood:

- Electrical hazards to staff, emergency workers and assets due inundation of electrical infrastructure
- Pollution risks from leakage of stored pollutants (hydrocarbons, pesticides, solvents)
- Physical damage from the mobilisation of components in flood waters.

No temporary components required for construction and decommissioning are considered susceptible to becoming mobile and entering waterways, as all plant and material would be restricted to areas outside the modelled flood risk area and delineated waterway exclusion zones. All potential pollutants stored on-site

during construction would be stored in accordance with HAZMAT requirements and bunded. Both vehicular and service water crossings within the Subject area will be upgraded in accordance with:

- Guidelines for Watercourse Crossings on Waterfront Land (DPE, 2022b)
- Guidelines for laying pipes and cables in watercourses on waterfront land (DPE, 2022a).

Flooding risks on site during the construction phase would be managed through the implementation of An Emergency Response Plan (ERP). The ERP would detail what staff should do in the event the site is flooding, and the site manager would indicate when works should cease after rainfall, to avoid unnecessary risk to people or property.

Operation

Surface water risks

During operation, there is potential for impacts to surface water quality to occur. These risks are addressed by design and operational management measures. Suitable drainage features and stormwater management infrastructure would be constructed along internal roads to minimise the risk of polluted water leaving the site or entering the waterways. As part of post-construction, the site would be revegetated with grass cover with the exception of internal roads, parking areas and areas around the substation. The panels would additionally be placed in rows with 6m or greater spacing therefore not concentrating run-except foredge to any substantive degree. Permeable soils and shading effects mean slightly more vegetation may grow at leading edge of panels providing a natural protection to increased water flow / moisture in this area. As such, water quality impacts during operation would be low and not considered substantially different to the existing potential water quality impacts occurring from onsite activities including grazing, cropping and use of vehicles and machinery.

As set out in Section 6.4, these risks are well understood for the site, with reference to base line soil surveys, ground truthed land and soil capability mapping and remediation strategies which have been developed through the Soil and Land Classification Verification and the Agricultural Impact Assessment. There is potential for water quality onsite to be improved in some areas, through revegetation of riparian areas that are eroded with low levels of vegetation and remediation of sodic soils. These outcomes would improve water quality as a result of the development.

Groundwater risks

No groundwater risks are relevant to operation.

Water supply

During operation, it is estimated that approximately 200kL per year of non-potable water may be required for cleaning solar panels, for bathroom facilities at the operations and maintenance buildings. It is expected that some of this will be obtained from rainwater tanks and dams on the site and some would likely be imported.

- A 40kL rainwater tank would be installed adjacent to the operations and maintenance buildings at the substation site to provide water for panel cleaning, irrigation and other non-potable uses, such as sanitary/domestic water and cleaning of equipment and plant
- Water for bushfire mitigation is proposed to include a minimum of 20,000 L of non-potable. This volume would be kept separate from other non-potable water supply and not used for any purpose other than firefighting
- A small amount of potable (drinking) water (up to 10kL) would be imported or filtered from rainwater tanks.

Flooding hazard

The Flood Assessment Report also modelled the potential effects of proposed infrastructure on flooding patterns and behaviours following completion of construction. During operation, the location of permanent infrastructure in areas susceptible to flooding can:

- Increase the risk of flood occurrence or severity, where they impede flow paths
- Create hazards in the event of a flood to workers onsite, and as for construction and decommissioning
- Cause pollution risks from leakage of stored pollutants (hydrocarbons, pesticides, solvents)
- Physical damage from the mobilisation of components in flood waters.

Infrastructure considered in the post-development model primarily considered of the solar array, as the substation and BESS area is generally outside of the extent of flooding, and proposed access tracks would not have an adverse effect on flooding behaviour, providing they are constructed at or near existing surface levels. Additionally, any proposed watercourse crossing was assumed to be a low-level feature which minimal hydraulic impact, such as a ford causeway or culvert.

The proposed solar array infrastructure would slightly increase the surface roughness of the affected area. This increase in surface roughness, or increase in obstructions to flood water flows, may result modified flood behaviours as a result of the development, and was factored into post-development modelling. Refer to Appendix E7 for post-development model inputs.

The post-development model was undertaken for the 1% flood AEP. The results are shown in the figures below. Figure 6-37 shows the final post-development flood hazard rating across the Project area, while Figure 6-38 and Figure 6-39 show the overall change in level and flood velocity.

Overall, peak flood depths and velocities, and subsequently flood hazards, are anticipated to remain largely unchanged as a result of the development. Localised areas within the Development Footprint are predicted to show increases in depth of around 10mm, however this is not likely to adversely affect downstream properties. Similarly, increases to flood velocity would be limited to less than 0.25m/s, and should not adversely affect the stability of beds and banks of existing watercourses, or contribute to degradation via erosive flood forces.

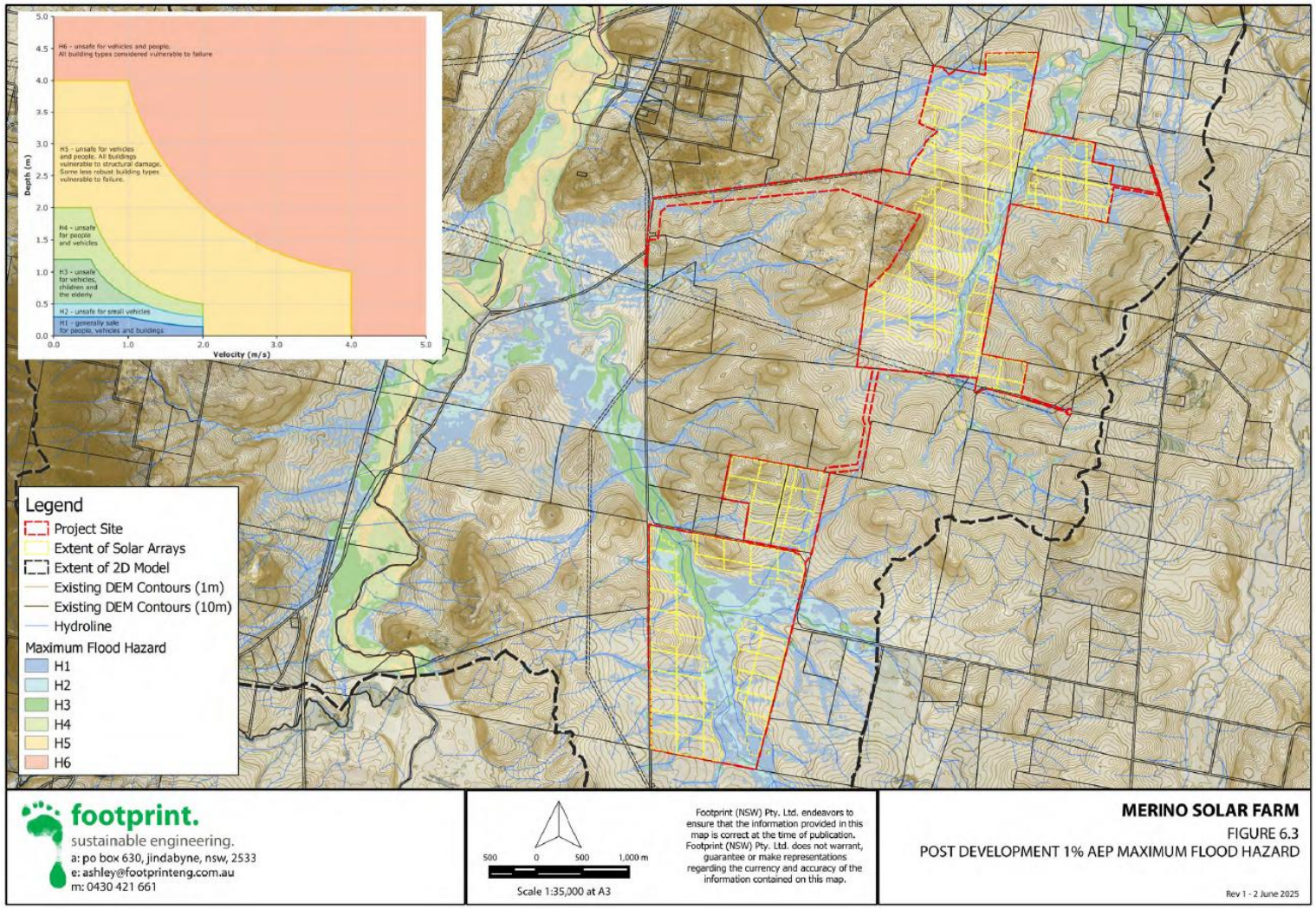


Figure 6-37 Post-development 1% AEP maximum flood hazard

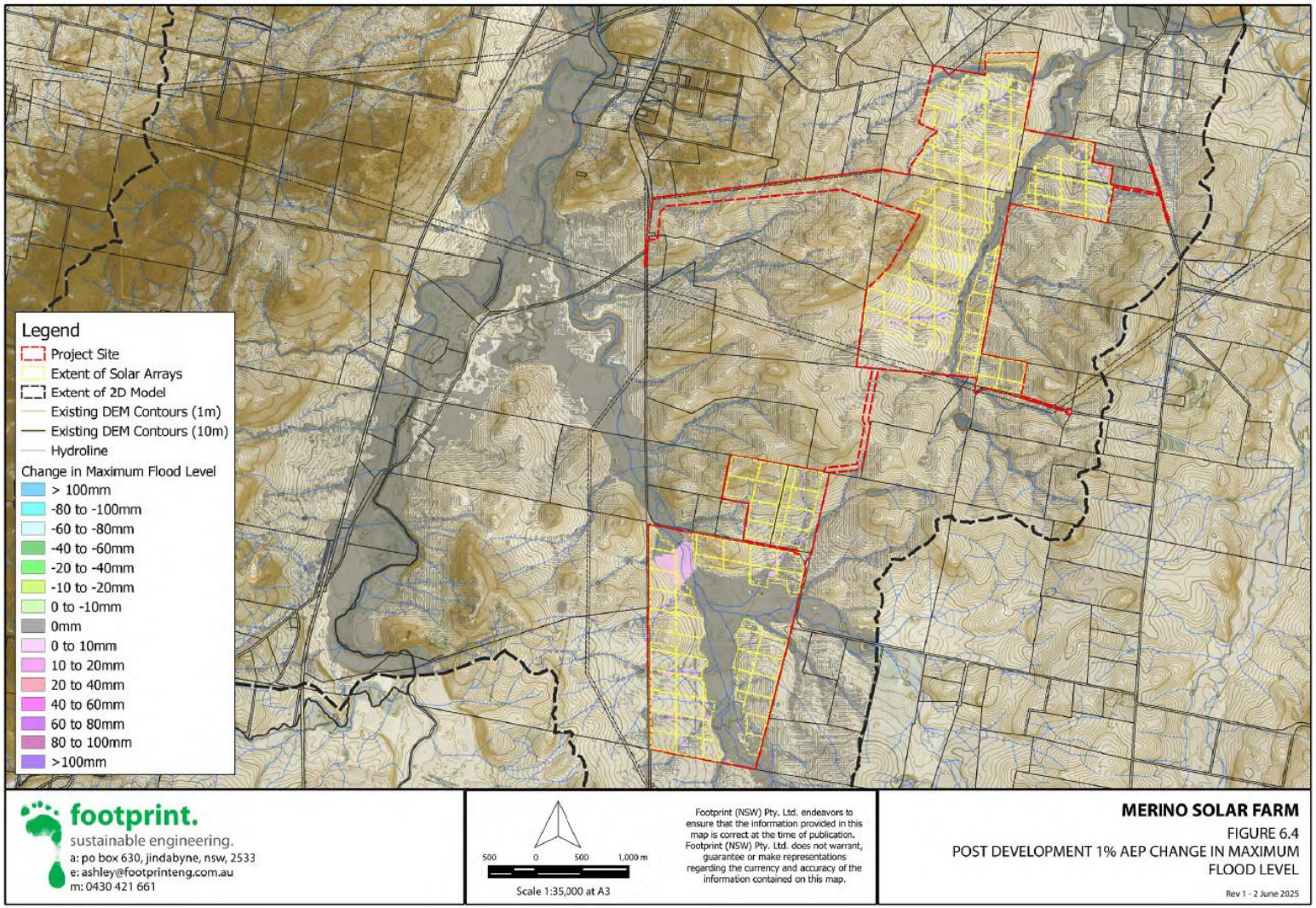


Figure 6-38 Post-development 1% AEP maximum change in flood level

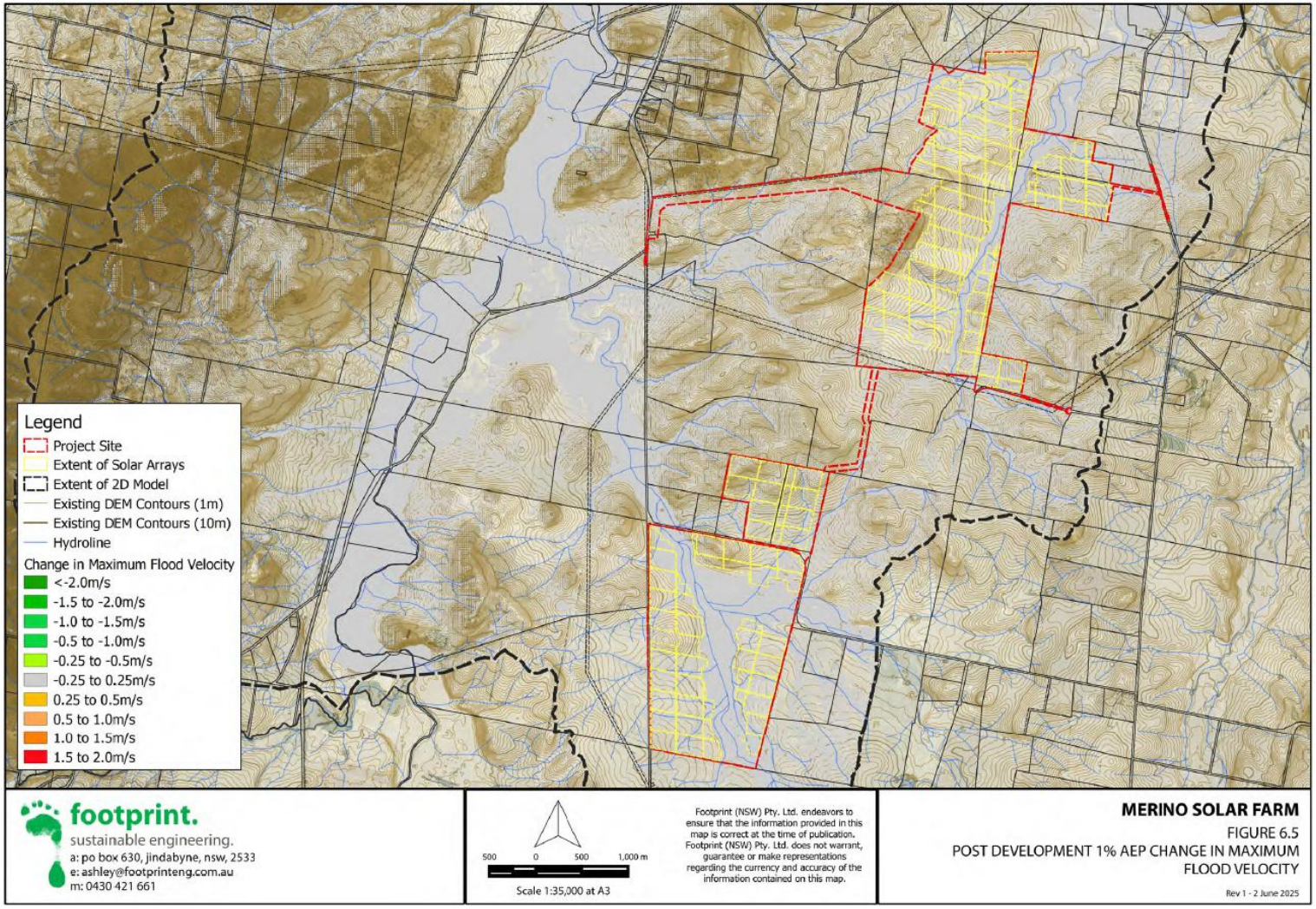


Figure 6-39 Post-development 1% AEP maximum change in flood velocity

6.8.4. Key uncertainties of the assessment

This assessment uses the most reliable computer modelling available at the time of the assessment. Actual events may occur more or less frequently, or with more or less intensity then predicted.

Adherence to the recommended mitigation measures would minimise any change in hydrological function. These relate to:

- Design measures – adherence to the concept layout which avoids higher hazard areas
- Construction measures – adherence to standard soil and water management plans and development of site specific sediment and erosion controls
- Operational management - commitments to establish, monitor and retain groundcover through operation; these have been developed with input from specialists and soil surveys.

Exact water requirements and supply arrangements will be informed by more detailed evaluation during the final infrastructure and civil works design phase. This will be determined through a competitive tender process to maximise innovation and efficiency and will reflect current water supply availability.

A Water Cycle Management Study (WCMS) is progressing in tandem with Project design to inform the specific requirements that will be required to achieve a *neutral or beneficial impact* on water quality (as is required for projects in the Sydney Drinking Water catchment). The commitment to undertake a WCMS is captured as a performance objective in the mitigation measures.

A site water balance for the Project, once operational, has not been provided as detailed hydraulic and water quality modelling is being carried out for the Project as part of the WMCS due to the location of the solar farm within the Sydney Drinking Water Catchment.

6.8.5. Safeguards and mitigation measures

In summary,

- The risks to local hydrology are low and have been mitigated primarily through design measures.
- The risks of erosion and water quality are considered low given the nature of the development and are well understood with reference to base line soil surveys and ground-truthed land soil capability mapping.
- Water use requirements of the Project can be met locally.
- Management protocols using standard strategies have a high confidence level in managing the risks identified.
- Further modelling in consultation with Water NSW will detail additional measures required to achieve a *neutral or beneficial impact* on water quality.

With the implementation of the following mitigation measures, which form commitments of the Project, the impacts are considered to be low and manageable. Substantive benefits have also been identified, in resting pastures and enhancing riparian planting.

Table 6-45 Hydrology, erosion and water resource mitigation measures

ID	Mitigation measure	Project stage
Flooding		
W1	Buildings and structures • Located outside high hazard areas (H5 and above) • Finished floor level of all buildings would be a minimum	Design

ID	Mitigation measure	Project stage
	500mm above the 1%AEP flood level • Fixed solar panel modules • Mounting height of module frames would be designed so that the lower edge of the frame is clear of the 1% AEP ***plus*** 500mm freeboard • Solar tracking modules • Tracking axis should be located above the 1%AEP ***plus*** 500mm freeboard • Modules rotated to the horizontal during significant flood events to provide maximum clearance to the predicted flood level • Modules located in floodplain • Designed to withstand forces of floodwater and potential debris loading up to the 1% flood event (depth and velocity of flood waters). Electrical infrastructure • All electrical infrastructure including power conversion stations and substation located above the 1% AEP flood level plus minimum 500mm freeboard • Where electrical cabling is required to be constructed below the 1% AEP flood level it should be capable of continuous submergence in water. Perimeter fencing • Avoid/minimise security fencing in floodplain • If required, security fencing should be constructed to minimise the effect of flow of the floodwater and be designed to withstand the forces of floodwater or collapse in a controlled manner to prevent impediment to floodwater. Works in waterways • Designed to minimise any hydraulic impact in accord with Laying Pipes and Cable in Watercourses on Waterfront Land (DPE, 2022a) • Crossings designed in accordance with Guidelines for Watercourse Crossings on Waterfront Land (DPE, 2022b). Access roads • Floodplain – keep as close to natural ground levels as possible • Surface treatment – give regard to velocity of floodwaters to minimise potential for souring during flood events.	
W2	An Emergency Response Plan incorporating a Flood Response Plan would be prepared prior to construction covering all phases of the proposal. In relation to flooding the plan will:	Construction Operation Decommissioning

ID	Mitigation measure	Project stage
	• Detail who would be responsible for monitoring the flood threat and how this is to be done • Detail specific response measures to ensure site safety and environmental protection • Outline a process for removing any necessary equipment and materials offsite and out of flood risk areas (i.e., rotate array modules to provide maximum clearance of the predicted flood level) • Consider site access if some tracks become flooded • Consider appropriate vehicles used to transport staff to and from site, with 4WDs being the preferred vehicle. • Establish an evacuation point • Define communication protocols with emergency services agencies.	
W3	Final design must take into consideration more detailed geotechnical investigations to ensure groundwater interception is avoided by cut and fill works.	Design
Erosion, water use and water quality		
W4	A Water Cycle Management Study (WCMS) will be used to demonstrate a *neutral or beneficial impact* on water quality[13].	Design
W5	No dams will be removed as part of the development, unless further assessment of impacts (specifically biodiversity) and modelling (specifically hydrology) supports this. If removed, they would be to reinstated within the Development Footprint, to retain the same surface water collection volume / stock watering capacity.	Design
W6	Water supply agreements will be secured in consultation with Goulburn Mulwaree Regional Council and private water suppliers prior to construction to ensure adequate water supply is secured for construction and operation.	Pre-construction
W7	Re-use of collected stormwater will be considered wherever possible.	Construction Operation Decommissioning
W8	Areas of existing erosion would be stabilised prior to erection of solar array to ensure ongoing stability.	Prior to construction
W9	As part of the CEMP, the SWMP (incorporating a Site Drainage Plan and Erosion and Sediment Control Plan) will include the	Pre-construction Construction

[13] Hydrological modelling is progressing in tandem with Project design to inform the specific requirements to achieve a *neutral or beneficial impact* on water quality; this will centre on enhancement of waterway vegetation and is expected to be provided prior to Project determination.

ID	Mitigation measure	Project stage
	following water considerations: • Identify and protect sensitive features such as dams and water courses • Erosion and sediment control measures should be implemented in line with the 'Blue Book' (Landcom, 2004) • ANZECC (2000) water quality criteria are met as far as practicable • Ensure excavations are not scheduled when heavy rainfall events are predicted, or soils are saturated.	
W10	The Spill and Contamination Response Plan prepared as part of the Emergency Response Plan would include measures to: • Respond to the discovery of existing contaminants at the site (e.g., Pesticide containers or asbestos), including stop work protocols and remediation and disposal requirements • Manage the storage of any potential contaminants on-site • Mitigate the effects of soil and water contamination by fuels or other chemicals (including emergency response and EPA notification procedures) • Ensure that machinery and materials arrive on site in a clean and secure condition • Prevent contaminants affecting adjacent pastures, water courses, dams and native vegetation • Monitor and maintain spill equipment including spill kits in relevant machinery • Induct and train site staff • Detail fuels, chemicals, and liquids storage locations that are at least 50m from any waterways or drainage lines, in an appropriate bunded area • Disposal process for contaminated materials. • Inspect stormwater control measures before and after rainfall of more than 10mm in 24 hours and at least quarterly.	Construction Operation Decommissioning

6.9. Hazards and risks

This chapter covers four areas of risk, associated with the Project:

1. Potential for air, soil and water contamination, from infrastructure components and Project activities[14]
2. Bushfire risks
3. The operation of the battery
4. Health impact of electric and magnetic fields (EMFs)

6.9.1. Air, soil, water contamination risks

Existing environment

Air quality for the Goulburn Mulwaree LGA is expected to be generally good quality due to the regional landscape and limited number of industrial emissions present. The proposed solar farm is located on land zoned as RU1 Primary Production. The land surrounding the Development Footprint is predominately grazed agricultural land and low-density rural dwellings.

Existing sources of air pollution within the LGA include:

- Vehicle emissions – expected to be moderate for the site considering the traffic amounts along Braidwood Road, Windellama Road (particularly heavy vehicles) and emissions from One Raceway on active track days in the vicinity of the site, however the land use is low intensity and low density of settlement
- Dust during dry periods – expected to be higher in dry and windy weather, generated from traffic/agricultural machinery on unsealed roads and bare areas of ground
- Agricultural activities, particularly ripping, stubble burning and harvests.

During colder months, there may be a small increase in air contaminants due to smoke emissions from the operation of solid fuel heating. As above, locally this would be negligible given the low density of settlement within the locality.

Contamination

A search of the following databases was conducted for the suburbs of Tirrannaville, Gundary and Brisbane Grove on 6 February 2025:

- Contaminated land – Records of Notice, under Section 58 of the *Contaminated Land Management (CLM) Act 1997* (NSW) (CLM Act)
- List of Notified Sites, under Section 60 of the CLM Act.

The searches identified no record of contamination within the Project area. The Project area has a history of agricultural land use. Agricultural activities (namely cropping) are listed as potentially contaminating land use activities within Table 1 of the Managing Land Contamination Planning Guidelines (EPA, 1998). No indications of potential sources of contamination were identified during the site assessment. It is noted that grazing rather than cropping activities are undertaken within the Project area and surrounds, mostly improved pastures with limited winter crop production.

[14] This excludes risks of erosion and sedimentation. While these are also contaminants relevant to the Project, they are covered in Section 6.4, which discusses the results of soil surveys and Section 6.8, which assesses the hydrological performance of the Project.

Potential impacts

Construction

The Project may generate dust and emissions, primarily during transport and excavation activities. The sections of Painters Lane proposed for access are unsealed. Internal access roads would also remain unsealed.

The Project would not require extensive areas of excavation, with the exception the BESS / substation area. As there are no sites of historical contamination identified from the relevant database searches, nor is there any mapped occurrences of naturally occurring asbestos or acid sulfate soils, it is unlikely that any works onsite would unearth buried contaminants. Protocols will be required however to address this risk; an Unexpected Finds Procedure would be developed and would be implemented, should contaminated material be identified onsite during the construction program.

During construction (and to a lesser degree during operation), potentially contaminating materials will be in use. Leaks or spillage of fuels, lubricants, hydraulic oils, portable toilets or concrete and concrete wash used onsite during construction and operation have the potential to contaminate soil and waterways. These materials could adversely impact soil biota and subsequently, groundcover, or may leak or mobilise during rainfall events, polluting waterways, causing harm to aquatic species and risks to humans. Risks would be highest in heavy rainfall or flooding events which would increase mobilisation in the landscape. This risk is considered highly manageable and standard to most construction projects. Management of these risks would centre on appropriate site layout as well as protocols specific to the handling and storage of potential contaminants; a Spill Response Procedure is a standard input into the required Soil and Water Management Plan that will guide construction.

Operation

Solar Array

In operation, the solar panels, posts and run off from the BESS and substation may also be a potential source of contamination. As discussed in Section 6.4, zinc is present in the galvanized posts of the solar panel piers. Sodosols that are predisposed to wet, saline or sodic conditions may increase the rate at which zinc within the galvanised steel leaches into the soil profile. Zinc has a very low toxicity, however, when it is present at levels above 150 – 200+ kg/ha in the soil, it impedes the uptake of other plant nutrients, mainly phosphorus and iron, with plants showing signs of chlorosis from the older leaves to younger leaves, until the plant finally dies as a result. If this scenario was to manifest itself under the solar panels adjacent to the steel support posts the result would be an excessive amount of bare ground which would then be highly susceptible to an accelerated rate of soil erosion. The assessment of soil risks in Section 6.4 considers this a low risk but operational monitoring is proposed to provide certainty during the life of the Project.

Solar modules are sealed with encapsulant to ensure isolation of active photovoltaic elements from the environment, preserving the PV cells against humidity, oxygen, and accidental damage that may compromise the PV module's function. They do not leach material into the environment. Furthermore, they undergo mechanical and hail impact testing according to IEC61215 (international electrotechnical commission) standard. This includes mechanical load tests up to 5,400 Pa to make sure they can survive the toughest installation environment. Commercial grade tempered glass is used, which has up to six times the strength of normal plate glass. The most common way a module may be damaged is due to external force or internal electrical faults, both resulting from a shattered glass. In between the glass, there are layers of Encapsulate, either EVA (ethylene vinyl acetate) or other polymer film such as POE film and a frame to hold them together, so even if the glass is shattered after hail event, the module can still be easily removed in one piece. The cells are mostly silicon wafer, and the metal busbar (either copper or sliver) are printed and soldered to the cells, again, unlikely to fall apart in the field (Mirletz, Hieslmair, Ovaitt, Curtis, & Barnes, 2023). While it is not present in all solar panels, some panels contain cadmium telluride (CdTe) which has caused public concern. Regarding this compound peer reviewed literature states: The CdTe compound in commercially available thin-film solar modules is extremely stable and does not pose the same toxicological hazard as elemental

cadmium. The thin CdTe film (typically they are less than 3 µm thick) means that the total amount of cadmium is less than 0.1% by weight. CdTe modules are currently collected and both cadmium and tellurium are recycled into new modules" (Mirletz, Hieslmair, Ovaitt, Curtis, & Barnes, 2023). The overall risk of contamination to ecosystems from broken panels is considered negligible and no effects on human health have been identified.

As solar farms remain relatively new in Australia, to address uncertainty and community concerns specific to this Project, in addition to standard pollution management strategies, a soil monitoring program is a commitment of the Project. Monitoring would be undertaken adjacent to piles and between rows of solar arrays five years after construction, and every two years after that, repeated with one monitoring site for each 5ha of installed panels.

An updated SEARs was issued on May 23, 2025, including the requirement to prepare a preliminary investigation into potential contamination across the site, in accordance with the State Environmental Planning Policy (Resilience and Hazards) 2021 (Hazards SEPP) (as required). Given the timing of submission, in a meeting with DPHI on July 15, the Department agreed that if required the preliminary investigation could be submitted with the Response to Submissions, after the public exhibition of the EIS.

BESS and substation

The Preliminary Hazards Assessment assessed the Project's battery risks including potential for chemical leaks from the BESS. The likelihood rating for these events resulting in consequences with controls in place was concluded as very unlikely (refer to Section 6.9.3).

In the unlikely event of a BESS or substation fire event, water used for cooling / to prevent fire spread may become contaminated with potentially hazardous substances. To avoid these contaminants mobilising into the environment, engineering solutions would be implemented in the design stage to ensure this water is captured and contained. This water would then be treated as hazardous waste and could be removed from site and treated at an appropriate facility. This would be addressed within a Fire Water Management Plan, prepared in accordance with the Victorian Country Fire Authority's (CFA's) large-scale renewable facility *Design Guidelines and model requirements for Renewable Energy Facilities"* (CFA, 2023)[15] and is a commitment of the Project.

Safeguards and mitigation measures

Table 6-46 Contamination safeguards and mitigation measures

ID	Safeguards and mitigation measures	Project stage
HA1	A Preliminary Site Investigation will be conducted to determine whether contaminants have the potential to occur within the site, in accordance with the State Environmental Planning Policy (Resilience and Hazards) 2021 (Hazards SEPP), prior to Project determination.	Prior to Project determination
HA2	All vehicles and machinery used at the site will be in good condition, fitted with appropriate emission controls and comply with the requirements of the POEO Act, relevant Australian standards and manufacturer's operating recommendations. Plant will be operated efficiently and	All stages

[15] This is not a NSW RFS guideline but this is the guideline that speaks to this risk most appropriately.

ID	Safeguards and mitigation measures	Project stage
	turned off when not in use. Fires and material burning is prohibited on the Development site.	
HA3	Management protocols will include measures to minimise impacts on air quality including: • Identification of high-risk construction activities with potential to generate dust, and control measures for the activities • A process for monitoring dust on-site and weather conditions, as well as procedures for altering management measures where required • A map identifying locations of sensitive receivers • Notification of relevant stakeholders to hours of work and duration of work • An accessible complaints process with a timely response protocol. Dust generation by vehicles accessing the site and earthworks at the site will be suppressed using water applications or other means as required, using visual cues. • Covering dirt, sand, soil, or any lose material while in transport • Clean-up of any material spillage on the roads • Limiting construction vehicle speeds on unsealed roads • Checking of weather conditions (such as wind strength and direction) prior to major potential dust emitting activities • Stockpiles will be covered or stored in areas not subject to high winds, and vehicle loads of material which may create dust would be covered while using the public road system. • Materials will be delivered as full loads, and local suppliers utilised where possible, to minimise haulage emissions.	Construction/ decommissioning
HA4	Management protocols will include measures to minimise risks of soil contamination including: • An Unexpected Finds Procedure will be prepared and implemented if contaminated soils are uncovered or suspected (due to odour, discolouration, presence of fill material and/or building demolition waste). • Trucks and machinery will be checked for leaks as per maintenance schedule or prestart checks and	Construction/ decommissioning

ID	Safeguards and mitigation measures	Project stage
	appropriate spill skits will always be available onsite • A Spill Response Procedure will be developed and included within the SWMP. The procedure will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities.	
HA5	Management protocols will include measures to minimise risks of water contamination including: • All chemicals and fuels will be stored in suitable bunded areas within the site compound and away from waterways. • The capacity of the bunded area will be at least 110 per cent of the largest chemical container stored within the bunded area. • The refuelling of plant and maintenance of machinery will be undertaken in impervious bunded areas at least 40m from waterways.	Construction/ decommissioning
HA6	Contaminant monitoring will be included within the soil monitoring program, developed to ensure decommissioning commitments can be met (refer to commitment LC8 to return the site to the existing or better land compatibility class).	Operation
HA7	A Fire Water Management Plan would be prepared in accordance with the Victorian Country Fire Authority's (CFA's) large-scale renewable facility *Design Guidelines and model requirements for Renewable Energy Facilities"* (CFA, 2023). This would include the installation of impervious retention facilities to capture run-off from fire and smoke supressing activities and would detail suitable treatment plants for the disposal of contaminated water and in accordance with the appropriate Australian standards for the storage and handling of dangerous goods.	Design

6.9.2. Bushfire

The Bushfire Assessment was prepared by two experienced consultants. The assessment is summarised below and appended in full in Appendix F.10.

Existing environment

Bushfire presents a threat to human life and assets and can adversely impact ecological values. Bushfire risk can be evaluated and managed by considering environmental factors that increase the risk of fire (fuel load and type, topography and weather patterns), as well as specific activities (such as hot works) or infrastructure

components that exacerbate combustion or ignition risks (such as transmission lines, energy storage systems and other electrical components).

This Project is an SSD and is therefore exempt from requiring a Bush Fire Safety Authority (BFSA) under Section 4.41(f) *Environmental Planning and Assessment Act 1979*. Section 5.16(3) requires "the Planning Secretary is to consult relevant public authorities and have regard to the need for the requirements to assess any key issues raised by those public authorities", which includes consulting with the New South Wales Rural Fire Service (NSW RFS) regarding bushfire considerations.

The Development Footprint has been predominantly cleared of overstorey vegetation for agricultural purposes and has been targeted for the development to reduce bushfire and other risks. The remaining vegetation within the Development Footprint is comprised mostly of Category 3 Bush Fire Prone Land (BFPL), which some isolated patches of Category 1 BFPL (refer to Figure 6-40 and Table 6-47 for the definitions of each BFPL type on site).

Table 6-47 BFPL categories

BFPL category	Guideline definition (NSW RFS, 2015)	Example vegetation types
Category 1	Vegetation Category 1 is the highest risk for bushfire. It is represented as red on the BFPL map and will be given a 100m buffer. This vegetation category has the highest combustibility and likelihood of forming fully developed fires including heavy ember production.	Forest, woodlands, heaths (tall and short), forested wetlands and timber plantations
Category 3	Vegetation Category 3 is medium bushfire risk vegetation. It is higher in bushfire risk than category 2 (and the excluded areas) but lower than Category 1. It is represented as dark orange on a BFPL map.	Grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands

The topography of the Project area is defined by typically land with some elevated areas to the west of the northern segment of the Project area and to the North of the southern segment of the Project area (refer to Figure 6-41). The elevation of the Project area is between 640m and 692m Australian Height Datum (AHD), according to elevation data from Geoscience Australia. Slopes in and surrounds the Project area are generally low, however some slopes up to 15 degrees do occur to the west of the northern segment of the Project area (refer to Figure 6-42).

The Southern Tablelands Bush Fire Risk Management Plan identifies the Development Footprint as being within the Southern Tablelands Bush Fire Management Committee (STBFMC) (NSW RFS, 2018). The Plan services the LGAs of Yass Valley, Upper Lachlan and Goulburn/Mulwaree and covers 1,455,100 ha. Section 1.3.2 of the Plan states that there are on average 265 bushfires per year, of which 5 could be considered to be large fires. The fires are typically ignited by lightning strikes, escapes from legal burning, illegal burning, human error and arson. The area tends to experience warm to hot summers and cool winters, with peak rainfall generally occurring during winter and spring, which the typical bushfire season being between October to March/April.

The main bushfire hazards for the site include the following:

- Woodland pockets to the northwest of the Development Footprint
- Unmanaged grassland vegetation within and adjacent to the site
- Existing high voltage transmission lines
- Car accidents and incorrect cigarette disposal along the minor local roads passing the site.

Existing water resources available for firefighting include 38 farm dams within the Project Area, of which 16 are within the Development Footprint and would be retained through the life of the project, unless subject to further assessment and modelling to support removal. Many nearby residents appear to have dams, farm sheds, watering points, and other equipment.

The Gundary RFS brigade station is 800m north of the Development Footprint. It should be noted that the water resources listed do not guarantee water resources especially during drought, and thus water storage facilities are recommended for inclusion in the Bush Fire Emergency Management and Operations Plan (BFEMOP).

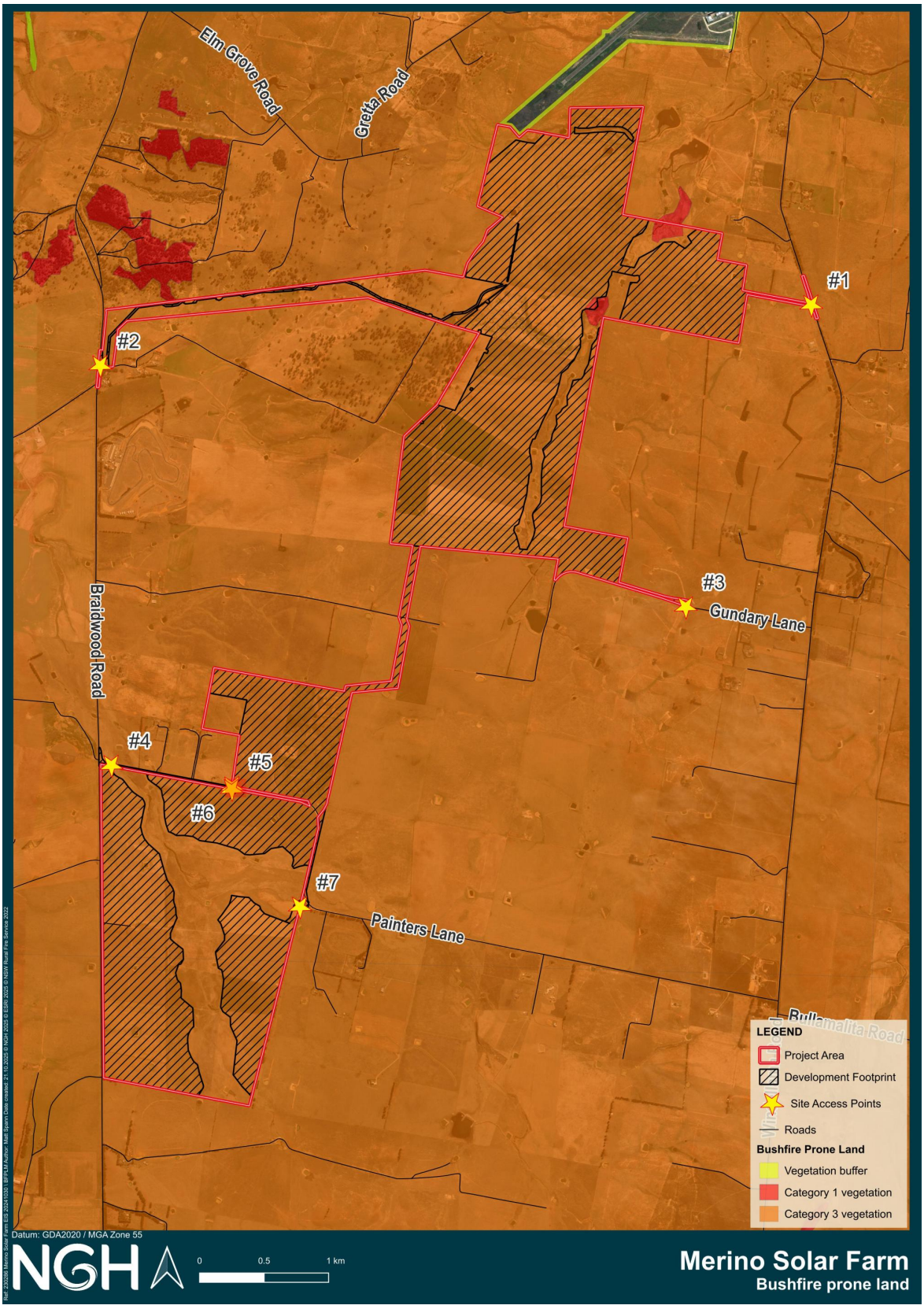


Figure 6-40 Mapped bushfire prone land around the Project area

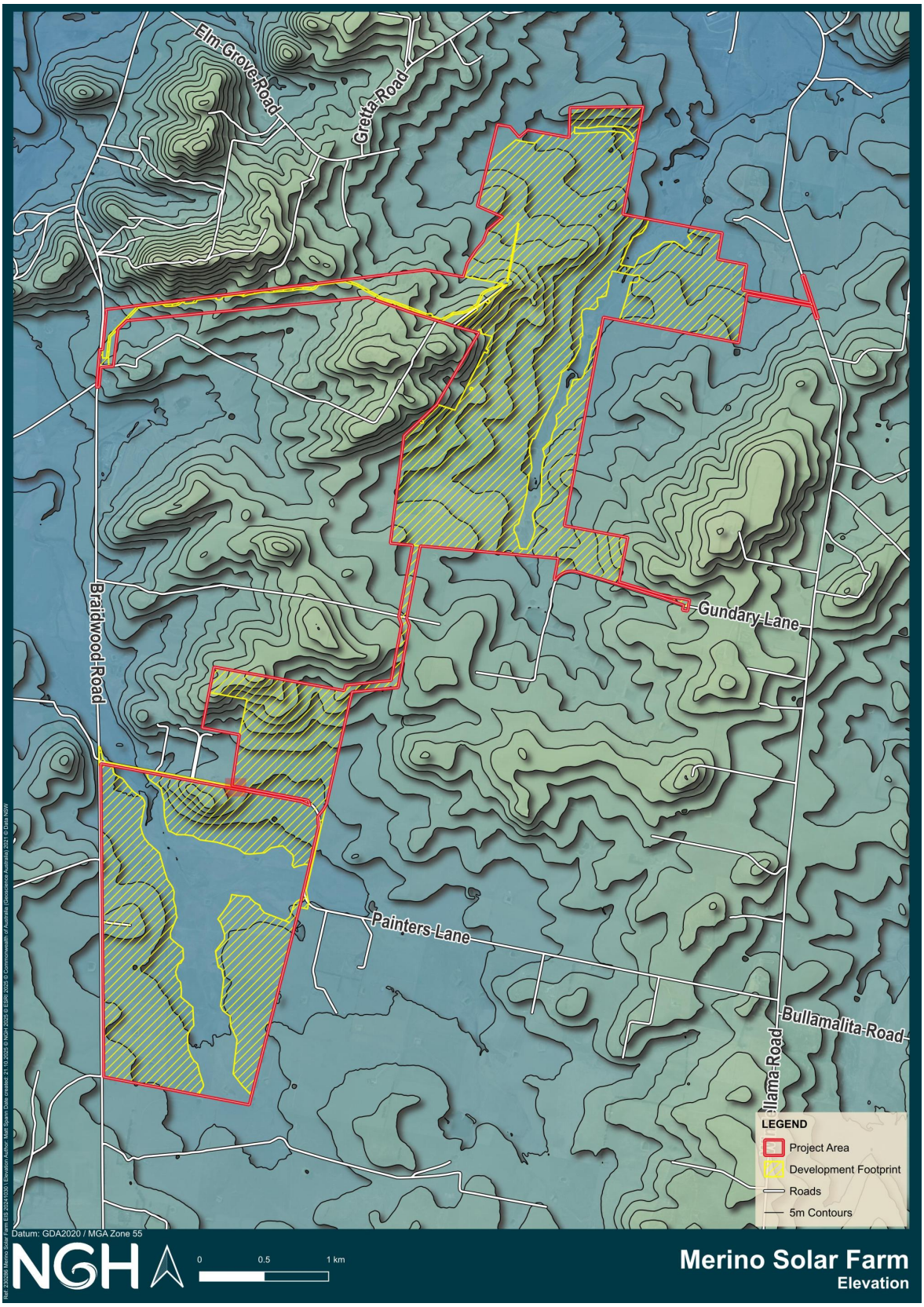


Figure 6-41 Elevation

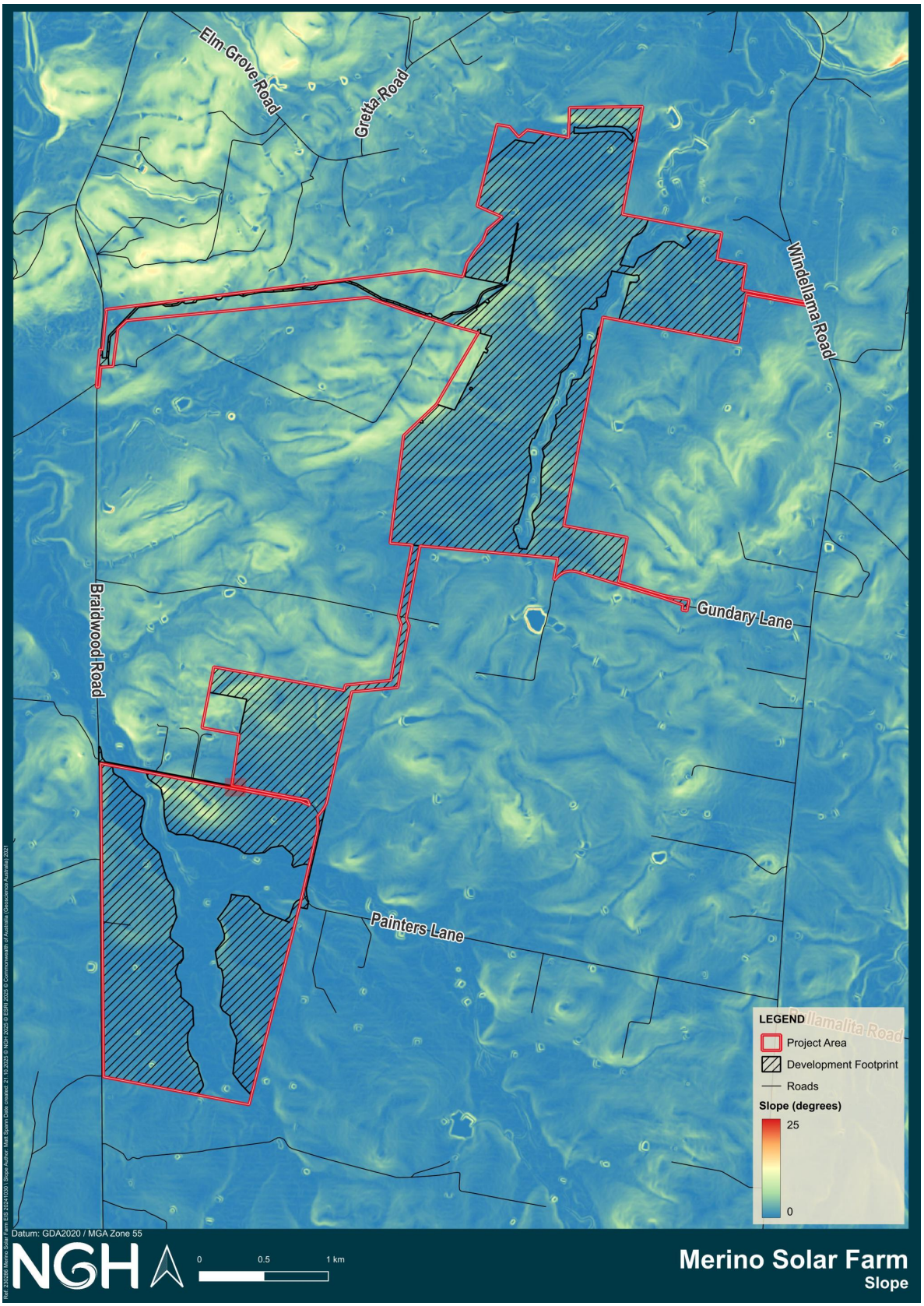


Figure 6-42 Slope

Guidelines

According to NSW RFS *Planning for Bush Fire Protection 2019* (PBP) (NSW RFS, 2019) an acceptable level of protection from bushfire is achieved for developments through a combination of strategies which:

- Control the types of development permissible in bushfire prone areas
- Minimise the impact of radiant heat and direct flame contact by separating development from bushfire hazards
- Minimise the vulnerability of buildings to ignition and fire spread from flames, radiation and embers
- Enable appropriate access and egress for the public and firefighters
- Provide adequate water supplies for bushfire suppression operations
- Focus on property preparedness, including emergency planning and property maintenance requirements
- Facilitate the maintenance of APZ, fire trails, access for firefighting and on-site equipment for fire suppression.

The PBP guidelines provide six key Bushfire Protection Measures (BPMs) for developments:

- APZs
- Access
- Construction, siting and design
- Landscaping
- Services
- Emergency and evacuation planning.

Regarding Section 8.3.5 (of the PBP), solar farms are identified and require the following measures to be incorporated into the design and operation of the Project:

- A minimum 10m APZ for the structures and associated buildings/infrastructure
- The APZ must be maintained to the standard of an inner protection area for the life of the development (to the specifications identified in Appendix 4 of PBP).

The PBP also requires a bushfire emergency management and operations plan, covering:

- Work that should not be carried out during total fire bans
- Detailed measures to prevent or mitigate fires igniting
- Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate
- Appropriate bushfire emergency management planning and availability of fire-suppression equipment, access and water
- Storage and maintenance of fuels and other flammable materials., covering:
    - The suspension of work involving risk of ignition during total fire bans
    - The availability of fire-suppression equipment, storage and maintenance of flammable materials
    - Notification of the local NSW RFS District Fire Control Centre for any works during the fire danger period that have the potential to ignite surrounding vegetation
    - Bushfire emergency management planning.

Potential impacts

Construction and decommissioning

The potential for increased bushfire risk may coincide with the construction and decommissioning stages of the Project. Ignition sources during these stages include:

- Earthworks and slashing machinery causing sparks
- Hot works activities such as welding, soldering, grinding and use of a blow torch
- Sparks and contact ignition from vehicles in long combustible vegetation
- Smoking and careless disposal of cigarettes
- Use of petrol-powered tools
- Operating plant fitted with power hydraulics on land containing combustible material
- Electrical faults during testing and commissioning
- Storage of chemicals and hazardous materials.

The Development Footprint proposed is predominantly on undulating land in a low fuel (grassland) environment. As such, bushfire risks during construction and decommissioning are low and would be managed through the mitigation measures recommended in this EIS.

Existing access roads and informal farm roads, as well as proposed APZ tracks, and solar farm service roads will provide RFS and emergency service access throughout the site.

Operation

The operational stage of the Project has the following associated bushfire risks:

- Overheating in the substation or thermal runaway at the BESS. BESS fire risk is discussed in Section 6.9.3
- Grass fire ignition from vehicles and maintenance machinery
- Poor groundcover management and associated increase in fuel loads.

During operation of the solar farm, bushfire and structural fire risks are considered manageable provided the following strategies are adopted:

- Control of grass fuels including maintenance of groundcover beneath panels
- Maintenance of equipment
- Application of best practice and technical standards
- Design of electrical components to minimise ignition potential.

Asset Protection Zone

Section 8.3.5 of the PBP guidelines provides minimum APZ requirements for solar farm developments located in designated BFPL. These APZ prescriptions would be applied to the solar farm infrastructure to provide defendable space and to manage heat intensities at the infrastructure interface.

In accordance with Section 8.3.5 of PBP, an APZ of a minimum width of 10m would be provided around the solar farm buildings, substation and BESS, and around the outside perimeter of the solar array. All the APZs would be managed as an Inner Protection Area, to the specifications of Appendix 4 of PBP.

The APZ surrounding the proposed BESS unit, substation, and associated ancillary infrastructure would be 12m to the southeast and northwest, and 10m in all other directions as shown below in Figure 6-43.

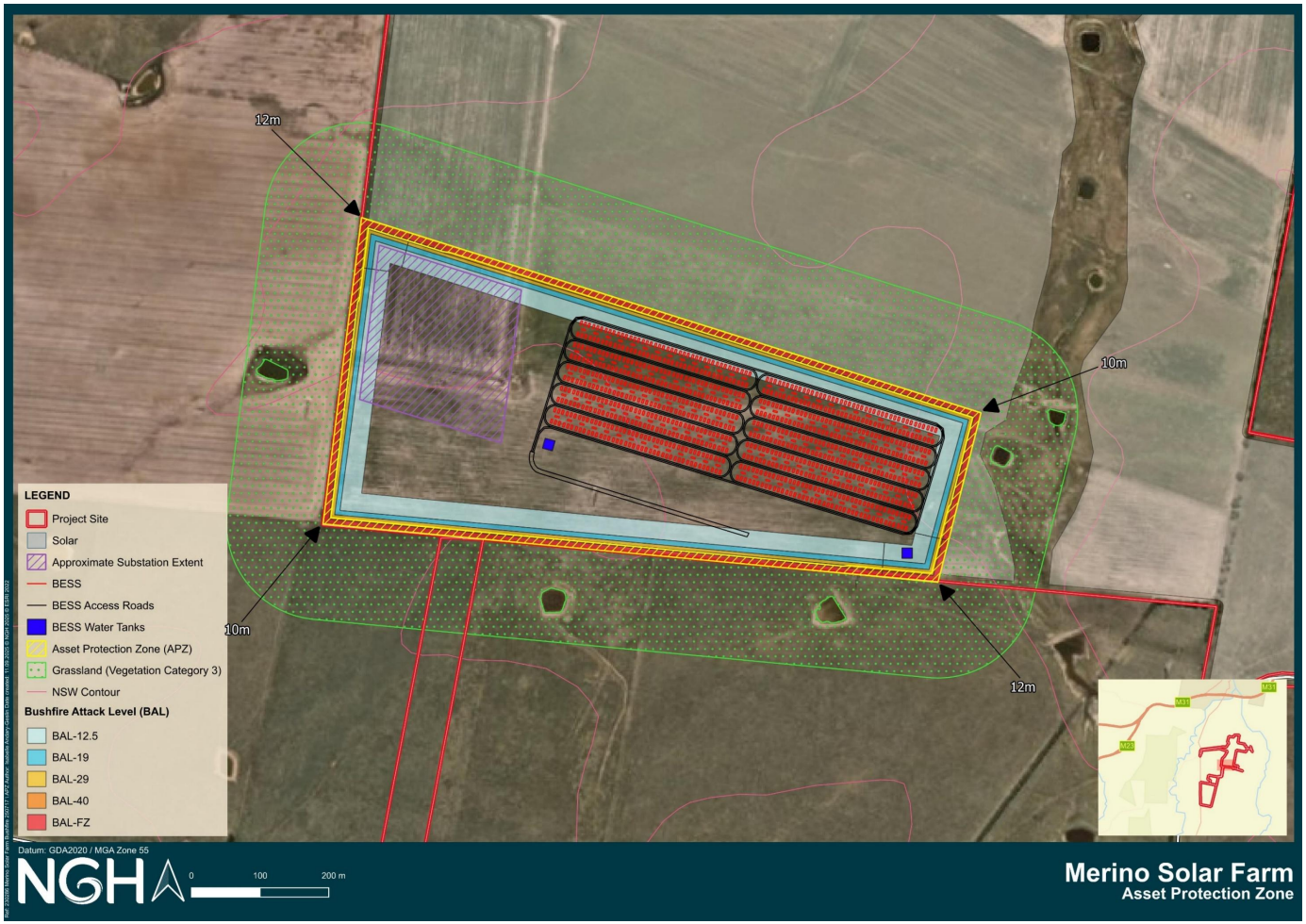


Figure 6-43 Required APZ

Fuel hazard management

According to the PBP guidelines, the APZ should provide a tree canopy cover of less than 15% located greater than 2m from any part of the roofline of a building and should not overhang any building. Trees should have lower limbs removed up to a height of 2m above the ground. The understorey should be managed (mowed) to treat all shrubs and grasses on an annual basis in advance of the fire season.

There would be no trees or shrubs within the APZ established for the solar farm, or within the solar array area. Grassland Fuel Hazard is a function of grass height and cover, with variation according to curing and species fuel characteristics. Grass fuel would be monitored and managed using stock grazing or mowing to maintain safe fuel levels. Grass height within the APZ would be maintained at or below 10cm throughout the October to March fire season. Grass height outside the APZ, including beneath the solar array, would be maintained at or below 10cm throughout the fire season also.

Site access

Access specifications would comply with Section 7.4a of the PBP guidelines, including:

- A minimum all-weather road width of 4m (with carriageways extending to 8m in some areas)[16]
- Minimum vertical clearance of 4m
- Capacity for passing using reversing bays and/or passing bays every 200m suitable for fire tankers
- Property access roads are two-wheel drive, all-weather roads
- Property access must provide a suitable turning area in accordance with Appendix 3 (of PBP).

Fire-fighting resources and preparedness

Water storage tanks would be installed within the Development Footprint for fire-fighting and other non-potable water uses, with a 65mm Storz outlet, a metal valve and a minimum of 20,000 litres reserved for fire-fighting purposes. Rainwater tanks installed beside site buildings for staff amenities would also enable RFS connectivity of Storz outlets. Suitable fire extinguishers and PPE would be maintained at site buildings.

A BFEMOP would be developed prior to commissioning in consultation with the local NSW RFS District Fire Control Centre to manage fire risks, resources and preparedness. Following commissioning of the solar farm, the preparedness of local RFS and Fire and Rescue brigades would be enhanced through site orientation and information events and the facilitation of training in the management of Li-ion battery fires. An Emergency Response Plan, including an Evacuation Plan, BFEMOP (with a specific battery fire response section) Flood Response Plan and Spill and Contamination Response Plan would also be developed to enable rapid, safe and effective incident response.

The Project would not present a substantial bushfire threat or represent an unacceptable hazard in the event of a bushfire affecting the Development site. Implementation of the mitigation measures in this EIS are considered sufficient in managing the identified risks.

Key uncertainties of the assessment

The final layout of bushfire management infrastructure such as water storage tank locations has not been confirmed. The final design would be confirmed in consultation with NSW RFS and FRNSW and will incorporate recommendations from these agencies.

[16] 'Carriageway' may include a formed road and grassed verges and therefore a 4m gravel internal road may still meet the requirement for an 8m carriageway.

Mitigation measures

Bushfire risks would be greatest during construction and operation, when works are being undertaken onsite that pose a higher risk of ignition of fuel sources. However, these risks can be adequately managed through standard mitigation strategies, as outlined below.

During operation of the solar farm overall fire risks are lower though specific fire risks strategies would be adopted including:

- Adequate setbacks, access and firefighting facilities maintained onsite
- Control of grass fuels including maintenance of groundcover beneath panels in addition to an area around the BESS and other ancillary infrastructure
- Proper design and maintenance of equipment
- Application of best practice and technical standards.

These form commitments of the Projects, as set out below in Table 6-48.

Table 6-48 Bushfire management mitigation measures

ID	Safeguards and mitigation measures	Project stage
HA8	Dangerous or hazardous materials would be stored and handled in accordance with AS1940-2004: *The storage and handling of flammable and combustible liquids*.	Construction/ operation/ decommissioning
HA9	Develop a BFEMOP to include but not be limited to: • Detailed measures to prevent or mitigate fires igniting • Work that should not be carried out during total fire bans • Availability of fire-suppression equipment, access and water • Storage and maintenance of fuels and other flammable materials • Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate • Appropriate bushfire emergency management planning. In developing the BFEMOP, NSW RFS and FRNSW would be consulted on the volume of water supplies, fire-fighting equipment maintained on-site, fire truck connectivity requirements, proposed APZ and access arrangements, communications, vegetation fuel levels and hazard reduction measures.	Construction/ operation/ decommissioning
HA10	All APZs are to be established prior to the commencement of construction. An APZ of minimum 10m would be maintained surrounding solar farm infrastructure. The APZ surrounding the proposed BESS unit, substation, and associated ancillary infrastructure would be a minimum of 12m to the southeast and northwest, and 10m in all other directions. Grass height within the APZ and operational footprint would be managed at low levels throughout the October to March fire season.	Construction/ operation/ decommissioning

ID	Safeguards and mitigation measures	Project stage
HA11	Non-combustible (steel or concrete) water storage tanks should be installed adjoining the main internal access road, or nearby the BESS, for fire-fighting and other non-potable water uses, with a 65mm Storz outlet, a metal valve and a minimum of 20,000 litres reserved for fire-fighting purposes, in accordance with PBP. The final location/s of water tanks will be determined in agreement with NSW RFS and FRNSW recommendations.	Construction
HA12	Appropriate fire-fighting equipment would be held on site to respond to any fires that may occur at the site during construction. This equipment would include fire extinguishers, a 1000 litre water cart (fitted with suitable hosing, fittings and diesel firefighting pump) retained on site on a precautionary basis, particularly during any blasting and welding operations. Equipment lists would be detailed in Work Method Statements.	Construction
HA13	The NSW RFS and Fire and Rescue NSW would be provided with a contact point for the solar farm, during construction and operation.	Construction/ operation
HA14	Following commissioning of the solar farm, the local NSW RFS and Fire and Rescue brigades would be invited to an information and orientation day covering access, infrastructure, firefighting resources on-site, fire control strategies and risks/hazards at the site	Operation
HA15	The perimeter access track would comply with the requirements of perimeter roads in accordance with Table 5.3b of the PBP. All access and egress tracks on the site would be maintained and kept free of parked vehicles to enable rapid response for firefighting crews and to avoid entrapment of staff in the case of bushfire emergencies. Access tracks would be constructed as through roads as far as practicable. Dead end tracks would be signposted and include provision for turning firefighting vehicles.	Construction/ operation/ decommissioning
HA16	A Hot Works Permit system would be applied to ensure that adequate safety measures are in place. Fire extinguishers would be present during all hot works. Where practicable hot works would be carried out in specific safe areas (such as the Construction Compound temporary workshop areas).	Construction/ operation/ decommissioning
HA17	Machinery capable of causing an ignition would not be used during bushfire danger weather, including Total Fire Ban days.	Construction/ operation/ decommissioning
HA18	Prior to operation of the solar farm, an Emergency Response Plan (ERP) would be prepared in consultation with Council, the RFS and Fire and Rescue NSW. This plan must include but not be limited to: • Specifically addresses foreseeable onsite and off-site fire events	All stages

ID	Safeguards and mitigation measures	Project stage
	and other emergency incidents. • Risk control measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the PV system (either in its entirety or partially, as determined by risk assessment). • Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site. • Two copies of the ERP are stored in a prominent 'Emergency Information Cabinet' which is located in a position directly adjacent to the site's main entry point/s. Once constructed and prior to operation, the operator of the facility would contact the relevant local emergency management committee.	
HA19	Fire risks associated with the lithium-ion energy storage facility would be addressed by design measures including: • Locating the BESS as far as practicable from any sensitive receptors or large stands of vegetation (currently demonstrated by the Indicative layout) • Installing reliable automated monitoring (voltage and temperature), alarm and shutdown response systems • Installing reliable integrated fire detection and fire suppression systems (inert gas) • Ensuring the battery containers are not vulnerable to external heat effects in the event of a bush fire • Designing appropriate separation and isolation between battery containers and between batteries and other infrastructure, including gravel surfacing around the facility for a minimum 10m in accordance with APZ • Compliance with all relevant guidelines and standards • Preparation of a specific Battery Fire Response Plan, under the general BFEMOP, in consultation with fire authorities, fire suppression experts and in reference to relevant standards and guidelines • Facilitation of first responder training in the management of Lithium-ion battery fires at the site for local brigades.	Design
HA20	Where applicable, buildings and other infrastructure should be constructed to withstand no greater than 29kw per metre squared (kW/m^2) calculated at 1090 Kelvin (K), corresponding to a BAL-29 or less separation distance. Construction is not permitted in BAL-40 or BAL-FZ	Design/construction/ operation

6.9.3. Preliminary hazard assessment

This section summarises the findings of the Preliminary Hazards Assessment undertaken by Pando Consulting Pty Ltd. It was completed to identify the hazards and assess the risks associated with the Project and details measures which, when implemented, would reduce these hazards and risks to acceptable levels. The Preliminary Hazards Assessment is attached as Appendix F.9 of this EIS and summarised in this section.

Approach

The Preliminary Hazards Assessment was prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis* (DoP, 2011a) and *Multi-Level Risk Assessment* (MLRA) (DoP, 2011b). The assessment considers all recent standards and codes and verifies separation distances to on-site and off-site receptors to prevent fire propagation.

The assessment also undertook a preliminary risk screening to determine whether the Project would be considered as 'potentially hazardous industry' as defined by the Resilience and Hazards SEPP. As required by the MLRA, the process to undertake the preliminary risk screening is taken from the *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* (DoP, 2011c) (Applying SEPP 33).

The assessment also assesses compliance with Hazardous Industry Advisory Paper No. 4 'Risk Criteria for Land Use Safety Planning (DoP, 2011d) including the key design parameters. It provides a basis for an informed judgment to be made on the acceptability of the Project.

The methodology undertaken to prepare the Preliminary Hazards Assessment includes:

- Identification of the nature and scale of all hazards at the proposed development, and the selection of representative incident scenarios
- Analysis of the consequences of these incidents on people, property, and the biophysical environment.
- Evaluation of the likelihood of such events occurring and the adequacy of safeguards.
- Calculation of the resulting risk levels of the facility
- Comparison of these risk levels with established risk criteria and identification of opportunities for risk reduction.

A schematic of the hazard analysis process is included below in Figure 6-44.

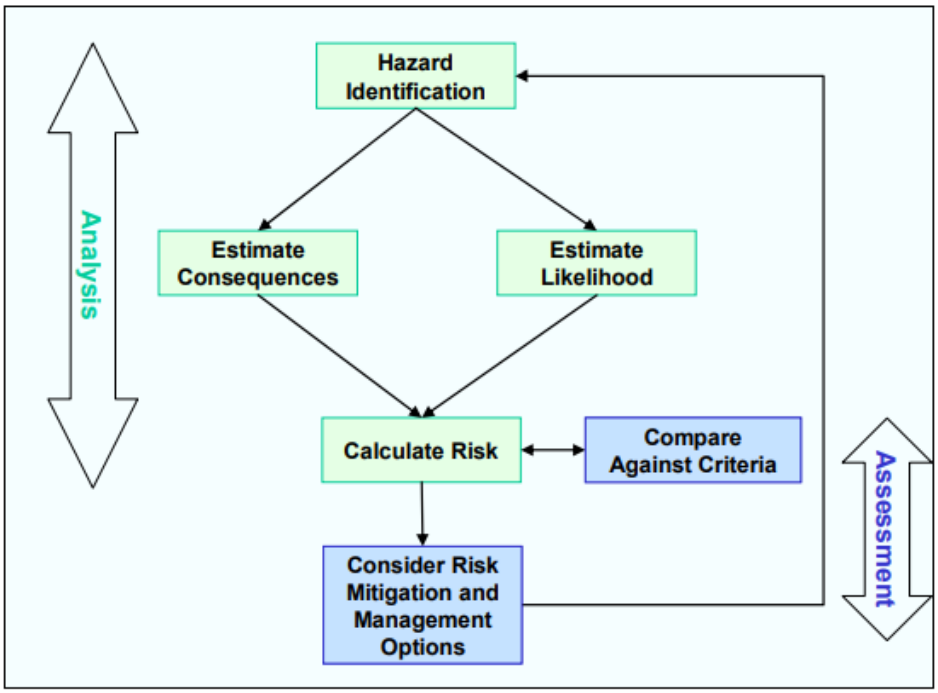


Figure 6-44 Basic methodology for hazard analysis (Source: HIPAP 6)

Preliminary risk screening

The State Environmental Planning Policy (SEPP) 33 screening procedure (used in the absence of a screening process under the new Resilience and Hazards SEPP) is based on the quantity of dangerous goods stored or transported, the frequency of transportation movements and, in some cases, the distance of the materials from the site boundary. The application guidelines for SEPP 33 (DoP, 2011c) require goods to be classified according to the Australian Code for the Transport of Dangerous Goods by Road and Rail Code (ADG Code).

The ADG Code lists the following classes of dangerous goods:

- Class 1 Explosives
- Class 2 Gases
- Class 3 Flammable liquids
- Class 4 Flammable solids
- Class 5 Oxidising substances and organic peroxides
- Class 6 Toxic and infectious substances
- Class 7 Radioactive material
- Class 8 Corrosive substances
- Class 9 Miscellaneous dangerous substances and articles, including environmentally hazardous substances.

A development which exceeds screening thresholds in the guidelines would be considered potentially hazardous. For quantities below the given thresholds, the SEPP indicates that there is unlikely to be a significant off-site risk, in the absence of other risk factors.

The dangerous goods that would require transportation and storage during construction and operation of the Project are identified in Table 6-49 with ADG Code classification, relevant quantity and transportation thresholds, and storage arrangements threshold and the arrangements of these dangerous goods for the Project against the thresholds. Further details regarding transport quantities for the Project are provided in Table 6-49. All other Classes are not required by the Project and therefore are not considered further in this screening.

In terms of the class, transportation and storage of dangerous goods, the Project would not exceed SEPP 33 thresholds and therefore would not be considered potentially hazardous in accordance with the SEPP 33 guidelines.

Table 6-49 Dangerous goods and SEPP thresholds

Hazardous material	Storage threshold	Transport threshold		Onsite storage arrangements for Project		Transport arrangements for Project		Exceeds SEPP 33 thresholds?
		Movements	Quantities	Storage location	Quantities	Movements	Quantities	
Class 2.1 Flammable gases								
Galvanising Spray Cans	Figure 7 graph if greater than 500 kg	>500 cumulative >30/week	2 tonnes bulk 5 tonnes packaged	Cylinders at operations storage building	500 cans (<150kg)	10 cumulative 1/week	500 cans or 42 boxes of 12 cans each (equivalent to a total of ~200 kg)	No
Class 2.2 Non-flammable, non-toxic gases (further detailed in section below table)								
Refrigerant	Excluded from the risk screening. Non-flammable, non-toxic gases not considered to be potentially hazardous with respect to off-site risk.			BESS refrigeration/ chiller units stored in equipment and packages.	NA	NA	NA	No
Class 3 Flammable liquids								
Miscellaneous flammable liquids in small containers (Packaging	Applying SEPP33 Figure 8 graph if greater than 2	>750 cumulative >45/week	3 tonnes bulk 10 tonnes packaged	Stored in operations building	500L (Petrol) 20 kg (Antirust paint)	52 annual 1 peak weekly	500L (<1 tonne)	No

Hazardous material	Storage threshold	Transport threshold		Onsite storage arrangements for Project		Transport arrangements for Project		Exceeds SEPP 33 thresholds?
		Movements	Quantities	Storage location	Quantities	Movements	Quantities	
Group I)	tonnes							

Class 9 Miscellaneous dangerous substances and articles								
LFP Battery Cells	NA	>1000 cumulative >60/week	No limit	Energy Storage Facility buildings in a secure compound	NA	50 annual 1 peak weekly	28 tonnes of cells per BESS container	No
Coolant	N/A	>1000 cumulative >60/week	No limit	BESS coolant stored in equipment and packages	NA	50 annual 1 peak weekly	2000L per BESS container	No

Preliminary hazard analysis

The Preliminary Hazards Assessment assessed the events associated with proposed operation of the BESS (i.e. excluding construction) and is focused on the risk to surrounding land uses (i.e. off-site impacts) to assess if the Project is appropriate for the location. The Project area was used to define and determine off-site impact based on potential to impact sensitive receivers.

The Qualitative risk assessment against Hazard Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning (DoP, 2011d) was used to determine the level analysis required for the assessment.

Hazard identification

The Preliminary Hazard Analysis identified the below onsite and offsite hazards:

- BESS activities and infrastructure
- Type of equipment
- Hazardous material present
- Natural climatic events such as floods, cyclones, earthquakes or lightning strikes
- Hazardous events on neighbouring sites.

The hazards and the related event as identified are shown in Table 6-50

Table 6-50 Identified hazards and events

Hazard	Event
Electrical	Exposure to voltage
Arc flash	Exposure to EMF
Electrical and magnetic fields (EMF)	Infrastructure fire and bushfire
Fire	Release of hazardous materials
Chemical	Battery thermal runaway
External factors	Vandalism, flooding

The risk assessment is a measure of the likelihood of a defined adverse outcome. To calculate risk, it is necessary to consider the likelihood and the consequences of each of the hazardous scenarios identified. For each identified potential hazard and associated event that may be associated with the Project, the resulting consequences and likelihood pair were determined, and a risk rating was allocated.

The identified hazards, events and the relationships with causes, consequences, controls, and likelihood ratings are summarised in the hazard register in Table 6-6 of the Preliminary Hazards Assessment. None of the hazards identified registered a likelihood greater than unlikely.

As a result of the risk assessment, a total of17 hazardous events were identified, with none assessed to have a significant off-site impact due to their consequences and controls. Of these:

- 13 events were identified as ‘medium-risk’

- 4 events were identified as 'low-risk'

Identified events are presented in Table 6-51 below.

Table 6-51 Project based risk rating analysis

Hazard	Event	Consequence	Likelihood	Risk
Electrical	Exposure to voltage	Major	Very unlikely	Medium
Arc flash	Arc flash	Major	Very unlikely	Medium
EMF	Exposure to EMF	Insignificant	Extremely unlikely	Low
Fire	Fire – transformers and PCSs	Major	Very unlikely	Medium
	Fire – substation	Major	Extremely unlikely	Medium
	Fire – temporary construction facilities	Major	Very unlikely	Medium
	Bushfire	Major	Very unlikely	Medium
Reaction	Thermal runaway in battery	Major	Very unlikely	Medium
Chemical	Release of electrolyte from the battery cell (liquid/vented gas) resulting in fire and/or explosion	Major	Very unlikely	Medium
	Battery coolant leak	Minor	Very unlikely	Low
	Refrigerant leak (BESS and refrigeration/chiller units)	Minor	Very unlikely	Low
	Exposure to hazardous material (herbicide/pesticide)	Minor	Very unlikely	Low
	Release of diesel from storage tank, filling point or during handling resulting in fire	Major	Very unlikely	Medium
	Release of gasoline from storage tank or filling point resulting in fire	Major	Very unlikely	Medium
External factors	Water ingress resulting in fire (BESS, PCSs or switch rooms)	Major	Extremely unlikely	Medium
	Vandalism due to unauthorised personnel access	Moderate	Unlikely	Medium
	Lightning strike	Major	Very unlikely	Medium

Based on the risk acceptance criteria used for the study, the risk profile for the Project is considered tolerable, given the measures taken *As Low As Reasonably Practicable* (ALARP).

Most of the medium-risk events are related to fire incidents resulting from various causes, such as the release of flammable materials, battery thermal runaway, transformer fire, and bushfires. The analysis

identified proposed prevention controls to reduce the likelihood of these fire events, as well as mitigation controls to contain fires and minimize the potential for escalation (e.g., Bushfire Emergency Management and Operations Plan). Considering the identified controls, the highest likelihood for these events was rated as very unlikely, indicating that while such incidents have been heard of in the industry, they are not expected to occur.

Considering the size of the Project area, the proposed location of Project infrastructure within that footprint, the proposed controls (outlined below), and the distance to neighbouring land uses (including neighbouring properties and agricultural operations), the exposure to fire events will primarily affect the Project's construction and operations workforce.

The risk assessment concluded that there is negligible potential for offsite fatalities or injuries. Therefore, the Project aligns with land use planning criteria. The Project deemed these risks as tolerable, considering the measures taken ALARP.

BESS safeguards

The Project includes the development, construction, operation and decommissioning of a BESS with a nominal capacity of up to 450MW/1800MWh.

Risk mitigation strategies considered in siting the BESS include:

- A 10-12 m wide APZ maintained to the standard of an Inner Protection Area in accordance with the Bushfire Hazard Asseessment
- BESS perimeter road in accordance with the Bushfire Hazard Asseessment
- Provision of fire safety separation distances, as outlined below.

Subject to detailed design and OEM specifications, each battery container would include:

- Gas detection and suppression
- Fire suppression
- Remote monitoring and emergency response plans for early intervention
- Pressure relieve vent
- Pressure blast panels.

The BESS would be designed to include a 2-hour fire resistance rating, a fire alarm system and an automatic sprinkler system. Other safeguards include:

- Emergency stop
- Ground fault detection
- Manual Service Disconnect (MSD) switch
- Overcurrent protection
- Battery management System (BMS).

BESS separation distances

Separation distance may be the most effective control to reduce the likelihood and consequence of fire propagation as a result of thermal runaway event. Minimum separation distances will be informed by test results (including large scale fire test) supplied by the specified BESS manufacturer, and in accordance with the requirements of the M Global DS 5-33 Lithium-Ion BESS and the National Fire Protection Agency (NFPA) 855 Standard for the Installation of Stationary Energy Storage Systems (NFPA 855).

Mitigation measures

The Preliminary Hazards Assessment determined the risks are manageable. They will require further consideration in detailed design stage when components are selected, to ensure the assumptions of the assessment are not violated. Transgrid may impose additional requirements requirements.

Table 6-52 Battery Hazard mitigation measures

ID	Safeguards and mitigation measures	Project stage
HA21	The results of the Preliminary Hazards Assessment would be used to inform other safety studies including: • Fire Safety Study • Emergency Response Plan	Pre-construction
HA22	Detailed design of the BESS will be undertaken to comply with the requirements of section 3.2 of the Preliminary Hazard Analysis, including OEM specified separation distances, UL9540A test reports and OEM recommendations The detailed design will consider the controls listed in the hazard register (refer Appendix E.8). If the Applicant chooses to use the Tesla Megapack, all recommendations from the Victorian Big Battery Fire Statement of Technical Findings – Victorian Government 2021 will be implemented.	Detail design

6.9.4. Electric and magnetic fields

Existing environment

Electric and magnetic fields, known as electromagnetic fields (EMFs) are a type of radiation associated with electrical power (NIEHS, 2022) and can also occur naturally such as discharge during thunderstorms. Electric fields are produced by voltage and magnetic fields are produced by current. When electricity flows, EMFs exist close to the wires that carry electricity and close to operating electrical devices and appliances (WHO, 2007). Electric and magnetic field strength reduces rapidly with distance from the source, and while electric fields are insulated by air and insulation material, magnetic fields are not.

Guidelines

The International Commission on Non-Ionizing Radiation Protection (ICNPR) published *Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (1Hz-100kHz)* which were updated in 2010. The objective of the paper was to establish guidelines for limiting EMF exposure that would provide protection against known adverse health effects.

To prevent health-relevant interactions with Low Frequency fields, ICNIRP recommends limiting exposure to these fields so that the threshold at which the interactions between the body and the external electric and magnetic field causes adverse effects inside the body is never reached.

The exposure limits, called basic restrictions, are safety levels designed to limit adverse health effects from exposure to EMF and are conveyed as the internal electric fields which can be tolerated in the body without experiencing adverse health effects. The exposure limits outside the body, called reference levels, are derived

from the basic restrictions using worst-case exposure assumptions, in such a way that remaining below the reference levels (in the air) implies that the basic restrictions would also be met (in the body) (ICNIRP, 2016). Reference levels for occupational and general public exposure are shown in Table 6-53.

Table 6-53 ICNIRP reference levels (ICNIRP, 2010)

Exposure characteristics	Electric field strength (kVolts per metre – kV/m)	Magnetic flux density (microteslas - µT)
Occupational	10	1000
General public	5	200

Potential impacts

Construction and decommissioning

There is **low** potential for EMF impacts during the construction and decommissioning stages of the Project. The most notable existing source of EMFs on site is the existing 330kV line that crosses the Project area.

Operation

Operational project infrastructure that would emit EMFs include:

- Overhead powerlines / transmission lines
- Substation components including inverters and transformers
- Solar panels and associated Power Conditioning Units (PCUs), inverters and cabling; above and / underground
- The BESS

The main source of EMFs from the Project would be the onsite substation/transformers. The magnetic fields at distances of 5-10m from the substation fence are generally **indistinguishable** from typical background levels in a home. The closest non-involved residence is approximately 2.1 km (R44) from the proposed substation location.

Research into electric and magnetic fields undertaken at utility scale photovoltaic installations in California[17] by Chang and Jennings (1994), indicated that magnetic fields were significantly less for solar arrays than for household applications. Magnetic fields from solar arrays not distinguishable from background levels at the site boundary.

The Project would require installation of DC wiring between panels and the PCUs. This cabling would be underground and would have a maximum voltage of around 1500V. Underground cabling is afforded a 'shielding' effect. The potential for electromagnetic interference as a result of the solar array cabling is considered to be negligible.

PCUs would be installed across the Development Footprint and within the BESS / substation area. The PCUs would be located within the fenced Development site with no public access.

Lithium-ion batteries that would be used in the BESS are not associated with high-levels of EMF which would be well below ICNIRP reference levels.

Staff carrying out maintenance on solar arrays adjacent to the transmission line may be exposed to limited amounts of EMFs. However, EMF levels at the edge of a transmission easement are typically comparable to

[17] Note the U.S.A electricity supply operates at 60 Hz frequency.

background levels found in household environments, hence, this impact is negligible and would be mitigated using the below measures (VicGrid, 2024).

Key uncertainties of the assessment

The EMF assessment has considered that all EMF producing infrastructure would follow Australian and industry standards. The final designs and material choices will comply to this guidance through the implementation of the mitigation measures below.

Safeguards and mitigation measures

With the implementation of the following measures, which form commitments of the Project, the impacts are considered manageable.

Table 6-54 EMF mitigation measures

ID	Safeguards and mitigation measures	Project stage
HA23	All electrical equipment will be designed in accordance with relevant codes and industry best practice standards in Australia.	Design
HA24	All design and engineering will be undertaken by qualified and competent person/s with the support of specialists as required.	Design
HA25	Design of electrical infrastructure will minimise EMFs.	Design

6.10. Social and economic

This section addresses the requirements of the *Social Impact Assessment Guidelines 2023* (DPHI, 2025a) the accompanying Technical Supplement (DPHI, 2025b). It summarises the Social Impact Assessment undertaken by NGH provided in Appendix F.11.

6.10.1. Approach

A Social Impact Assessment was prepared by NGH to consider the potential socio-economic impacts presented by the Project. The Social Impact Assessment aims to identify, predict and evaluate the likely social impacts arising from the Project, and to propose appropriate responses to mitigate and manage negative impacts and enhance positive benefits.

- **Social** – including an assessment of the social impacts of benefits of the project for the region and the state as a whole in accordance with the Social Impact Assessment Guideline (DPHI, 2025a)
- **Economic** – including an assessment of the economic impacts or benefits of the project for the region and the State as a whole and provide details of any proposed voluntary benefit sharing programs.

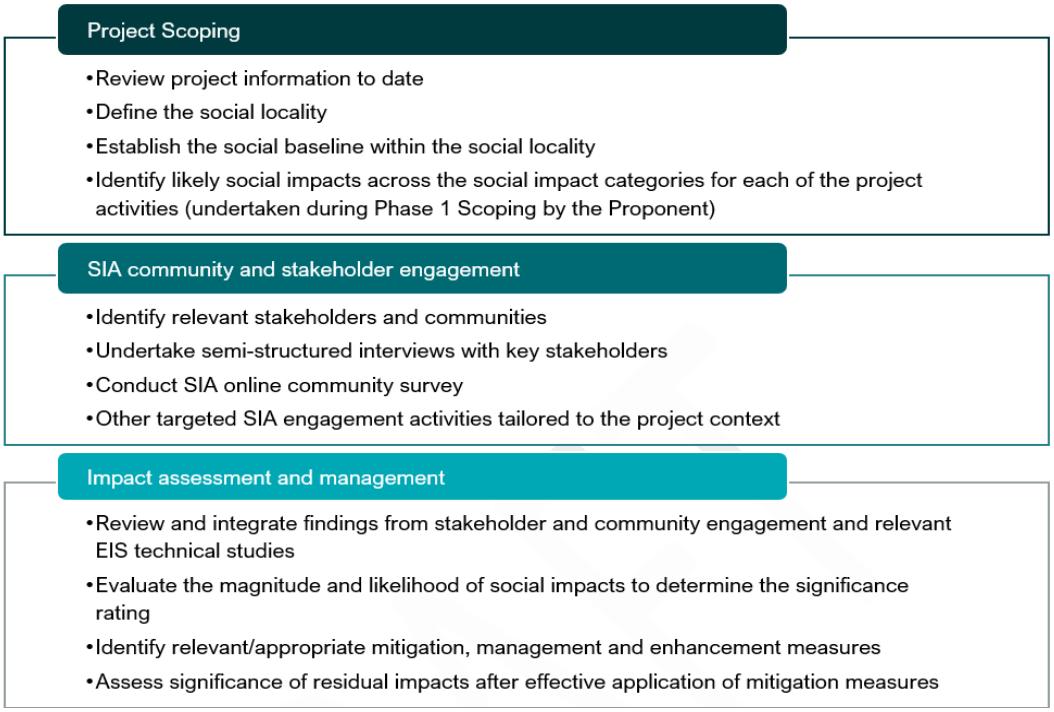


Figure 6-45 Overview of Social Impact Assessment methodology

Potential impacts were identified through stakeholder and community engagements and from comparative studies. The significance of these impacts was assessed using the risk matrix, taking into consideration the likelihood and magnitude of the impacts (DPHI, 2025a). The key themes of the Social Impact Assessment include how the Project would impact on:

1. Way of life
2. Community
3. Accessibility
4. Culture
5. Health and wellbeing
6. Surroundings
7. Livelihoods
8. Decision-making systems
9. Cumulative impacts

As the SIA identified an increase pressure on housing and accommodation as a perceived social impact, an Accommodation and Employment Strategy (AES) has also been developed by NGH to support the EIS. The AES has been prepared consistent with the following advice from DPHI specific to workforce accommodation (30 September 2025):

> *The SIA advises that rental vacancy rates for Goulburn (postcode 2580) are low at 1.1% in July 2025, which illustrates limited rental housing supply for the region. The Department notes that no other details have been provided on accommodation options for the construction workforce. There are a number of other proposed and approved major projects in the region contributing to cumulative pressure on Goulburn's housing and accommodation sector.*
>
> a. *Provide an Accommodation and Employment Strategy (AES):*
>
> *i. in accordance with the SEARs and the SIA Guideline to support the EIS prior to exhibition;*
>
> *ii. that demonstrates how and where the construction workforce will be accommodated and assessment of subsequent impacts, including if required, an accommodation camp;*
>
> iii. *be prepared in consultation with relevant councils, including Goulburn Mulwaree Council; and*
>
> iv. *include a detailed analysis of the cumulative accommodation impacts associated with the Merino Solar Farm project e.g. considering Gundary Solar Farm, HumeLink, Marulan Solar Farm etc.*

The AES is included in Appendix F.12.

6.10.2. Existing environment

Social baseline

The Southern Tablelands region of New South Wales (NSW) covers approximately 14,000 km^2 and includes three LGAs. Major population centres within the region include Crookwell, Goulburn, Murrumbateman, and Yass.

As of the 2021 Census, the Southern Tablelands region recorded a population of 57,863 and has experienced a population growth of 3.5% since 2018 (Department of Regional NSW, 2023). The median age of the Goulburn Mulwaree LGA is 41 years (ABS, 2021a). Notably, there has been an increase in the proportion of residents aged 55 and older, highlighting an ageing demographic trend that may influence future community services and infrastructure needs (Department of Regional NSW, 2023).

Social and economic environment

The economy of the Southern Tablelands region is diverse, with agriculture, healthcare, and tourism serving as key contributors to both economic output and employment. The region has seen a substantial investment in energy generation, particularly in renewable energy projects, amounting to over $1.7 billion (Department of Regional NSW, 2023).

Despite a notable increase in median weekly household income within the Goulburn Urban Centre and Locality (UCL) to $1,405 (a 24% rise from 2016), the cost of living, especially housing, has surged, leading to affordability challenges. Approximately 22.3% of the population earns less than $650 per week, while 14% earn over $3,000 weekly, highlighting economic disparities within the community (ABS, 2021a).

The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD), which evaluates the economic and social conditions in different areas, places the suburbs of Tirrannaville and Brisbane Grove higher, or more advantaged, than neighbouring suburbs of Gundary and Boxer’s Creek and the overall Goulburn Mulwaree LGA (ABS, 2021b).

Traditional Owners and Aboriginal governance

As of the 2021 Census, approximately ,709 Aboriginal and/or Torres Strait Islander people resided in the Southern Tablelands region, with a demographic composition of 50.5% male, 49.5% female, and a median age of 23 years (ABS, 2021a).

The region's Aboriginal heritage significantly contributes to its cultural richness and diversity, making it a priority in the area's economic development plans. Notably, Aboriginal unemployment rates in the region improved, decreasing from 14.3% in 2011 to 8.8% in 2021, which is below the state average of 9.8% (Department of Regional NSW, 2023).

Accommodation and workforce

As identified in the SIA, low rental vacancy rates for Goulburn (postcode 2580) (SQM Research, 2025a). Additionally, other proposed and approved major projects in the region may contribute to cumulative pressure on Goulburn’s housing and accommodation sector. Workforce development and capacity is a growing challenge for the region. There is a need to align technical and further education (TAFE) and vocational education and training (VET) programs with the growing economic demand in aged care, public administration and community services. Diversification of affordable housing is also required to accommodate the growing workforce (Department of Regional NSW, 2023).

The AES prepared by NGH was in response to this identified social impact and informed through consultation with relevant councils, including Goulburn Mulwaree Council. It includes:

- A detailed review of housing and accommodation options for both the construction and operational workforce within a one hour drive time of the Project ('the Project catchment');
- Analysis of the potential cumulative accommodation impacts associated with other major projects in the area;
- An economic profile and analysis of workforce capacity;
- An accommodation strategy to manage workforce accommodation demand during the construction phase, reduce associated pressure on local housing markets and community resources; and
- An employment strategy to maximise local workforce participation and strengthen regional skills to support the construction and operation of the Project.

Specific to accommodation, findings of this analysis are summarised in Table 6-55 below (refer Appendix F.12).

Table 6-55 Summary of potential accommodation availability within the Project catchment (October 2025)

Housing and accommodation type	Location	Potential supply	Indicative capacity
Long-term rental accommodation	Goulburn and nearby suburbs[18] only.	49 properties listed for rent 138 properties listed for sale The cumulative capacity of Goulburn and the broader housing market within the Project catchment is expected to be sufficient to accommodate the Project's operational workforce without materially impacting availability or affordability.	
Short-term accommodation*[19]	Goulburn Mulwaree	140 active listings	280 to 240 beds[20]
	Canberra-Queanbeyan area (incl Palerang and Bungendore)	2,123 active listings (~84% of the total short-term accommodation)	4,200 to 6,400 beds
	Wingecarribee, Yass Valley, and Upper Lachlan Shire	403 active listings (~16% of total)	800 to 1,200 beds
Temporary accommodation	Yass Industrial Park	HumeLink East temporary workers camp	300 beds in late 2027
	Goulburn, Crookwell and surrounding towns	Commercial temporary accommodation secured	300 beds in late 2027

[18] Listings as of 05 November 2025

[19] These listings, drawn from Airbnb and Vrbo (Stayz), represent the peer-to-peer short-stay accommodation market only and therefore exclude commercial hotels, motels, and caravan parks.

[20] For the purpose of estimating indicative short-term accommodation capacity, a conservative occupancy factor of 2.0–3.0 beds per active listing have been applied. It is noted that this range should be treated as a methodological assumption rather than a published standard. It reflects observable patterns in regional short-stay markets, where the majority of listings comprise one and two-bedroom dwellings suited to couples, small families, or short-term workers. The applied range is consistent with the typical occupancy of entire-dwelling listings visible in Airbnb.

Housing and accommodation type	Location	Potential supply	Indicative capacity
	(substitute commercial temporary accommodation for Woodhouselee temporary workers camp)	by Transgrid for HumeLink East	
Repurposed accommodation	Not identified in this AES	Potential sources of this type of accommodation may include vacant dwellings on nearby rural lots that have been aggregated for agricultural purposes, as well as underutilised community or institutional buildings.	

* As AirDNA's 'active listings' include only properties available or booked during the reporting period, the actual short-stay capacity in the region is likely higher.

Specific to short-term accommodation, and further to the above, in September 2025 a total of approximately 505 commercial short-stay properties were listed on *Booking.com* across the Project's accommodation catchment (i.e., a one-hour drive). This number reflects the amount of properties listed on the platform, not their active availability for booking at a particular date. Therefore, the capacity presented here may be interpreted as an inventory snapshot, providing an upper bound of commercial accommodation supply within the catchment.

To estimate indicative bed capacity, an average of 12–17 beds per property has been applied, reflecting typical room numbers and occupancy levels for regional motels, serviced apartments, and small hotels. Based on this assumption, the estimated commercial accommodation capacity across the catchment is approximately 6,000 to 8,500 persons.

6.10.3. Potential social impacts

Table 6-55 and Table 6-56 present a summary of potential social impacts and response measures proposed as outlined in the SIA. The tables outline the impact category in line with the Social Impact Assessment Guideline, the perceived potential impacts on people, the Project aspect that may cause the impact, the stakeholder group that may be affected by the impact, the phase of the Project in which the impact may occur, and the likelihood and magnitude rating alongside the resulting impact significance.

The tables also highlight the existing and potential enhancement measures against each identified potential benefit for the positive impacts and potential mitigation measures for the negative impacts. After evaluating each impact against the enhancement and mitigation measures and then considering cumulative impacts, residual significance is evaluated.

Table 6-56 Social impact assessment summary - positive social impacts

Social impact category	Potential social impact	Project aspect/activity	Timing /duration	Affected stakeholder group	Evaluated impact significance	Existing and potential enhancement measure	Residual significance
Livelihoods	Potential increase in local employment and procurement	Establishment, construction, and operation of Project infrastructure	C, O, D	Broader Community	Moderate + Possible **Medium**	Continue to foster the use of local contractors and suppliers	**High**
	Increase in training opportunities				Moderate + Possible **Medium**	Liaise with local training providers and tailor the training needs to develop the required skills	**High**
	Potential increase in local economic opportunities	Establishment, construction, and operation of Project infrastructure	C, O, D	Broader Community, Local service providers and businesses	Moderate + Possible **Medium**	Foster the use of local contractors and suppliers. Coordinate efforts and liaise with key stakeholders to coordinate the provision of accommodation and other services or suppliers, including opportunities for local contractors and services.	**High**
	Increased economic benefit through community benefit sharing	Community benefit fund generating economic activities	C, O	Broader community, Local service providers, Community groups, Local government, Vulnerable community members	Moderate + Possible **Medium**	Indirect benefits to local services through the construction and operation phases. Payments to host landholders via neighbour agreements result in financial contributions to the local community. A community benefit-sharing program will include a component to	**High**

Social impact category	Potential social impact	Project aspect/activity	Timing /duration	Affected stakeholder group	Evaluated impact significance	Existing and potential enhancement measure	Residual significance
						fund community benefit and employment programs. Promote training and upskilling opportunities in the local community.	
Community	Increased community investment	Community benefit fund leading to improved social and community infrastructure	C, O	Broader community, Local service providers, Community groups, Local government, Vulnerable community members	Moderate + Possible **High**	Liaise with the Council and, through continued engagement, identify the priorities and contribute agreed funding as a community development fund with the intention of building a legacy. Focus on legacy building CBS schemes that take into account communities' preferences and benefits for those most impacted by the Project.	**High**

Table 6-57 Social impact assessment summary - negative social impacts

Social impact category	Potential social impact	Project aspect/activity	Timing / duration	Affected stakeholder group	Evaluated impact significance	Existing and potential mitigation measure	Residual significance
Livelihood	Perceived decrease of value of adjacent property	Payments to host and proximal landholders, establishment of Project infrastructure, public release of Project plans	P, C, O, D	Proximal landholders	Major + Likely **High**	Continued engagement with host and proximal landholders and the broader community. The community benefit program could include an ongoing targeted community sponsorship program and planning agreements with local councils. Continued implementation of Host landholder and neighbour agreements. Implementation of visual screening where possible.	**Medium**
	Perceived increase in insurance premiums	Increase in potential fire, financial and health risks from the Project			Moderate + Possible **Medium**	Continued engagement with host and proximal landholders. Liaise with insurance companies to convey accurate information to the broader community.	**Low**
Community	Potential changes to community cohesion	Payments to host landholders and difference in attitude towards the Project	P, C, O, D	Host landholders, near neighbours and the broader community	Moderate + Possible **High**	Further engagement with the broader community and strategies to increase social acceptance, such as through community benefit investment and funding. Strong and continued community engagement to prevent misinformation from perpetuating into community division.	**Low**

Social impact category	Potential social impact	Project aspect/activity	Timing / duration	Affected stakeholder group	Evaluated impact significance	Existing and potential mitigation measure	Residual significance
Accessibility	Increased pressure on housing and accommodation	Establishment and construction of Project infrastructure	C	Accommodation providers and the Broader community	Moderate + Likely **High**	Develop Accommodation and Employment Strategy* with the following strategies: • Continue to foster the use of local contractors and suppliers. • Coordinate efforts and liaise with key stakeholders to coordinate the provision of accommodation and other services or suppliers. • Collaboration with other renewable energy Applicants.	**Medium**
	Increased traffic on local roads	Movement of construction materials & increased traffic due to workforce travel	C	Broader Community and road users	Major + Possible **High**	Development and implementation of a Construction Environmental Management Plan (CEMP), including traffic management measures. Develop detailed planning of transport routes with public safety considerations and information disclosure, notifying residents and considering any sensitive user groups.	**Medium**
	Increased pressure on social infrastructure	Establishment and construction of Project infrastructure	C	Health providers	Moderate + Possible **Medium**	Finalised Planning Agreements with host Councils. Collaboration with other renewable energy Applicants. Explore the potential of	**Low**

Social impact category	Potential social impact	Project aspect/activity	Timing / duration	Affected stakeholder group	Evaluated impact significance	Existing and potential mitigation measure	Residual significance
						recruiting health workers to cater to the Project's needs.	
Health and wellbeing	Potential impacts on health and well-being through mental and physical health issues	Establishment of Project	P, C, O	Proximal landholders and the broader community	Major + Likely **High**	Continued engagement with host and proximal landholders and the broader community. Implement measures outlined in the EIS relating to hazard and risk management. Provide clear information to residents regarding information about the Project and update clear timelines.	**Medium**
Way of life	Impacts of noise on the way of life	Establishment and construction of Project infrastructure	C	Proximal landholders	Moderate + Possible **Medium**	Development and implementation of a CEMP to identify controls to be implemented during the construction phase.	**Low**
Surrounding	Change in landscape character and visual amenity	Establishment, operation, and decommissioning of Project infrastructure	C, O, D	Broader Community	Major + Likely **High**	Visual impact assessment finds low to moderate-low impacts; however construction and decommissioning could create temporary contrast. Targeted vegetation screening in consultation with the community could be undertaken if required.	**Low**
	Fire risks	Establishment, construction, and operation of Project infrastructure	C, O	Proximal landholders	Major + Possible **High**	Bushfire management plan development	**Medium**

Social impact category	Potential social impact	Project aspect/activity	Timing / duration	Affected stakeholder group	Evaluated impact significance	Existing and potential mitigation measure	Residual significance
	Loss of agricultural land	Establishment, operation, and decommissioning of Project infrastructure	C, O, D	Landholders and the broader community for farm production	Minor + Possible **Medium**	Continued implementation of landholder and neighbour agreements.	**Low**
Decision-making systems	Perceived lack of procedural fairness and exclusion from decision-making	Community and stakeholder engagement activities	P, C	Broader Community	Moderate + Likely **High**	Community and Stakeholder Engagement Strategy Continued community engagement and community drop-in sessions throughout construction and operation. Proactive personal engagement with community members and proximal residents. Provide regular updates on Project progress and create information materials for response to frequently asked questions in the consultation. Create a grievance mechanism which tracks complaints about the Project and provides transparent responses to questions.	**Medium**
	Perceived lack of distributive equity	Community and stakeholder engagement activities	P, C, O	Broader Community	Moderate + Possible **Medium**		**Low**

* As noted in Section 6.10.1, an AES has subsequently been developed to support this EIS (refer Appendix F.12).

The Project is expected to deliver social and economic benefits during construction through increased employment generation, local economic diversification, and workforce upskilling.

However, challenges were identified, including a limited local workforce, lack of relevant training pathways, and constrained rental housing supply. If these issues are not addressed, the Project may rely on a non-local workforce, increasing pressure on housing and infrastructure and affecting local amenity.

Concerns over road safety and traffic volumes, perceived risks of fire, changes to landscape character, and health and wellbeing impacts were also identified through the Social Impact Assessment.

Increased pressure on housing and accommodation was identified as a likely high impact in the Social Impact Assessment. The AES developed to support this EIS was informed through consultation with relevant councils, including Goulburn Mulwaree Council, and includes detailed review of housing and accommodation options for the Project workforce within the Project catchment (refer Appendix F.12). Analysis of the potential cumulative accommodation impacts associated with other major projects in the area was also undertaken.

The preferred option to manage workforce accommodation from the Merino Solar Farm is outlined in the Accommodation Strategy (see Section 7 of Appendix F.12), and includes:

- For construction workforce:
    - Use existing or planned temporary workforce accommodation constructed for other projects (HumeLink East for example), supported by selective short-term accommodation options within a reasonable commuting distance. Where additional capacity is required, short-term accommodation in Goulburn or Crookwell, such as cabin-style facilities may be used with careful scheduling to avoid displacement of visitors during peak tourism and local event periods.
- For operational workforce:
    - Where local workers cannot be employed for operational duties, long-term housing stock for rent or sale could be used to accommodate employees. Given the relatively modest workforce, associated housing demand is likely to be absorbed without materially impacting availability or affordability.

The Social Impact Assessment also notes that perceived cumulative impacts, particularly in relation to community division, procedural fairness, and environmental risk require a coordinated, multi-project approach. Ongoing collaboration with relevant state agencies, local councils, community groups, service providers, and other renewable energy developers will be critical to ensure impacts are not simply shifted between projects and that positive benefits are realised at a regional scale.

Overall, the Social Impact Assessment concludes that the Project has the potential to deliver significant local and regional benefits. By maintaining proactive engagement and embedding cumulative impact considerations into planning and operations, and implementing appropriate accommodation and employment strategies, the Project can strengthen its social licence and contribute positively to the future of the Tirrannaville and Goulburn community and the surrounding region.

Mitigation measures that will be implemented by the Project are outlined below in Table 6-57. These measures are critical to minimising potential negative impacts of the development. The Applicant has already initiated key social impact management measures, such as a Community Benefit Scheme.

6.10.4. Safeguards and mitigation measures

Table 6-58 Social impact mitigation measures

ID	Mitigation measures	Project stage
SIA1	Community and Stakeholder Engagement Strategy will be developed for the upcoming phases of the Project and would: • Outline open, transparent, timely, and accessible communication of Project information to minimise uncertainty and address concerns. • Proactively address both real and perceived concerns about potential amenity and safety impacts, including traffic, noise, visual changes, and environmental impacts • Continue regular engagement with Councils, particularly during construction, to monitor, discuss and adaptively respond to any emerging community and local business concerns • Develop accessible and responsive grievance and remedy mechanisms to ensure that community concerns and complaints are handled appropriately and fairly • Clearly communicate accommodation arrangements for both construction and operational workforces, including their expected footprint and duration • Provide robust engagement with the community to address and alleviate concerns based on perception as well as technical realities • Establish a community benefit scheme, ensuring these initiatives offer ongoing opportunities for meaningful community involvement and decision-making • Collaborate with local councils and relevant regional stakeholders to support initiatives that promote regional economic and social development • Engage economic development agencies to share and promote the Project's positive outcomes, showcasing the renewable energy industry's contribution to the region.	Prior to construction
SIA2	Implementation of the management and mitigation measures outlined in the Social Impact Assessment included in Appendix F.11.	Pre-construction, Construction
SIA3	Implementation of the Accommodation Strategy Action Plan and the Employment Strategy Action Plan included in Appendix F.12. Delivery of these Strategies will commence during the pre-construction phase to allow adequate lead time for skills development, stakeholder coordination, industry engagement planning lead time, improved transparency for local communities, and preventing reactive accommodation sourcing once workforce peaks occur.	Pre-construction, Construction

ID	Mitigation measures	Project stage
	The Project will prioritise solutions that minimise adverse social impacts such as reduced housing availability or affordability for existing residents Implementation will be overseen by the Applicant in collaboration with local training providers, councils, and regional industry representatives	
SIA4	The Applicant will implement a Community Benefits Scheme (CBS). The CBS will aim to maximise benefits for local community members throughout the Project lifecycle. The Applicant has committed to entering into planning agreements for the Project with the Council In addition to the CBS, the Applicant will explore opportunities to support local initiatives through community sponsorships to ensure that both the CBS and community sponsorships deliver meaningful and lasting impact.	Pre-construction

6.11. Waste

6.11.1. Assessment approach

Key resources required to construct and operate the Merino Solar Farm, and their estimated quantities, have been included in Section 3. This section investigates the availability of these resources, potential for avoiding waste as well as reuse, recycling and disposal options. It has been undertaken by desktop research, based on the experiences at other solar farms and through research into emerging disposal opportunities in Australia. A Waste Management Plan (draft) has also been developed for the Project and is included in Appendix G.1.

The legal requirements for the management of waste are established under the NSW *Protection of the Environment Operations Act* 1997 (POEO Act) and *the* Protection of the Environment Operations (Waste) Regulation 2005. Unlawful transportation and deposition of waste is an offence under section 143 of the act.

The NSW *Waste Avoidance and Resource Recovery Act 2001* sets out the resource management hierarchy principles to encourage the most efficient use of resources and to reduce environmental harm.

Resource management options should be considered in the following order:

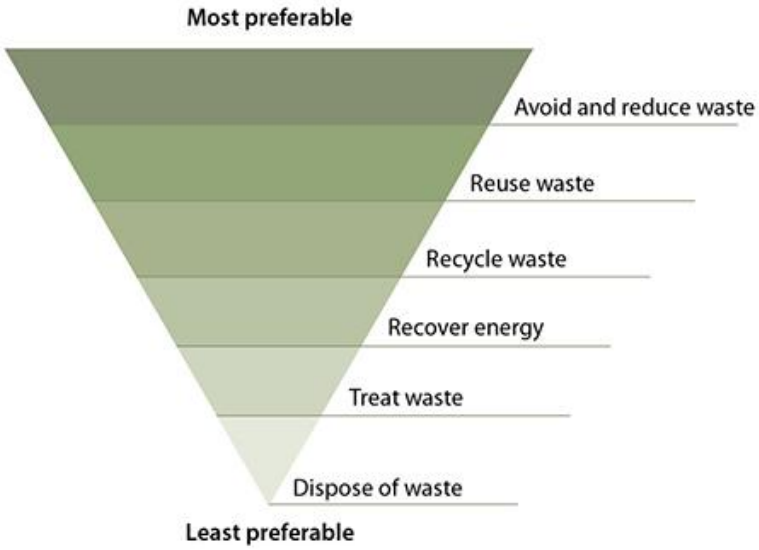


Figure 6-46 Waste hierarchy (Source: The waste hierarchy (nsw.gov.au))

Adopting these principles is also consistent with the principles of Ecologically Sustainable Development. The *Environmental Planning & Assessment Act 1979* (EP&A Act) references five principles relevant to Ecologically Sustainable Development:

1. Intergenerational equity
2. Protection of biodiversity and maintenance of essential ecological processes
3. Integration of economic, social and environmental factors
4. The precautionary principle
5. Adoption of policy instruments such as improved valuation, pricing and incentive mechanisms.

6.11.2. Existing environment

The site is utilised for low intensity agricultural practices, and the current waste streams include only agricultural products such as chemical disposal, machinery waste (e.g., batteries, tyres), and general waste such as packaging.

Regional capabilities are highly relevant for ensuring reuse, recycle options are fully explored. Waste disposal and recycling facilities in the region are summarised in Table 6-58. The waste categories accepted at each facility was taken from the Council website.

Table 6-59 Nearby waste facilities

Facility	Waste category	Distance from Project area
Goulburn Waste Management Centre	Landfill waste, clean steel, polystyrene, E-waste, motor oil, clean fill.	Approximately 16km by road.
Marulan Waste Management Centre	Landfill waste, clean steel, Polystyrene, E-waste, motor oil, clean fill.	Approximately 44km by road.
Tarago Waste Management Centre	Landfill waste, clean steel, Polystyrene, E-waste, motor oil, clean fill.	Approximately 31km by road.

6.11.3. Potential impacts

The *Large Scale Solar Energy Guideline* states that volume of solar panel waste from large scale solar farms is not significant (DPHI, 2022). However, the waste stream is expected to grow as installed panels start to be decommissioned in the coming decades. By 2025, solar energy systems in NSW are anticipated to generate approximately 3,000–10,000 tonnes of waste and this is expected to grow to 34,000–63,000 tonnes per year by 2035.

To combat this growing waste stream the NSW Government has created a $10 million Circular Solar Fund, managed by the EPA. Several companies have received grants to become a part of the PV and battery circular economy to divert large scale solar and battery waste away from landfill and into reuse and recycling. These companies include (refer to Circular solar grants program (nsw.gov.au)):

- Blue Tribe Co. Pty Ltd
- PV Industries Pty Ltd
- Scipher Technologies Pty Ltd
- TES-AMM Australia Pty Ltd
- University of New South Wales
- KGM Services trading as The Solar Professionals

Construction and operational waste streams

Transport of the resources to the site, and to reuse / disposal options are highly relevant to the waste hierarchy. An important part of the Project's waste strategy must be:

- Sourcing as locally as practical
- Finding reuse / disposal options as locally as practical.

This is an emerging opportunity for the Renewable Energy Zones and those areas nearby, in terms of both material sourcing and disposal options for large scale solar developments. Community and business initiatives could see substantial benefits from Project waste streams that lead to:

- Timber and metal supplied to trade schools and local craft workshops
- Composted materials supplied to local gardeners and farms
- Biowastes treated to allow for use as an agricultural land treatment.

During operation and decommissioning, resources would be associated with maintenance activities and use of machinery and vehicles. Water requirements during operation are estimated to be 10ML/year, water for cleaning panel. Table 6-59 below summarises the likely resources and reuse options relevant to the Project, by stage.

Table 6-60 Waste management planning: resources and reuse options relevant to the Project stages

	Components	Stage	Reduce/Avoid	Reuse	Recycle
Fuels and lubricants	Fuels and lubricants	All Stages	Fuelled in appropriately bunded area. Fuels and lubricants to be kept in appropriate containment areas.	N/A	N/A
Fertilisers and herbicides	Plastic containers Packaging Chemical waste	All Stages	Fertilisers, herbicides kept in appropriately bunded and locked shed	N/A	Empty containers triple rinsed and disposed of at accredited drumMUSTER site.
Vegetation	Landscaping products. Vegetation recovered from site.	Construction and decommissioning	Minimise disturbance areas	Mulch stored away from infrastructure.	90% composted for reuse in landscaping onsite or in local initiatives
Soil	Excavation	Construction	Minimise disturbance footprint, ensure cut and fill balance.	Soil to be retained and reused onsite.	N/A
Packaging (timber)	Pallets, Timber cable drums	Construction Operation	N/A	Offer to local TAFE, High School and Art community	90% repurpose pallets and cable drums
Packaging (plastics)	Component packaging	Construction, Operation	Avoid non-recyclable/non biodegradable options	N/A	Sort and recycle at appropriate facility
Packaging (cardboard, paper)	Component packaging	All stages	N/A	N/A	90% recycled at appropriate facility
Excess building materials	Metal, timber	Construction	Avoid plastics	Offer to local TAFE and high schools	90% recycled. Metal, cabling, plastic to be sorted and recycled at appropriately licensed facilities
Putrescible waste	Construction worker consumables Food waste, single use bottles (glass, plastic), food packaging	All stages	Avoid plastic	N/A	Sort on site (glass, plastic, green) 90% recycle
Infrastructure construction	Concrete aggregates Timber products. Masonry products Concrete wash	Construction	Reduce water consumption by installing water saving appliances	Offer to local TAFE and high schools	Recyclable material to be sorted and disposed at appropriate facilities
Infrastructure component removal	Buildings	Decommissioning	N/A	Modular ancillary buildings transported and reused post construction	N/A
Battery	Lithium Ion batteries	All stages	N/A	N/A	100% recycled at approved recycling facility.
Solar panels (PV arrays)	PV arrays Mounting poles	All stages	N/A	N/A	Solar panel arrays would be recycled at a facility with the capacity to recover a large proportion of the end-of-life solar PV modules and all associated materials.
Cabling	Left over electrical cables Recovered electrical cables at decommissioning	All stages	N/A	N/A	Recycled at licensed and approved metal recycling facility
Wastewater	Grey water	All stages	Minimise water use, install water saving appliances.	Re-use onsite for vegetation screening watering	N/A
Bio waste (septic)	Black water	All stages	Install water saving appliances. Install bioseptic tank or wormfarm waste composting septic (or similar) tank to reduce volume of biohazard black water.	Utilise local composting facilities to incorporate into their activities for end use to be on farm soil improvement.	Managed and maintained by appropriately licensed contractor

Resource use and availability

While increasing scarcity of resources and environmental impacts are emerging from the use of non-renewable resources, the supply of the materials required for the Project's construction are not currently limited or restricted. In the volumes required, the Project is unlikely to place significant pressure on the availability of local or regional resources. The use of the required resources including their initial outlay for greenhouse gases in production is considered reasonable given the benefits of offsetting fossil fuel electricity generation.

In operation, electricity production using photovoltaics emits no pollution, produces no greenhouse gases, and uses no finite fossil-fuel resources. Only limited amounts of fuels would be required for maintaining and operating vehicles during operation of the solar farm.

It is likely that some electrical components, such as inverters, transformers, and electrical cabling, would need replacement over the proposed life of the solar farm. This would require further use of metal and plastic based products. However, these activities are expected to occur infrequently.

Below a brief lifecycle analysis for the key solar farm components (PV panels and batteries) is presented. Lifecycle analysis is a method to assess the energy and material flows associated with a given process to identify the resource impacts of that process and potential for resource recovery. Lifecycle analysis estimates energy and emissions based on the total lifecycle of materials used for a project, being the total amount of energy consumed in procuring, processing, working up, transporting and disposing of the respective materials (Schleisner, 2000).

PV panels

A lifecycle inventory of multi-crystalline PV panels was undertaken by European and US photovoltaic module manufacturing companies in 2005-2006. Over the 30-year lifetime of the panels, it is expected that 28 g of GHG emissions would be produced per kWh of energy generated (Fthenakis, et al., 2011). The 'energy payback time' for multi-crystalline PV panels is dependent on the geographical location, however, on average it is estimated to be 1.5 years. A solar installation in Southern Europe would be even less than 1.5 years (Fraunhofer ISE 2015), which is considered comparable to the solar radiance expected at the Merino Solar Farm.

The purification of the silicon, which is extracted from quartz, accounts for 30% of the primary energy to produce the panel. This stage also produces the largest amount of pollutants with the use of electricity and natural gas for heating (Fthenakis, et al., 2011). The waste produced during production of the panels which can be recycled include graphite crucibles, steel wire and waste slurry (silicon and polyethylene glycol). However, silicon crystals cannot be recycled during this stage (Fthenakis, et al., 2011). The production of the frames and other system components, including cabling, would also produce emissions and waste but less than the production of panels.

The energy yield ratio of a product is a ratio of the energy produced by, in this case, a solar PV system over its lifetime, to the energy required to make it is referred to as the system's. PV system energy yield ratio in Northern Europe was estimated to be more than ten, indicating the system would produce more than ten times the amount of energy required to make it (Fraunhofer Institute for Solar Energy Systems (ISE), 2015). This positive energy yield ratio also means that GHG emissions generated from the production of solar energy systems are more than offset over the systems' lifecycle (GA and ABARE, 2010).

Li-ion batteries

Li-ion batteries are classified as hazardous waste under the Commonwealth *Hazardous Waste Act 1989*, and Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code). The code has a special provisions and packaging instructions for Li-ion batteries transported for disposal or recycling. The average life of the Li-ion PV solar batteries is assumed to be 10 years (Randell

Environmental Consultancy, 2016) and therefore batteries may require replacement 2-3 times during the life of the solar farm.

Presently, there is one B-Cycle accredited, EPA- permitted and licensed recycler of mixed batteries including Li-ion batteries in Australia that are collecting, sorting and processing entirely onshore. The number of recycling plants with these accreditations will grow with demand. B-Cycle is a government backed scheme which is run by the Battery Stewardship Council and authorised by the ACCC to promote the safe use and disposal of batteries including Lithium-Ion Batteries.

Any spent batteries would be recycled at a B-Cycle accredited, EPA permitted and licensed recycler of Lithium-Ion Batteries. Batteries would be handled, stored, and transported according to manufacturer's guidelines and the ADG Code.

Given the rapid rise of Li-ion battery use in Australia, including in renewable energy Projects and electric cars, cost-effective local recycling may be available at the time of battery replacement or decommissioning. AEMO (2015) predict strong growth in the consumption of Li-ion batteries for both electric vehicles and PV solar over the next 20 years. This growth would begin to significantly affect the waste stream from 2025 (Randell Environmental Consultancy, 2016), onwards, and we are seeing a reaction in the market through recycling grants such as $10 million Circular Solar Fund managed by the NSW EPA.

Solar farms in general

When compared to the major electricity generating methods employed in Australia, solar farms are favourable for the following reasons:

- CO_2 emissions generated per kilowatt hour of energy produced
- Short energy payback time in comparison to the life span of the project
- Potential to reuse and recycle component parts.

As the industry becomes established in NSW, further opportunities for waste reuse are identified.

Waste management

Construction

Solid waste is one of the major pollutants caused by construction. Several construction activities would produce solid wastes, such as earth works, construction of buildings and array modules and rehabilitation activities. Most waste generated during the construction phase would be classified as building and demolition waste within the class general solid waste (non-putrescible). Ancillary facilities in the site compound would also produce liquid wastes and sanitary (clinical waste), classified in accordance with the POEO Act.

A detailed waste management strategy will be required to be prepared in accordance with definitions in the POEO Act and associated waste classification guidelines. Key strategies which can begin to be implemented now, ahead of procurement, is setting out the commitment to environmental best practice, seeking:

- Panels to be supplied in biodegradable / non-plastic packaging
- Careful procurement procedures to reduce over ordering and waste
- Up front identification of local substitution options.

All waste would be transported and disposed of in accordance with the Waste Classification Guidelines (NSW EPA, 2014) and the POEO Act.

The impact from waste generation, on regional waste facilities is assessed to be moderate without the implementation of any recycling or re-use measures. However, with the implementation of a Waste Management Plan and identification of recycling waste facilities in the LGA, the impacts from construction waste disposal on regional landfills, the biological environment and social environment is assessed to be minor.

It would be important for the Project to work with Council and commercial services to ensure that local facilities are not overwhelmed by disposal requirements and to maximise reuse and recycle opportunities.

Operation

During operation, the solid waste streams would be associated with maintenance activities and presence of employees. Some materials, such as fuels and lubricants, and metals may require replacement over the operational life of the solar farm. These materials would be reused or recycled wherever possible. Given the minimal number of moving parts and limited wear tear of equipment, the operational waste streams generated by the solar farm would be very low and impacts to regional waste disposal facilities would be minor.

Decommissioning

Decommissioning of the site would involve the recycling or reuse of materials including:

- Solar panels and mounting system
- Metals from posts, cabling, fencing
- Buildings and equipment such as the inverters, transformers and similar components would be removed for resale or reuse, or for recycling as scrap.

Most solar panel materials can be recycled. Items that cannot be recycled or reused would be disposed of in accordance with applicable regulations and to appropriate facilities. All infrastructure above ground and to a depth of 500 mm would be removed from the site during decommissioning.

During decommissioning, all above ground infrastructure and materials would be removed from the site and recycled or otherwise disposed of at approved facilities.

- Ancillary buildings would be transportable and reused elsewhere
- Buildings and major electrical equipment would be removed for resale or reuse, or for recycling as scrap
- All underground cabling (and buried infrastructure) to a maximum depth of 500 mm would be removed
- The Li-ion PV solar batteries would be disposed in accordance with the hazardous waste policies active at the time of decommissioning.

Australia currently only recycles 10% of its lithium-ion battery waste, compared to 98% of lead acid batteries, however, the CSIRO is confident that lithium-ion batteries are highly recyclable, and has developed a pilot program to test the dry shredding of lithium-ion batteries to recover valuable materials. These materials could then be used to manufacture new batteries in the future as the demand for these batteries increases (CSIRO, 2024).

Most of the infrastructure would be constructed using highly recyclable materials including aluminium or steel frames. The panels would be primarily constructed from glass, graphite, and copper. Cables would be made from copper and plastic. Items that cannot be recycled or reused, would be disposed of at appropriate facilities in accordance with applicable regulations. Most of the Project components are recyclable, and mitigation measures are in place to maximise reuse and recycling in accordance with resource management hierarchy principles.

6.11.4. Key uncertainties of the assessment

The fast-paced rate of technological change with regard to PV and battery technology means that the some of the data supporting this assessment may be out of date by the time the Project approaches construction stage. However, the trend is very much toward longer lived infrastructure and increased recyclable content.

The Clean Energy Council of Australia has noted the following national solar PV recycling research projects/funding taking place:

1. The NSW Government has committed $10 M to boost solar panel recycling
2. Researchers at Deakin University working to develop a solar panel recycling solution to recycle silicon.
3. $15.14 million awarded through the Australian Renewable Energy Agency (ARENA) to support research teams at six Australian universities including investigating new solutions, including upfront solar PV panel designs and end of life processing, that increase the cost-effectiveness of sustainable end-of-life management of solar PV panels.

As the solar industry becomes established in NSW, further opportunities are considered likely to be identified regarding local and regional reuse and recycle options. The Merino Solar Farm is committed to being part of this positive process.

6.11.5. Safeguards and mitigation measures

Impacts are proposed to be addressed via the mitigation measures in Table 6-61

Table 6-61 Safeguards and mitigation measures for resource use and waste generation

ID	Mitigation measures	Project stage
WM1	A Waste Management Plan (WMP) would be finalised with input from Council, to minimise waste, including: • Identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy. • Quantification and classification of all waste streams. • Provision for recycling management on-site. • Provision of toilet facilities for on-site workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant). • Tracking of all waste leaving the site. • Disposal of waste at facilities permitted to accept the waste. • Requirements for hauling waste (such as covered loads).	Construction/ Operation/ Decommissioning
WM2	Some or all of the metal components would be recycled at an approved metal recycling facility.	All stages
WM3	Solar panel arrays would be recycled at a facility with the capacity to recover a large proportion of the end-of-life solar PV modules and all associated materials.	Decommissioning
WM4	Lithium-Ion Batteries would be kept, stored, managed and transported according to manufacturer's instructions and the ADG Code Any spent batteries would be recycled at a B-Cycle accredited, EPA permitted and licensed recycler of Li-Ion batteries.	Construction/ Operation/ Decommissioning
WM5	Any onsite wastewater management system would be subject to the preparation of an Onsite Wastewater Assessment and would be installed, operated and maintained in line with:	Construction/ Operation/ Decommissioning

ID	Mitigation measures	Project stage
	• Goulburn-Mulwaree Regional Council's Onsite Wastewater Management Guidelines • Designing and Installing On-Site Wastewater Management Systems: A WaterNSW Current Recommended Practice • AS/NZS 1547:2012	
WM6	Develop a Decommissioning Waste Management Plan, when the project is planned for decommissioning.	Decommissioning
WM7	Put in reasonable effort to select manufacturers, distributors and installers of PV panels that: • Are members of relevant product stewardship scheme • Minimise packaging • Maximise recyclable components of packaging	

6.12. Cumulative impacts

6.12.1. Assessment approach

Cumulative impacts are the amalgamated impacts caused by the combination of past, present, and reasonably foreseeable future actions. Cumulative impacts can accumulate over time and can be positive, negative or benign.

The chapters above have considered each environmental aspect in isolation and provided mitigation strategies where required to address impacts. As Section 6.4 has shown the Project to be compatible with adjoining land uses, this assessment of cumulative impacts is focused on the proposed activity's interaction with other projects, either strategic or where they occur in close enough proximity that overlapping construction and/or operational timeframes could be relevant.

This chapter addresses the NSW Government's Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2022c). It considers Strategic and Project-level Cumulative Impact Assessment (CIA).

Strategic-level CIA

The strategic-level CIA has been identified as positive cumulative impacts and are detailed in Chapter 2. In summary, they include the Project's cumulative contribution to:

- Federal and state regional renewable energy policies
- Regional and local land use plans
- Reduction of energy costs
- Understanding and protecting the site's unique environmental and social context
- Community benefits

No negative cumulative impacts have been identified at the strategic level.

Project-level CIA

Project-level cumulative impacts exist where the Project may interact with other developments and thereby exacerbate the impacts of both projects. Being located south of Goulburn, local cumulative impacts could be relevant for several nearby utility scale renewable facilities, or other nearby commercial, industrial or infrastructure developments. The key environmental considerations considered in this chapter include:

- Soil, water and agricultural activities
- Noise and vibration
- Visual impacts
- Traffic
- Social impacts
- Biodiversity
- Aboriginal heritage

6.12.2. Existing environment

The Project is located approximately 6km south of Goulburn. The Project is situated to take advantage of an existing 330kV Yass to Marulan (South) TransGrid transmission line, reducing potential for cumulative impacts that would relate to constructing additional transmission lines to connect the Project to the grid (primarily visual, biodiversity / biosecurity).

As outlined in this EIS, the Project area consists of two distinct areas – the northern and southern sections of the area. The northern section includes minimal road frontage, and is located between Goulburn Airport, Windellama Road and Braidwood Road. The southern section is bordered by Braidwood Road to its west, Painters Lane to its north, which connects to Braidwood Road and Windellama Road to the east.

The Project site is not proposed for increased settlement; interactions are most relevant to the amenity of rural residences and the safety of local traffic.

The Project area and surrounding properties are predominantly used for the grazing of modified (non-native) pastures, with small regions of native pasture grazing with beef cattle and sheep meat production. Within the Project area, there are multiple waterways and dams used for livestock and agricultural use. Interactions are most relevant to the protection of the natural resource base and agricultural economy.

In addition, the area has social, cultural and biodiversity values. Interactions between projects may also exacerbate impacts on these values.

Table 6-61 below lists the State Significant Developments currently proposed as of May 2025 within 50km of the Project, their brief description, distance from the Project area their anticipated construction timeline and a statement on the key potential cumulative impacts. The distribution of these Projects is shown in Figure 6-47.

As stated in the Project description the Merino Solar Farm existing indicative construction timeline is expected to run from Q2 2027 through to Q2 2029.

Table 6-62 Major Projects within the region (Information based on latest public documentation on the NSW Major Projects website in May 2025)

Project / Proponent	Project phase as of May 2025	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Project area	Stated construction and commissioning timeline	Key cumulative impacts considered
Projects within 25km					
Gundary Solar Farm	Response to submissions	Construction of a 400MW Solar Farm and associated BESS Approx 400 Full-time equivalent (FTE) construction jobs Up to 4 FTE operational jobs EDC of $650 million	1km east at closest point	Construction anticipated to commence in Q4 2025/Q1 2026 and take approximately 18-24 months to complete.	Traffic (local) Social (concurrent service and supply demand) Amenity (visual)
Marulan Quarry	Response to submissions	A new hard rock quarry in Marulan to extract up to 500,000 tonnes per annum of hard rock aggregate products 30 FTE jobs during construction 10 FTE jobs during operation EDC of $36,631,271	18.05km northeast	Commencement date not outlined but construction is estimated to take up to six months.	Traffic (regional)
Willavale Park Battery Energy Storage System	Prepare EIS	Construction of a 300MW/1200MWh BESS Approx 75-115 FTW jobs during construction 2-5 FTW jobs during operation EDC not defined	18.5km west	Construction expected to commence in early 2026 and operation to commence in mid-2027	Traffic (regional) Social (concurrent service and supply demand)
Marulan Solar Farm	Determination - approved	Construction of a 100MW solar farm and associated BESS Approx. 300 construction jobs Up to 5 FTE operation jobs	18.75km northeast	Construction anticipated to take up to 18 months with a peak period of 12 months	Traffic (regional) Social (concurrent service and supply demand)
Woodlawn Bioreactor Expansion (3 active Mods)	Mod 6 – Assessment (more information required) Mod 7 – Response to submissions Mod 8 – Prepare SEARs	Original project approved in 2000 Mod 6: - Four 13.5ML leachate tanks - FTW not listed Mod 7: - Construction and operation of a Reverse Osmosis Plan - 32 FTE jobs Mod 8: - Construction and operation of eight 13.5ML leachate tanks	21.97km southwest	Construction timelines not stated. Original plant was approved in 2000 and is currently operating	Traffic (regional)
Woodlawn Advanced Energy Recovery Centre	Response to submissions	Construction of an Advanced Recovery Centre to thermally treat up to 380,000 tonnes of residual solid waste per year. 300 construction jobs 40 FTE operational jobs EDC not defined	23.55km southwest	Construction intended to begin in late 2023, however the project remains in '*response to submissions*' and has not yet been determined. Unclear what current timeline would be	Traffic (regional)
Woodlawn Wind Farm	Determination - approved	25 wind turbines with an output of 50MW (20 constructed with 42MW capacity) Modified in 2010 to contain additional 3 turbines	23.74km southwest	Currently operating	Nil
WSC Marulan Quarry	Prepare SEARs	Establishment of a hard rock quarry to provide up to 1,000,000 tonnes per annum of material over a 30-year period Short-term workforce during construction Up to 25 jobs during operation	22.6km northeast	Anticipated construction start not stated	Traffic (Regional)

Project / Proponent	Project phase as of May 2025	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Project area	Stated construction and commissioning timeline	Key cumulative impacts considered
Projects between 25km and 50km					
Cleary Bros Marulan Quarry	Prepare EIS	Production of 1 million tonnes annually of hard rock products via drilling and blasting 50 FTE jobs during construction 30 FTE jobs during operation EDC not defined	27km northeast	Construction start date and duration not stated	Traffic (regional) Regional Air quality (dust)
Gunlake Quarry Continuation Project	Determination – approved Mod 1 in Assessment Mod 2 on exhibition	Increased tonnage of saleable material dispatched from the quarry to meet anticipated demand increases 228 FTE jobs during operation EDC not defined	27.1km northeast	Quarry is currently operating, and increased output would have commenced from approval date in 2023	Traffic (regional) Regional Air quality (dust)
Collector Wind Farm	Determination - Approved	60-80 turbine wind farm, with the capacity to generate up to 160 MW of electricity, plus ancillary infrastructure	27.5km west	Constructed and currently operating	Nil
Cullerin Wind Farm	Determination - Approved	Construction and operation of up to 15 wind turbines with a generation capacity up to 30MW	28.76km west	Constructed and currently operating	Nil
Gullen Range Wind Farm	Determination – Approved	Construction and operation of up to 84 turbines with a generation capacity up to 250MW	35.2kms northwest	Constructed and currently operating	Nil
Canyonleigh Battery Energy Storage System	Prepare EIS	Construction of a 300MW/1200MWh BESS Approx 75-115 FTW jobs during construction 2-5 FTW jobs during operation EDC not defined	37.8km northeast	Construction expected to commence in mid-2026 and operation to commence in 2027	Traffic (regional) Social (concurrent service and supply demand)
Marulan Gas-Fired Power Plant	Determination – approved Two mods extending lapse date	Construction of two gas-fired plants with a total output capacity of 700MW	37.8km northeast	Construction commencement unknown. Approved in 2009 but has had two modifications to extend the lapse date – the most recent in October 2024 for an additional two years	Traffic (regional)
Crookwell 2 Wind Farm	Determination – Approved	55 wind turbines with a generation capacity of 110MW	31.5km northwest	Constructed and currently operating	Nil
Crookwell 3 Wind Farm	Determination – Approved	Construction and operation of up to 23 wind turbines with a generation capacity up to 83MW	31.5km northwest	Constructed and currently operating	Nil
Capital Wind Farm	Determination - Approved	Construction and operation of 63 turbines with a generation capacity of 132MW. Later modified to include additional 4 turbines	34.82km southwest	Constructed and currently operating	Nil
Capital Solar Farm	Determination – Approved	Construction and operation of a 50MW solar farm	38.87km southwest	Does not appear to have been constructed	Nil
Bind Creek Solar Farm and BESS	Determination - Approved	Construction and operation of a 350MW solar farm and 300MW BESS Up to 300 FTE jobs during construction Up to 5 FTE jobs during operation EDC of approximately $504 million	38.8km southwest	Construction expected to commence Q1 of 2023 and take approximately 18 months to complete. Unsure if construction has yet commenced	Traffic (regional) Social (concurrent service and supply demand)
Biala Wind Farm	Determination – Approved	31 turbine wind farm, with the capacity to generate up to 110MW of electricity, including ancillary infrastructure.	41.52km northwest	Constructed and currently operating	Nil

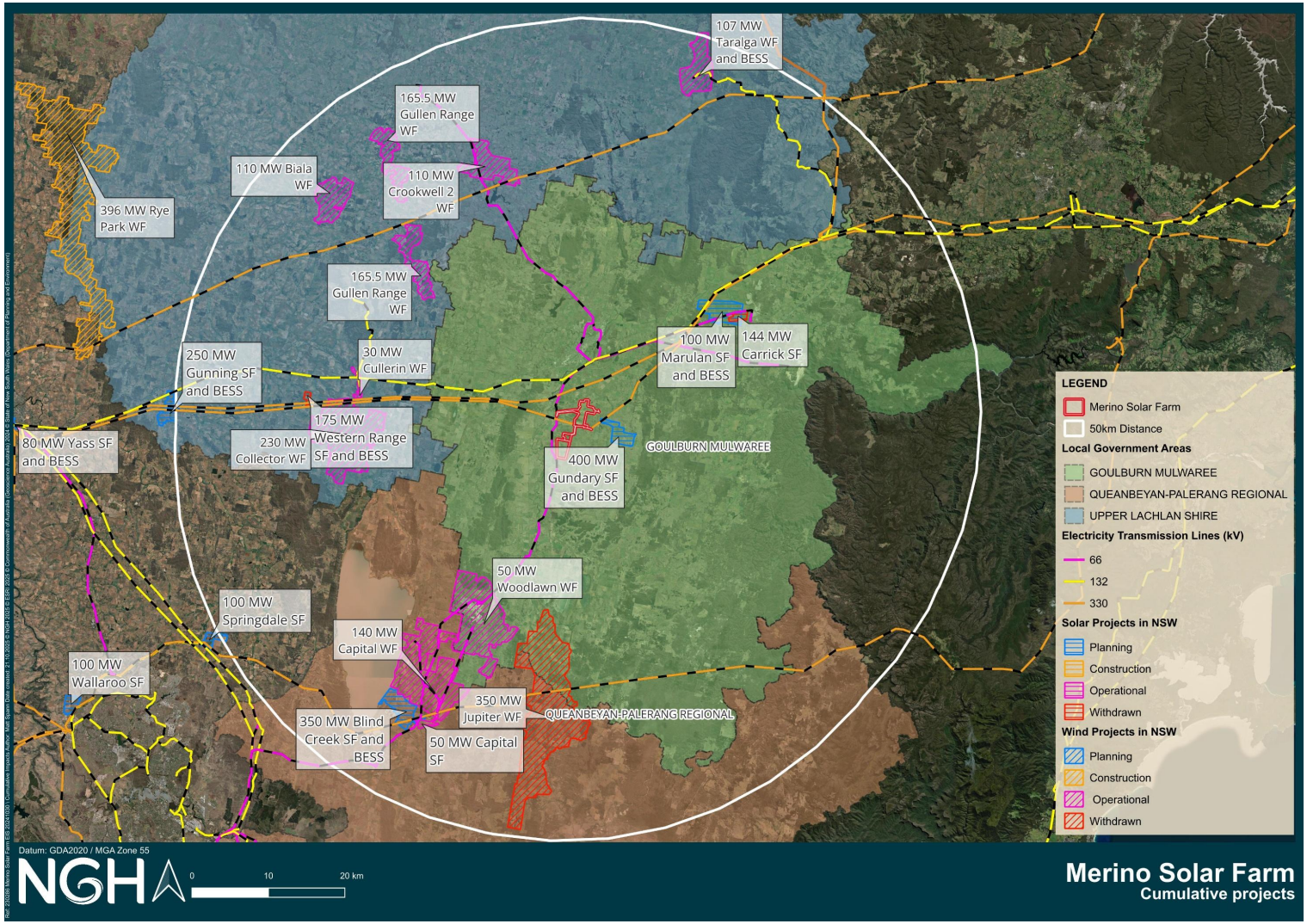


Figure 6-47 Cumulative impacts - SSD Renewable Energy Projects

6.12.3. Potential impacts

The headings below capture the key cumulative impacts which may occur for the Project. It considers that up to 25 State Significant Developments could be in their construction phase (or operational phase in the case of mining operations) concurrent with the Project.

Cumulative impacts to soil, water and agricultural activities

The soils assessment undertaken and considered in Section 6.4 demonstrates highly localised and manageable impacts to soils; no interactions with other projects are expected. Rehabilitation commitments ensure that there will minimal permanent impact to soil resources.

The water assessment in Section 6.8 demonstrates highly localised and manageable impacts to surface and groundwater resources and sets out the different water take options. Water would be accessed using the appropriate licensing and abiding by the appropriate water sharing rules and regulations. These measures are designed to address the interactions between multiple water users in a catchment.

As detailed within Section 6.4 of this report, the Project area has been verified by soil surveys to include class 5 and class 6 in accordance with the Land and Soil Capability Assessment Scheme (OEH, 2012). The Project area does not contain any land classified as BSAL or SSAL. Approximately 767 ha of cropping and/or grazing land would be converted into the solar farm development. The Project would not fragment any resource lands throughout the operational period. Upon decommissioning of the solar farm, the Development Footprint would require rehabilitation to restore it to its pre-existing productive capacity for agricultural land use. Continued use of the Project area for some livestock production is also an option, in agreement between landowners and the Applicant. Therefore, the development of a solar farm would potentially result in the following agricultural impacts:

- Limited temporary resource loss or reduction for the lifetime of the solar farm
- A potential change to biosecurity risks
- Potential increased bushfire risks.

While these impacts have been assessed in detail in Sections 6.4 above and have been found to be highly manageable considering the Project in isolation, existing and proposed large-scale projects (detailed in Table 6-61 above) on rural land within the Goulburn-Mulwaree LGA have the potential to increase these agricultural impacts.

As detailed in Section 6.4, the total loss of agricultural land within the LGA during the construction and operation phases of the Project is 0.74% and 0.58% of the total available agricultural land within the LGA. Land occupied by the solar farm would be returned to the agricultural landscape of the region following decommissioning, except for the land occupying by the substation, though this would be relatively small parcel of land (approx. 5 ha)

When considering other SSD projects in the region, it is not expected that there would be a discernible impact on the number of persons employed in the agricultural sector. Cumulative impacts on agricultural production were considered through an Agricultural Impact Assessment (F.3); on a worst-case scenario impacts were assessed to be low to moderate. If solar grazing practices are implemented across both the Merino and Gundary Solar Farms, this impact would be reduced. Mitigation measures and guidance have been provided as part of this EIS to maximise the potential for ongoing solar grazing.

The loss of crop production areas across both solar farm projects would be notable in terms of flow on effects to local businesses who supply cropping inputs (i.e., contract machinery operations and grain cartage and storage, however, impacts on businesses who supply inputs to crop production (i.e., fertiliser, pesticides etc) are also likely to be lessened due with solar grazing.

Cumulative amenity / road safety impacts

Noise impacts

Noise impacts for the Project, set out in Section 6.6, are all well within noise management levels; no exceedances on account of the Project will be experienced at any non-associated residence during construction or operation.

It is possible some cumulative noise impacts could be experienced during construction if noisy works are being undertaken concurrently with the Gundary Solar Farm, particularly when works are being undertaken at the closest points. However, cumulative noise impacts are considered highly unlikely, if this Project is also managing noise impacts appropriately.

There is also the potential for minor cumulative traffic noise impacts to arise, as Windellama Road is a shared access route for both Merino and Gundary Solar Farm. It is noted that the Nosie and Vibration Impact Assessment prepared for the Gundary Solar Farm suggests that there may be cumulative exceedances in traffic road noise, i.e. an increase traffic noise about the 2 dB threshold set by the RNP. However, traffic volumes used in this assessment are presumably based on those in the Merino Solar Farm Scoping Report. Traffic routes and volumes have since been revised to reduce cumulative impacts with Gundary Solar Farm, resulting in the use of Braidwood Road in addition to Windellama Road, with revised traffic volumes and distributions outlined in Section 6.7.

As such, given that the proposed peak hour traffic movements for the Merino Solar Farm (modelled as 360 vehicle movements per hour) are not expected to increase traffic noise about the 2 dB threshold set by the RNP, it is unlikely that the additional peak hour traffic from the Gundary Solar Farm (in the order of 144 vehicle movements per hour) would result in both projects cumulatively exceeding this threshold.

Furthermore, road noise has been assessed at 20 m from the road corridor, whereas the rural character of the locality means that receivers are typically setback further than this distance. Cumulative traffic noise impacts would also only be present north of the Windellama Road site access, after which Project-related traffic have left Windellama Road.

Each project commits to implement a Traffic Management Plan during construction which would assist in reducing cumulative traffic impacts. Communication between projects may also assist with minimising impacts to common receivers.

Visual amenity

The visual assessment (summarised in Section 6.5 and available in Appendix F.5) assessed cumulative impacts on receivers within 4km of the Project and with the proposed Gundary Solar Farm.

Both the Merino and Gundary Solar Farms are located within the Gundary undulating rural plains Landscape Character Zone and parts of the Mulwaree River and Gundary Creek rural valley Landscape Character Zone but avoid the more sensitive Tirrannaville and Gundary forested hills, as described in Section 6.5.2. Together, these projects would alter parts of the Landscape Character Zones, however, they are located across distinct valleys.

Both impacted Landscape Character Zones are considered by the Landscape and Visual Impact Assessment to have a low sensitivity, and the cumulative impact of both projects would continue to be low to moderate, as both sites are spatially and visually separated.

Furthermore, both solar farms are in separate valleys, divided by a small ridgeline generally following Windellama Road, and as such, are unlikely to both be visible from any dwelling within the study area.

These projects may, however, be seen sequentially from vehicles travelling along Windellama Road, and when travelling around the surrounding areas. However, the Merino Solar Farm would have limited visibility

from Windellama Road and is not prominent in views from most roads within the study area. There is unlikely to be a cumulative visual impact caused by these two projects.

Transport

Cumulative impacts to traffic and transport have been considered in Section 6.7, Section 6.12 and Appendix F.7. The detailed traffic assessment considers the nearby SSD projects outlined in Table 6-61 that would be expected to generate additional vehicle movements within the local road network. Of these projects, four have the potential to generate additional traffic along Braidwood or Windellama Roads in the vicinity of the Project area during the construction period. These projects are:

- Gundary Solar Farm
- Woodlawn Bioreactor Modification 7
- Woodlawn Bioreactor Modification 6
- Woodlawn Advanced Energy Recovery Centre

These vehicle movements would be distributed on the surrounding road network and are expected to have a minimal cumulative impact on the operation of the local road network.

Cumulative social impacts

The assessment of social and economic impacts (summarised in Section 6.10) centres on the combined effect of the Project on local community values and resources. Excluding the issues already addressed above, it identified the key positive cumulative social effects for this Project as:

- Positive economic impacts such as increased employment
- Additional procurement, and training opportunities
- Increased local and regional economic development and opportunities
- Increased generation of renewable energy
- Increased community investment

It also identified potential cumulative social ‘pain point’s’ such as:

- Labour and skills shortages
- Pressure on social infrastructure, services and housing and accommodation
- Changes to the community feel of towns

Several project specific measures are proposed in Section 6.10.4 that ensure the Merino Solar Farm’s contribution to these impacts is appropriately addressed.

Cumulative biodiversity impacts

The Biodiversity Assessment Method used to assess clearing impacts (and summarised in Section 6.1) considers the landscape context of the Project and the rarity and risk factors for biodiversity entities at a catchment level. The tool used to assess the impacts and calculate offset obligations is updated regularly to reflect increasing knowledge about species and threats.

The Project has avoided and minimised impacts where possible to ensure that its cumulative contribution to the state’s clearing is as low as possible. No trees would be removed. The residual impacts are in grasslands. Areas proposed to be impacted are generally highly modified due to historical land use practices.

The cumulative impact of similar renewable energy projects, particularly where endangered communities are affected, can be considerable given that many poorly conserved vegetation communities have a substantial portion of their extent represented on private land where most renewable energy projects are proposed.

Small losses of vegetative communities may be insignificant at a local level but may accumulate over time to cause a significant reduction in the extent of remnant patches.

The Project is not anticipated to have a significant cumulative impact on biodiversity values; impacts to habitat connectivity have also been minimised through careful micro-siting of the emergency access route.

Long term biodiversity offset mechanisms apply to the Project and address the ongoing impacts of multiple projects in a cohesive manner. For the Project, credits were generated via the BAM-C and offsetting of biodiversity impacts will be required and will also apply to other State Significant Developments that trigger the Biodiversity Offset Scheme.

Cumulative impacts to Aboriginal heritage values

The assessment of impacts on Aboriginal heritage values conducted in the ACHA prepared by Redgum concluded no Aboriginal sites or areas of PAD were identified or were known to be present within the Project area, and therefore. Given that the Project is unlikely to impact on Aboriginal heritage values, no cumulative impacts with other State Significant Developments are anticipated.

Key uncertainties of the assessment

In the absence of certainty, this cumulative impact assessment chapter has considered that it is possible that all of the projects listed in will progress to completion and be developed within the general parameters described therein. This is considered as conservative assessment the projects have not all been approved. Not all of these will be approved, and if approved, it is possible not all will be developed to their full scope or that the key construction timing will overlap with the Merino Solar Farm.

6.12.4. Safeguards and mitigation measures

The chapters above have considered each Project impact in isolation and provided mitigation strategies where required to address impacts. No additional mitigation measures are proposed for the Project's cumulative impacts. It is considered that all mitigation measures included in each impact chapter and summarised in Appendix B will work together to minimise the risk of cumulative impacts with other projects.

07 Project justification

7. Project justification

This concluding chapter of the EIS brings together the key results of the preceding sections. It considers the Project's justification and evaluates the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development.

7.1. Project context

The Project has demonstrated it is permissible, as set out in Section 4. As a State Significant Development, the Project has been assessed in accordance with Environmental Planning and Assessment Act 1979 (EP&A Act). It is permissible in accordance with State Environmental Panning Policy (Transport and Infrastructure) 2021 (TISEPP). Mandatory matters have been considered including biodiversity, hazards, drinking water, agriculture and mineral resources.

The Project is considered appropriate to:

- State and Commonwealth policies aiming to increase renewable energy generation and improve the security, stability and resilience of the NEM; the Project will contribute a 450MW renewable generation with 1800MWhr of battery storage for approximately 35 years.
- Local and state planning instruments, with reference to the State Environmental Planning Policy (Transport and Infrastructure) 2021 Clause 2.42; the Project is not in an identified residential or commercial expansion zone and will not significantly affect landscape character or visual amenity.

While not located within a REZ, the location is strongly justified as:

- The Project can make use of existing transmission and access infrastructure to supply nearby population centre.
- The low relief terrain also improves constructability costs, improving project viability.
- The eight local landholders, currently operating agricultural enterprises, would receive significant income diversification and retain the option to maintain agricultural use over the Project area during operation (reinstated in full after decommissioning).
- The Project is outside of planned residential and commercial expansion for Goulburn.

While it is a 'regional city' pursuant to the State Environmental Planning Policy (Transport and Infrastructure) 2021, in accordance with Clause 2.42, the Project demonstrates that is will not have a significant adverse impact on the regional city's capacity for growth or scenic quality and landscape character. It achieves no more than a low visual impact rating for nearby residential receivers and public viewpoints.

7.2. Community views, impacts and benefits

The engagement activities undertaken throughout the EIS phase demonstrated that there is a high level of concern regarding the Project from the Goulburn and Tirrannaville communities. The most prominent concern raised is the visual impact of the Project, with many stakeholders worried that there would be high visibility of the panels in the landscape and would be situated too close to residential properties. This concern was closely followed by fears of property devaluation, with stakeholders feeling the presence of the Project could significantly reduce the value of properties in the area.

The negative sentiment towards the Project is shaped by a combination of Project-specific concerns along with broader issues related to environmental and community impacts. Interactions between the nearby proposed Gundary solar farm and the broader renewable energy transition are considered highly relevant.

The social impact assessment found that the Project presents both opportunities and challenges for the Goulburn region. On the positive side, the Project is expected to create between 200 and 300 construction

jobs and several ongoing operational roles, with potential flow-on benefits for local suppliers, accommodation, and service providers. Stakeholders identified opportunities for vocational training partnerships, pre-employment programs, and procurement pathways that could help maximise participation by local residents, Aboriginal people, and young jobseekers. The Project also offers opportunities for economic diversification and resilience, particularly for landholders hosting infrastructure.

However, concerns were raised regarding the temporary nature of most employment opportunities, the limited local skill base, and the potential for competition with existing small businesses for labour. The risk of community division was emphasised if benefits are seen to accrue disproportionately to landholders or a small group of businesses. Stakeholders stressed the importance of transparent procurement processes and equitable benefit-sharing arrangements.

Key concerns included:

- Housing availability and affordability, with Goulburn's rental vacancy rate already low
- Increases in road traffic, with potential impacts on recreational spaces, school bus routes, and road conditions
- Community wellbeing impacts, in relation to stress, anxiety, and division within the community
- Near neighbour impacts about noise, visual impacts, potential reductions in property values, and heightened fire risks
- Perceptions of procedural fairness and consultation fatigue
- Cumulative impacts, given the proximity of the Gundary Solar Farm, with potential overlap in visual, traffic, and noise impacts, as well as compounding effects on housing and community cohesion.

To mitigate identified risks and enhance positive outcomes, mitigation and management measures is proposed. These include the preparation of a Community and Stakeholder Engagement Strategy to ensure ongoing, transparent, and responsive dialogue with residents, local councils, service providers, and other stakeholders. Development and implementation of specific strategies such as an Accommodation and Employment Strategy, Traffic and Access Management Plan, and Bushfire Emergency Operations Plan will help to maximise local participation and manage potential Project related outcomes.

While the Project has the potential to generate benefits for the Goulburn region particularly in local employment, training, and supply chain opportunities it also presents risks relating to housing pressures, visual amenity changes, cumulative fire and flood concerns, and community cohesion. The Project commits to managing these risks with early engagement, transparent decision-making, and tailored mitigation strategies to ensure benefits are distributed fairly and equitably across the community.

7.3. Scale and nature of impacts

7.3.1. Key values and impacts

The Project has demonstrated it has avoided impacts, as a first action, and then developed minimisation and mitigation strategies that are commitments of the Project, for impacts that cannot be avoided. The site's environmental values are reflected it the Project design and Project commitments, to ensure that underlaying values are protected. These centre on:

- **Local traffic** – Access has been rationalised to restrict impacts on local traffic as much as possible.
- **Amenity impacts** – Assessments in accordance with appropriate industry standards demonstrate low noise and visual impacts from the Project.

- **Biodiversity and waterways** – Specialist advice has informed exclusion zones and micro-siting of the Braidwood Road emergency access, to avoid impacts on remnant vegetation and waterways.
- **Soil and water resources** – In addition to waterway buffers, small areas of sodic soils would be avoided or remediated prior to disturbance and broader remediation and enhancement treatments and monitoring will ensure that decommissioning objectives can be met.
- **Hazards** – Risks of fire starting and spreading through the Project area are considered low, and suitable mitigation measures have been implemented into the design to minimise this risk.
- **Flooding and water quality** - The Project is not considered likely to adversely affect flood behaviours or hazards in the immediate catchment area, water supply or water quality.
- **Agricultural land capability** - will be protected and setbacks from horticultural/cropping areas applied where required.
- Social impacts - The Project has the potential to deliver significant local and regional benefits. By maintaining proactive engagement and embedding cumulative impact considerations into planning and operations, and implementing appropriate accommodation and employment strategies, the Project can strengthen its social licence and contribute positively to the future of the Tirrannaville and Goulburn community and the surrounding region.

The impacts have generally been assessed as low and mitigation strategies with high confidence have been adopted to manage residual risks. Specific to biodiversity, a small residual impact will be offset in accordance with the Biodiversity Conservation Acts Biodiversity Offset Scheme.

7.3.2. Cumulative impacts and interactions

Positive cumulative impacts have been identified as the Project's cumulative contribution to:

- Federal and state regional renewable energy policies
- Regional and local land use plans
- Reduction of energy costs
- Understanding and protecting the site's unique environmental and social context
- Community benefits

Greater than low level adverse cumulative impacts have been identified for:

- **Agricultural activities** – Low to moderate impacts on agricultural production. If solar grazing practices are implemented across both the Merino and Gundary Solar Farms, this impact would be reduced. Mitigation measures and guidance have been provided as part of this EIS to maximise the potential for ongoing solar grazing.
- **Visual impacts** - Both the Merino and Gundary Solar Farms are located within the Gundary undulating rural plains Landscape Character Zone and parts of the Mulwaree River and Gundary Creek rural valley Landscape Character Zone. Both impacted Landscape Character Zones are considered by the Landscape and Visual Impact Assessment to have a low sensitivity. The cumulative impact of both projects would be low to moderate for the Gundary undulating rural plains Landscape Character Zone and low for other zones; this is not considered a significant impact on scenic quality or landscape character.

Potential cumulative social impact 'pain point's' have been identified as:

- Labour and skills shortages
- Pressure on social infrastructure, services and housing and accommodation
- Changes to the community feel of towns

Several project specific measures are proposed in Section 6.10.4 that ensure the Project's contribution to these impacts is appropriately addressed. Cumulative impacts were not considered to be substantive for:

- Noise and vibration
- Traffic
- Biodiversity
- Aboriginal heritage.

7.4. Compliance and monitoring

The recommendations of the assessments outlined above have been captured in a consolidated set of mitigation commitments (Appendix B) and together with the Project description in Section 3, constitute the Project's commitment to developing a best practice solar farm.

Pending approval, environmental protection and management measures would be implemented via an environmental management framework, including overarching Construction, Operational and Decommissioning Environmental Management Plans (EMPs). These plans would be prepared sequentially, prior to each stage of works. Key subplans identified in this EIS, and which would be prepared in consultation with relevant stakeholders, are listed below.

In addition to the Project specific management plans, in line with other SSD consents, it is expected that the DPHI would condition the following in relation to this Project:

- Detailed plans of the final layout, showing comparison to the approved layout, prior to commencing construction
- Incident and non-compliance notification requirements
- Independent environmental audits.

Table 7-1 Management plans and strategies which form commitments of the Project

Management plans and strategies	Project stage
Biodiversity Management Plan, including Vegetation Management Plan and Pest and Weed Management Plan	All stages
Aboriginal Cultural Heritage Management Plan	All stages
Soil and Water Management Plan	All stages
Groundcover Management Plan	Construction and operation
Property Management Plan	All stages
Noise Management Plan	Construction
Traffic Management Plan	All stages

Management plans and strategies	Project stage
Bushfire Emergency Management of Operations Plan	All stages
Bushfire Management Plan	All stages
Fire Water Management Plan	Design
Community and Stakeholder Engagement Strategy	All stages
Accommodation and Employment Strategy	Construction and decommissioning
Waste Management Plan	All stages

7.5. Uncertainty

Key areas of uncertainty have been clearly identified within the EIS. Primarily, this relates to Project design and component selection. A high-level *indicative* infrastructure layout is provided noting the detailed design stage commences only *after approval has been granted*. It will be informed by further topographic and geotechnical surveys and will be subject to commercial tendering and procurement processes to arrive at the final design and construction program. To address the uncertainty that this brings to the assessment and approval process, the Applicant seeks to gain consent for a maximum 'Development Footprint' (all areas that may be subject to disturbance to construct and operate the Merino Solar Farm). This builds conservatism into the assessment and mitigation of Project impacts and allows for necessary flexibility in detailed design.

Project design and component selection - A high-level *indicative* infrastructure layout is provided noting the detailed design stage commences only *after approval has been granted*. It will be informed by further topographic and geotechnical surveys and will be subject to commercial tendering and procurement processes to arrive at the final design and construction program. To address the uncertainty that this brings to the assessment and approval process, the Applicant seeks to gain consent for a maximum 'Development Footprint' (all areas that may be subject to disturbance to construct and operate the Merino Solar Farm). This builds conservatism into the assessment and mitigation of Project impacts and allows for necessary flexibility in detailed design.

Specific to environmental impacts

- Biodiversity:
  - Adoption of a broad Development Footprint provides certainty that impacts have been fully assessed in accordance with the NSW BAM for changes that may come during detailed design.
  - Regarding impacts outside NSW, required for haul route upgrades, a mitigation measure has been included (Section 6.7.3) to seek necessary Victorian permits if this haul route is used.
- Visual impacts:
  - The impact of changes in the landscape or to views can be subjective. This assessment follows the standardised assessment method prescribed in NSW for utility scale solar farms.

  - The glint and glare assessment is based on a theoretical worst-case scenario and does not consider weather conditions, intervening elements such as vegetation and built structures and is therefore considered conservative.
  - Cumulative assessments on landscape character and individual viewpoints have considered that the Gundary Solar Farm and Merino Solar Farm would both be approved and constructed.
- Noise:
  - The quietest rural background noise levels have been used for modelling construction and operational noise impacts, rather than undertaking site-specific noise logging. Local road noise from Braidwood Road and Windellama Road, agricultural activities and aviation noise from the nearby Goulburn Airport are likely to have led to a higher existing background noise level than assumed by the modelling.
  - To build in conservatism and flexibility, construction noise was modelled assuming up to three of the noisiest plant equipment is operating concurrently at the closest point to each receiver.
- Heritage:
  - To address the risk that unrecorded sites of value occur within the Development Footprint, mitigation measures include an 'unexpected finds' protocol.
  - To address inaccuracies with regard to local lot boundaries, the Project includes a commitment to verifying accurate Development Footprint boundaries, in relation to the Pelican homestead curtilage, during detailed design.
- Agriculture:
  - To address uncertainty regarding the final design and whether livestock grazing would continue within all areas of the Development Footprint, a realistic 'worst case' scenario is used to assess impacts on agricultural income and off-farm economic impacts.
  - While continued cropping is not known to occur on adjacent properties, the Project commits to a 30m set back from panels to the site boundary where horticulture / cropping activities are demonstrated to be present on adjacent land prior to Project approval. This is in accord with best practice management of potential 'heat island' effects.
- Flooding, water quality and quantity
  - The assessment uses the most reliable computer modelling available at the time of the assessment. However, actual events may occur more or less frequently, or with more or less intensity then predicted. Adherence to the recommended mitigation measures would minimise any change in hydrological function.
  - Exact water requirements and supply arrangements will be informed by more detailed evaluation during the final infrastructure and civil works design phase. This will be determined through a competitive tender process to maximise innovation and efficiency and will reflect current water supply availability.
  - A Water Cycle Management Study (WCMS) is progressing in tandem with Project design to inform the specific requirements that will be required to achieve a *neutral or beneficial impact* on water quality (as is required for projects in the Sydney Drinking Water catchment). The commitment to undertake a WCMS is captured as a performance objective in the mitigation measures.
- Hazards
  - The final layout of bushfire management infrastructure such as water storage tank locations has not been confirmed. The final design would be confirmed in consultation with NSW RFS and FRNSW and will incorporate recommendations from these agencies.
  - The EMF assessment has considered that all EMF producing infrastructure would follow Australian and industry standards. This is captured as a mitigation measure commitment.
- Waste:

- The fast-paced rate of technological change with regard to PV and battery technology means that the some of the data supporting this assessment may be out of date by the time the Project approaches construction stage. However, the trend is very much toward longer lived infrastructure and increased recyclable content.

7.6. Ecologically Sustainable Development

7.6.1. The precautionary principle

The Precautionary Principle states that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

This EIS assesses the environmental and social impacts associated with the Project. A conservative approach was adopted for the assessments, which were often based on the worst-case scenarios. This has been the approach in relation to the recommended mitigation measures. No threat of serious or irreversible environmental damage is considered likely as a result of this Project.

7.6.2. Inter-generational equity

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

The Project would not impact on natural or cultural features to a level that would compromise the health, diversity or productivity of the environment to a level that would impact on future generations. Furthermore, this Project would provide stability and reliability to the renewable energy supply in the area. This would help facilitate the transition to low carbon energy generation and help to reduce greenhouse gas emissions to minimise climate change implications for future generations.

7.6.3. Conservation of biological diversity and ecological integrity

The conservation of biological diversity and ecological integrity was a fundamental consideration in the development of the Development Footprint (areas of impact) for the Project. The location of Project infrastructure is on highly disturbed land with a long history of agricultural use. This coupled with the active avoidance of areas of higher biodiversity value means that the Development Footprint has been sited to minimise impacts to biodiversity values. Mitigation measures such vegetation and pest management plans will further address biological values.

7.6.4. Appropriate evaluation of environmental matters

This principle relates to giving monetary values to environmental resources. These matters ensure that the development would conform to the principles of ecologically sustainable development.

Environmental matters were considered during the iterative design of this Project to ensure environmental impacts were avoided or minimised through design and/or mitigation measures. Environmental management safeguards and mitigation measures would be implemented during the construction, operation and decommissioning of this Project.

7.7. Conclusion

The Project would result in numerous benefits; local and regional. The Project addresses local, state and Commonwealth policies aimed to facilitate the required transition to renewable energy generation. The

Project would create employment opportunities and economic stimulus and provide an alternative income stream into the local economy. The Project meets relevant planning requirements and is consistent with the principles of Environmentally Sustainable Development.

The environmental values at this site are well understood and impacts are considered relatively low and largely reversable, at the end of the Project's life. The assessments have followed relevant guidance and best practice where available. To address inevitable areas of uncertainty, conservative approaches have been adopted.

With the effective implementation of mitigation measures proposed, including the Community Benefit Scheme which aims to spread the benefits to the local community and throughout the life of the Project, the Merino Solar Farm is considered justifiable and approvable.

Where to from here

During the public exhibition of this EIS, the community, local council and government agencies are invited to make informed submissions in relation to the Merino Solar Farm Project. The consent authority would consider any formal submissions made during the exhibition period. The Applicant's response to all matters raised in submissions will also be exhibited as the Department of Planning Housing and Industry commence preparation of their own assessment of the Project's impacts and its merits and make a recommendation regarding its ability to be approved.

Please take the opportunity to make a submission directly to the Department of Planning Housing and Industry.

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Appendix A SEARs cross reference table

The following cross reference table is provided to demonstrate the EIS has addressed the Project-specific Secretary's Environmental Assessment Requirements (SEARs) issued for the Project. The SEARs were updated in May 2025, when an extension was sought to the SEARs issued in July 2023.

Issue summary	Addressed in this EIS
The Environmental Impact Statement (EIS) for the development must comply with the requirements in Part 8, of the Environmental Planning and Assessment Regulation 2021 (the EP&A Regulation) and must have regard to the Department's: • *State Significant Development Guidelines* (SSD Guidelines); and • *Renewable Energy Planning Framework*, including the *Large-Scale Solar Energy Guideline* (DPHI, 2022) (the Large-Scale Solar Guideline) and its supporting *Technical Supplement for Landscape Character and Visual Impact Assessment* and the *Benefit Sharing Guideline* (most recent version as updated from time to time). In particular, the EIS must include:	
A stand-alone executive summary.	Page XVI
A full description of the development, including: • Details of construction, operation and decommissioning, including any staging of the development; • a description of the physical elements of the development including the form, maximum height and materials (including ancillary infrastructure); • a high quality site plan at an adequate scale showing all infrastructure and facilities (including any infrastructure, and accommodation camps, that would be required for the development, but the subject of a separate approvals process); • the Project Area (as per Table 1 of the SSD guidelines – preparing an environmental impact statement) and Development Footprint (disturbance area including but not limited to areas for infrastructure, road works, access tracks, defendable space, fencing and temporary laydown); • a high quality detailed constraints map identifying the key environmental and other land use constraints that have informed the final design of the development; and • confirmation if the project is designated development in accordance with the Environmental Planning and Assessment Act 1979 (EP&A Act) and the EP&A Regulation;	Section 3 Figure 3-1 Figure 3-2 Figure 3-10 Table 4-1 The Project is not designated development as it is classified as a State significant development. State significant development is excluded from designated development classification under Section 4.10 of the EP&A Act.
consistency in information presented in the EIS and all technical reports, including distances, development footprint, project design and infrastructure proposed, construction timeframes and receiver numbers;	Minor differences are explained for the biodiversity assessment which proposed a micro-siting option that has been adopted by the Project. All areas of impact now proposed have been assessed as required in Section 6.
a strategic justification of the development focusing on site selection and the suitability of the proposed site with respect to potential land use conflicts with existing and future surrounding land uses (including existing land use, other proposed or approved energy facilities, major projects, rural/residential development, Crown lands within and adjacent to the project site and subdivision potential) having regard to the Large Scale Solar Guideline;	The project justification is included in Section 7 Potential land use conflict is assessed in Section 6.4
a risk assessment of the potential impacts of the development, identifying the key issues for further assessment;	The EIS presents an impact assessment commensurate with risk.

Environmental Impact Statement

Merino Solar Farm

Issue summary	Addressed in this EIS
an assessment of the likely impacts of the development on the environment, and any other significant issues identified in the above risk assessment, focusing on the specific issues identified below, including: • A description of the existing environment likely to be affected by the development using sufficient baseline data; • an assessment of the likely impacts of all stages of the development (which is commensurate with the level of impact), including any cumulative impacts of the site and existing, approved or proposed developments in the region and impacts on the site and any road upgrades, taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice including the Large Scale Solar Guideline and the Cumulative Impact Assessment Guideline (DPE, 2022) • a description and assessment if staging of the project is proposed including any site mobilisation or pre-construction works • a description of the measures that would be implemented to avoid, mitigate and/or offset the impacts of the development; and • a description of the measures that would be implemented to monitor and report on the environmental performance of the development;	A description of existing environmental conditions and an assessment of likely impacts is considered in Section 6. Cumulative impacts are considered in detail in Section 6.12. Pre-construction works are detailed in 3.2.12. A summary of mitigation measures and safeguards is provided with each respective impact assessment and in Appendix B Compliant and monitoring is addressed in Section 7.4
a model for community benefit-sharing, prepared in accordance with the Benefit-Sharing Guideline, including the terms of any proposed voluntary planning agreement with the relevant local council;	Section 6.10.4 – SIA3. General terms have been presented to Council.
a consolidated summary table of all the proposed environmental mitigation, management and monitoring measures, identifying all the commitments in the EIS; and	A summary of mitigation measures is provided in Appendix B
A detailed evaluation of the merits of the project as a whole having regard to: • the requirements in Section 4.15 of the EP&A Act, including the objects of the Act and how the principles of ecologically sustainable development have been incorporated in the design, construction and ongoing operations of the development; • The suitability of the site with respect to potential land use conflicts with existing and future surrounding land uses; • feasible alternatives to the development and its key components, including siting and project design alternatives to avoid areas of biodiversity value and high archaeological sensitivity, opportunities for shared infrastructure with proposed developments in the region, and the consequences of not carrying out the development; and • a detailed consideration of the capability of the project to contribute to the security and reliability of the electricity system in the National Electricity Market, having regard to local system conditions and the Department's guidance on the matter	Principles of ecologically sustainable development are discussed in Section 7.6. Site suitability, alternatives and consideration of the capability of the project to contribute to the security and reliability of the electricity system in the National Electricity Market are discussed in Section 2.
Capital Investment Value and Employment • Provide the estimated development cost (EDC) of the development prepared in accordance with the relevant planning circular using the Standard Form of EDC Report; and • Provide an estimate of the retained and new jobs that would be created during the construction and operational phases of the development, including details of the methodology to determine the figures provided	The EDC Report is included in Appendix D. Estimates of construction and operational workforces are provided in Section 3.2.1.
The development application must be accompanied by: • The consent of the owner/s of the land (as required in Section 23(1) of the Regulation); and • A declaration from a Registered Environmental Assessment	Landowner consents have been provided directly to DPHI. Registered Environmental Assessment Practitioner declaration is included

Environmental Impact Statement

Merino Solar Farm

Issue summary	Addressed in this EIS
Practitioner that the EIS includes the information specified in the Department's *Registered Environmental Assessment Practitioner Guidelines.*	following the table of contents
Key Issues The EIS must address the following specific matters	
Biodiversity	
• an assessment of the biodiversity values and the likely biodiversity impacts of the project in accordance with Section 7.9 of the Biodiversity Conservation Act 2016 (NSW) (BC Act), having regard to the Biodiversity Assessment Method (BAM) 2020 and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must: o Be prepared using the approved BDAR template; o Document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the BAM; o Assess the impacts associated with all ancillary infrastructure, including the transport route road upgrades; o Include an assessment for serious and irreversible impacts (SAII) in accordance with Section 9.1 of the BAM; o Include a strategy to offset any residual impacts of the development in accordance with the BC Act; and o Be finalised by an accredited assessor as BAM-compliant within 14 days of submission; • unless Conservation Programs, Heritage and Regulation Group (CPHR) and the Department of Planning, Housing and Infrastructure (DPHI) determine the proposed development is not likely to have any significant impacts on biodiversity values; o an assessment of the likely impacts on listed aquatic threatened species, populations or ecological communities, scheduled under the Fisheries Management Act 1994, and a description of the measures to minimise and rehabilitate impacts; o A cumulative impact assessment of biodiversity values in the region from nearby developments; and o If an offset is required, details of the measures proposed to address the offset obligations.	A BDAR was prepared by Red-Gum Environmental Consulting, which is summarised in Section 6.1. Section 6.1 and 0 detail the potential cumulative impacts associated with the Project The BDAR is appended in full in Appendix F.1
Heritage	
• An Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010), identifying, describing, and assessing any impacts to any Aboriginal cultural heritage sites or values associated with the site (including impacts from any proposed earth works, construction works and road upgrades), including results of archaeological test excavations (where required), undertaken in accordance with the relevant standards and requirements • evidence of adequate consultation with Aboriginal communities in determining and assessing impacts, identifying and selecting options for avoidance of Aboriginal cultural heritage and identifying appropriate mitigation measures (including the final proposed measures), having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010); and	Aboriginal Cultural Heritage is summarised in Section 6.2, and the ACHAR is appended in Appendix F.2. Historic Heritage is discussed in Section 6.3.

Issue summary	Addressed in this EIS
• assess the impact to historic heritage having regard to the Guidelines for Preparing a Statement of Heritage Impact.	
Land	
• a detailed justification of the suitability of the site and that the site can accommodate the proposed development having regard to its potential environmental impacts, land contamination, permissibility, strategic context and existing site constraints having regard to the Large-Scale Solar Guideline; • an assessment of the potential impacts of the development on existing land uses on the site and adjacent land, including: o agricultural land, flood prone land, nearby drinking water catchments, Crown lands, mining, quarries, mineral or petroleum rights (if relevant); o a soil survey to determine the soil characteristics and consider the potential for salinity, acid sulfate soils, and erosion to occur; o a cumulative impact assessment of nearby developments; and o The development potential of that land, in accordance with the Large-Scale Solar Guideline; and • an assessment of the compatibility of the development with existing land uses, during construction, operation and after decommissioning, including: o Consideration of the zoning provisions applying to the land, including subdivision (if required); o completion of a Land Use Conflict Risk Assessment in accordance with the Department of Industries *Land Use Conflict Risk Assessment Guide* (if required); o An assessment of impact on agricultural resources and agricultural production on the site and region; and o Details of how the proposed development would implement and achieve agrisolar activities on the site o A preliminary investigation into potential contamination across the site, in accordance with the State Environmental Planning Policy (Resilience and Hazards) 2021 (Hazards SEPP) (as required).	A justification for the suitability of the site is provided in Sections 2.4.1. Impacts relating to existing land used are discussed in Section 6.4 and include soil surveys and an Agricultural Impact Assessment included in Appendix F.3. Zoning considerations are included in Section 2.2 and Section 4. A LUCRA is included in Section 6.4.4. A Preliminary Site Investigation is a commitment of the Project and would be undertaken prior to project determination. Section 6.8 addresses water quality and quantity, with reference to the drinking water catchment.
Landscape and visual	
• A landscape and visual impact assessment, prepared in accordance with the *Large-Scale Solar Guideline* and the *Technical Supplement – Landscape and Visual Impact Assessment*; • a detailed assessment of the likely visual impacts of all components of the project on surrounding residences (including approved developments, lodged development applications and dwelling entitlements), and key locations, scenic of significant vistas and road corridors in the public domain; • details of measures to mitigate and/or manage potential impacts (including a draft landscaping plan for on-site perimeter planting, with evidence it has been developed in consultation with affected landowners)	The LVIA is included in Appendix F.5 and summarised in Section 6.5. A Landscape plan is not required as all impacts are assessed as low. Mitigation, such as landscaping is not required.
Glint and glare	
provide a glint and glare assessment prepared in accordance with the *Large-Scale Solar Guideline* and supporting *Technical Supplement – Landscape and Visual Impact Assessment*	The assessment is included in Appendix F.5 and summarised in Section 6.5.

Issue summary	Addressed in this EIS
Noise	
• an assessment of the construction noise impacts (including impacts from proposed road upgrades) of the development in accordance with the *Interim Construction Noise Guideline* (ICNG), operational noise impacts in accordance with the *NSW Noise Policy for Industry* (2017), assess traffic noise having regard to the *NSW Road Noise Policy* (DECCW, 2011) and cumulative noise impacts (considering other developments in the area), including (where appropriate): o identification of impacts associated with construction, site emission and traffic generation at noise affected sensitive receivers, including the provision of operational noise contours; o Details of noise monitoring survey, background noise levels and amenity noise levels at the most-affected residential receivers; o details of likely daily charging/discharging load profile, manufacturer specifications for plant and equipment and noise source inventory (including intensity, quantity, location, directivity and frequency information); o An assessment of 'worst case' noise emission scenarios during periods of discharging and charging; o Consideration of annoying characteristics of noise and prevailing meteorological conditions in the study area; and o Details and analysis of the effectiveness of proposed management and mitigation measures to adequately manage identified impacts including a clear identification of residual noise and vibration impacts following application of these mitigation measures and details of any proposed compliance monitoring programs.	Assessment of noise impacts attributed to the Project are discussed in Section 6.6 and Appendix F.6.
Transport	
• an assessment of the peak and average traffic generation, including light vehicles (including shuttle buses), heavy vehicles, heavy vehicles requiring escort, high risk heavy vehicles requiring escort (noting Table 1 in TfNSW Fact Sheet - Transport Management Plans for Over Size and/or Overmass Movements in NSW) and construction worker transportation; • An assessment of the likely transport impacts to site access routes, road capacity, conditions, safety and intersection performance, taking into consideration the above listed vehicles, site access points and any crown land; • a concept Level Route Analysis required for heavy vehicles requiring escort and high risk heavy vehicles requiring escort; a cumulative impact assessment of traffic from nearby developments (including mining operations); and • provide details of measures to mitigate and / or manage potential impacts (developed in consultation with the relevant road authorities) including: o A schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), o Strategic concept designs of proposed road upgrades (including the site access point); and o Road maintenance contributions, and any other traffic control measures.	Traffic impacts associated with the Project, and all required analysis are discussed in Section 6.7 and included in Appendix F.7
Water and Soils	

Issue summary	Addressed in this EIS

• an assessment of the likely impacts of the development (including flooding and pre and post development flood modelling) on surrounding watercourses (including their Strahler Stream Order), groundwater resources and surface water movements, and measures proposed to monitor, reduce and mitigate these impacts including water management having regard to the *Large-Scale Solar Guideline*
• A site water balance for the development
• details of water requirements and supply arrangements for construction and operation (including consultation with suppliers)
• A description of the erosion and sediment control measures that would be implemented to mitigate any impacts in accordance with *Managing Urban Stormwater: Soils & Construction* (Landcom, 2004) and *Managing Urban Stormwater: Soils and construction – Volume 2A manual* (Landcom, 2008);
• assessment of the impacts of the development on hydrology and groundwater (if extraction or interference is proposed), including any changes to overland flows and groundwater levels on-site or off-site, and detail design solutions and operational procedures to manage impacts;
• where the project involves works within 40 metres of any river, lake or wetlands (collectively waterfront land), identify likely impacts to the waterfront land, and how the activities are to be designed and implemented in accordance with the DPI *Guidelines for Controlled Activities on Waterfront Land* (2018) and (if necessary) *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (DPI 2003), and *Policy & Guidelines for Fish Habitat Conservation & Management* (DPE, 2013); and
• Identification of any flood risk on site having regard to adopted flood studies, the potential effects of climate change and any relevant provisions of the NSW *Flood Risk Management Manual*;
  ○ Where the development could alter flood behaviour, affect flood risk to the existing community or expose its users to flood risk, provide a flood impact and risk assessment (FIRA) prepared in accordance with the *Flood Impact and Risk Assessment – Flood Risk Management Guide LU01*;
  ○ Detailed design solutions and operational procedures to mitigate flood risk where required.
	Assessments on the impacts on hydrology, including surface and groundwater and flooding behaviours, is included in Section 6.8 and Appendix F.8.
	The Project commits to further modelling in tandem with Project design to inform the specific requirements to achieve a *neutral or beneficial impact* on water quality – this is in progress with waternsw.

Hazards	
• *Health* - an assessment of potential hazards and risks including but not limited to fires, spontaneous ignition, electromagnetic fields or the proposed grid connection infrastructure against the *International Commission on Non-Ionizing Radiation Protection* (ICNIRP) Guidelines for limiting exposure to *Time-varying Electric, Magnetic and Electromagnetic Fields*; • *Bushfire* - a bush fire hazard assessment completed by a suitably qualified consultant and identify potential hazards and risks associated with bushfires / use of bushfire prone land including the risks that a solar farm and BESS would cause a bush fire and demonstrate compliance with *Planning for Bush Fire Protection* 2019; • *Dangerous Goods* - a preliminary risk screening completed in accordance with the Hazards SEPP 2021; and • *Battery Energy Storage System* - a Preliminary Hazard Analysis (PHA) prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis* (DOP, 2011) and *multilevel Risk Assessment*. The PHA must consider all recent standards and codes and verify separation distances to on-site and off-site receptors to prevent fire propagation and compliance with *Hazardous Industry*	Assessment of all hazards relevant to the Project are discussed in Section 6.9. Relevant specialist reports are included in: Appendix F.9 Appendix F.10

Issue summary	Addressed in this EIS
Advisory Paper No. 4, Risk Criteria for Land Use Safety Planning. The PHA must consider the effect of bushfires on batteries or other components of the BESS	
Social	
including an assessment of the social impacts or benefits of the project for the region and the State as a whole in accordance with *the Social Impact Assessment Guideline* (DPE, 2023), including consideration of any increase in demand for community infrastructure services, and consideration of construction workforce accommodation..	Social impacts are considered in Section 6.10 and Appendix F.11 and F.12
Economic and benefit sharing	
including an assessment of the economic impacts or benefits of the project for the region and the State as a whole and provide details of any proposed voluntary benefit sharing, having regard for the *Benefit-Sharing Guideline 2024 and Private Agreement Guideline* 2024.	Economic impacts are considered in Section 6.10 and Appendix F.11
Waste	
Identify, quantify and classify the likely waste stream to be generated during construction, operation, and decommissioning, and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste (in consultation with waste facilities, including Council) in accordance with the *Large-Scale Solar Guideline*	Waste impacts are considered in Section 6.11
Plans and Documents	
The EIS must include all relevant plans, diagrams and relevant documentation required in accordance with the SSD Guidelines and under Part 3 of the EP&A Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include high quality files of maps and figures of the subject site and proposal.	Section 3
Legislation, Policies and Guidelines	
The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. While not exhaustive, a list of some of the legislation, policies and guidelines that may be relevant to the assessment of the project can be found at: • *https://www.planning.nsw.gov.au/Policy-and-Legislation/Planningreforms/Rapid-Assessment-Framework/Improving-assessmentguidance* • *https://www.planningportal.nsw.gov.au/majorprojects/assessment/policies-and-guidelines; and* • *http://www.environment.gov.au/epbc/publications#assessments*	Applicable guidelines for each environmental parameter are stated in Sections 2 and 4
Consultation	
During the preparation of the EIS, you should consult with the relevant local, State or Commonwealth Government authorities, infrastructure and service providers, community groups, affected landowners and any exploration licence and/or mineral title holders. In particular, you must undertake detailed consultation with affected landowners surrounding the development, the owners of all exploration licences across the proposed development site, the operator of any pipelines on or adjacent to the site, and all relevant government agencies, including the relevant local Council. The EIS must:	Engagement activities are summarised in Section 5

Environmental Impact Statement

Merino Solar Farm

Issue summary	Addressed in this EIS
• Detail how engagement undertaken was consistent with the *Undertaking Engagement Guidelines for State Significant Projects* (DPIE, 2024); and • Describe the consultation process and the issues raised and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, an explanation should be provided.	
Expiry Date	
If you do not lodge a Development Application and EIS for the development by 14 October 2025, your sears will expire. If an extension to these sears will be required, please consult with the Planning Secretary 3 months prior to the expiry date.	N/A

Appendix B Consolidated mitigation measures

ID	Safeguards and mitigation measures	Project stage
Biodiversity		
B1	Adopt the micro siting of emergency access off Braidwood Road, illustrated in the BDAR V2 to minimise impacts required to establish this route.	Design
B2	Offset obligation Prior to clearing, the applicant would retire, in accordance with the Biodiversity Offset Scheme: • 330 credits to offset 23ha of PCT3415 Southern Tableland Red Grass-Spear Grass Grassland of the South Eastern Highlands Bioregion – Poor condition (Zone 1). • 131 credits to offset 12ha of PCT3415 Southern Tableland Red Grass-Spear Grass Grassland of the South Eastern Highlands Bioregion – Poor condition (Zone 4).	Prior to impacts
B3	General: • All workers are to be provided with an environmental induction prior to starting work on site. This would include information on the ecological values of the site, protection measures to be implemented to protect biodiversity and penalties for breaches. • Prepare a flora and fauna management sub-plan as part of the CEMP, incorporating the recommendations below, and expanding on specific details where necessary. • Measures to suppress dust implemented during clearing and construction • All workers are to be provided with an environmental induction prior to starting work on site. This would include information on the ecological values of the site, protection measures to be implemented to protect biodiversity and penalties for breaches..	Construction and decommissioning
B4	Vegetation clearing Limit disturbance of vegetation to the minimum necessary to undertake the proposal. • Prior to the commencement of any work in or adjoining areas of native vegetation, a survey would be carried out to confirm the extent of the Development Footprint and to mark the construction impact boundary. The perimeter of this area will be fenced using high visibility fencing and clearly marked as the limits of clearing. All vegetation outside this fence line will be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal. Fencing and signage must be maintained for the duration of the construction and decommissioning period. Fencing should be designed to allow fauna to exit the site during clearing activities. • Prior to the commencement of any work in the native vegetation an experienced ecologist will conduct pre- clearance surveys. If any species is detected a further assessment would be undertaken and any subsequent requirements implemented before work commenced	Construction and decommissioning

ID	Safeguards and mitigation measures	Project stage
	• Stockpiles of fill or vegetation should be placed within existing cleared areas (and not within areas of adjoining native vegetation). • The water management system/drainage plan will be established within Development Footprint boundary to prevent transfer of sediments into adjacent vegetation.	
B5	Weeds pests and pathogens: Develop a weed and pest species management sub-plan as part of project CEMP to manage weeds and pathogens during the construction, operational and decommissioning phases of the proposal. • The location and extent of any priority and/or high threat environmental weeds within the site will be identified by a suitably qualified ecologist during pre-clearance surveys. The introduction and spread of weed species will be minimised by restricting access to areas of native vegetation and communicating the responsibilities of all project personnel at site inductions and during regular toolbox meetings. • All priority weeds identified on the site (specifically Serrated tussock (Nassella trichotoma), Blackberry (Rubus fruticosus sp. agg. African Boxthorn (Lycium ferocissimum), Chilean Needle grass (Nassella neesiana), Radiata Pine (Pinus radiata), Willow (Salix spp.), Gorse (Ulex europaeus)) will be controlled and removed in accordance with the requirements of the Biosecurity Act 2016 and Council's relevant Weed Control Manuals as per protocols to protect priority biodiversity areas in NSW from Phytophthora cinnamomi, myrtle rust, amphibian chytrid fungus and invasive plants (OEH 2020a). • Appropriate pesticides will be applied if required and a record of such application is made in the pesticide application register. • All noxious and environmental weeds will be cleared and stockpiled separately to all other vegetation, removed from site and disposed of at an appropriately licensed disposal facility. When transporting weed waste from the site to the waste facility, trucks must be covered to avoid the spread of weed-contaminated material. Disposal must be documented, and evidence of appropriate disposal must be kept. • All machinery entering the site must be appropriately washed down and disinfected prior to work on site to prevent the potential spread of weeds, Cinnamon Fungus Phytophthora cinnamomi and Myrtle Rust Pucciniales fungi in accordance with the national best practice guidelines for Phytophthora (O'Gara et al. 2005) and the Myrtle Rust factsheet (DPI 2015) for hygiene control and protocols to protect priority biodiversity areas in NSW from Phytophthora cinnamomi, myrtle rust, amphibian chytrid fungus and invasive plants (OEH 2020a). • Incorporate control measures in the design of the proposal to limit the spread of weed propagules downstream of proposal site. Sediment control devices, such as silt fences, would assist in reducing the potential for spreading weeds.	Construction and decommissioning
B6	Removal of fauna habitat • Protocols to prevent introduction or spread of Chytrid fungus would be implemented following hygiene protocol for the control of disease in Australian frogs (DCCEEW 2011) and protocols to protect priority biodiversity areas in NSW from Phytophthora cinnamomi, myrtle rust, amphibian chytrid fungus and invasive plants (OEH 2020a). • Pre-clearance fauna surveys would be undertaken in accordance with BDAR, Appendix E.x. • Significant habitat features (fallen logs and tree hollows) removed from site would be salvaged and relocated within adjacent areas of vegetation. Prior to removal hollow logs should be knocked gently knocked with an excavator for a short time while the log is observed by a qualified ecologist. Any fauna leaving habitat resources would be rescued by the ecologists according to the protocol for fauna capture and relocation into adjoining vegetation. Any stockpiled hollow sections of trunks or branches should be placed on their ends (with the hollow opening against the ground) to minimise the chance of fauna entering hollows while they are stockpiled. Vegetation in the adjacent vegetation	Construction and decommissioning

ID	Safeguards and mitigation measures	Project stage
	reserve is not to be damaged during relocation habitat features. Appropriately, sized machinery should be used to relocate hollow trunks and limbs and will use existing tracks or disturbed areas only. • A suitably qualified and appropriately licenced ecologist will be present during the clearance of all native vegetation and/or fauna habitats. Animals that require handling must not be approached or handled until the ecologist is present, unless in an emergency (e.g. when there are both no authorised persons present and where the failure to immediately intervene would place the animal at significant risk). In such an emergency, the site manager may obtain over the phone instructions from the project ecologist to ameliorate the situation. A wildlife rescue organisation (e.g. WIRES or Sydney Wildlife) should be made aware of operations in case any injured fauna is found. All animals encountered will be treated humanely, ethically, and in accordance with relevant codes under the NSW Prevention of Cruelty to Animals Act 1979, including: o Australian code of practice for the care of animals for scientific purposes (NHMRC 2013). o Code of practice for the welfare of wildlife during rehabilitation (OEH 2011). o Animal ethics considerations and protocols outlined in this document. • If the project ecologist considers an animal is at risk of injury or undue stress, it is to be gently directed into secure adjoining habitat. Where deemed necessary by the project ecologist, the animal may be required to be captured and released. Capture and release operations will proceed via the following protocols: • All construction activities that are considered by the project ecologist be likely to increase the risk of injury, mortality or stress to the animal will be halted until the animal has been removed, which will be enforced with the co-operation of the contractor. Construction activities that do not contribute to the risk of injury, mortality or stress to the animal can continue (as determined by the project ecologist). • Only qualified ecologists or wildlife carers are authorised to handle animals. • Animals will be captured (if required) by the project ecologist using a safe and ethical technique, as is appropriate for the particular species (see below). Native animals that are unable to depart of their own accord will be captured and held in a receptacle appropriate for that species until release. All captive-held animals will be provided with food, water and warmth as is appropriate for the species. Each receptacle will only hold one animal at a time and will be cleaned and disinfected between use to avoid the spread of disease. • Details of any fauna relocated from hollows would be recorded on the tree hollow inspection register. Any other fauna relocated from trees, shrubs or other areas would also be recorded. • The construction contractor is to contact the project ecologist for advice if any unexpected fauna is found during the construction period (i.e. following clearing of native vegetation when the project ecologist is no longer on site). • A post-clearing report will be prepared documenting all animals that are handled, or otherwise managed, within the site. Data to be recorded includes: o Date and time of the sighting and details of the observer. o Species. o Number of individuals recorded. o Adult/juvenile. o Condition of the animal (living/dead/injured/sick). o Management action undertaken (e.g. captured, handled and taken to vet). o Results of any management actions (e.g. released, placed in a nest box, euthanised, placed with carer).	

ID	Safeguards and mitigation measures	Project stage
	• An inventory of hollows and fallen timber salvaged and relocated will be maintained.	
B7	Water quality and aquatic habitats: • Erosion and sediment control plans should be prepared in accordance with relevant policy documentation and Government guidelines. The erosion and sediment control plans would be established prior to the commencement of construction and be updated and managed throughout as relevant to the activities during the construction phase. • Erosion and sediment control controls would be regularly inspected, particularly following rainfall events, to ensure their ongoing functionality. • Stabilised surfaces should be reinstated as quickly as practicable after construction and decommissioning. • Appropriate speeds are to be enforced to limit dust generation and minimise chances of fauna mortality through vehicle strike. • All stockpiled material should be stored in bunded areas and kept away from waterways to avoid sediment or contaminants entering the waterway. • Spill kits would be made available to construction vehicles. A management protocol for accidental spills would be put in place.	Construction and decommissioning
B8	General: • Prepare a Vegetation Management Plan (VMP) (or equivalent) to ensure that the proposal does not result in any direct or indirect impacts on retained vegetation within the footprint (especially those areas below the solar panel arrays), and/or surrounding areas and/or proposed local offset areas, incorporating recommendations below, and expanding on specific details where necessary. • All staff are to be provided with an environmental induction prior to occupying site. This would include information on the ecological values of the site, the operation of the VMP, protection measures to be implemented to protect biodiversity and penalties for breaches. • Identify and fence the retained vegetation along boundaries within the proposal site in order to exclude unauthorised access and avoid indirect impacts. Install and/or maintain stock proof fencing where the conservation area adjoins agricultural land. Boundaries with other areas of native vegetation should be left unfenced to allow for fauna movement and for firefighting activities. Ensure that site occupiers and visitors are aware of the biodiversity value and sensitivity of the conservation area.	Operation
B9	Retained vegetation management • Implement weed and pest control activities appropriate to maintain the current condition of any retained vegetation (as a minimum), such as a Vegetation Management Plan (see above Section 6.2.2). • Signposting and enforcement of appropriate speed limits along the proposed access road to reduce the likelihood of vehicle strike and mortality of native fauna.	Operation
B10	Project site management • Enforcement of legal obligations to control priority weeds and pests within the proposal site to prevent the spread of propagules and individuals into adjacent areas of native vegetation and properties. • Lighting to be designed to direct light away from adjoining bushland areas and native patches and to limit the impacts of light spill on native fauna habitats.	Operation

ID	Safeguards and mitigation measures	Project stage
	• Erosion and sediment control controls would be regularly inspected, particularly following rainfall events, to ensure their ongoing functionality. • All stockpiled chemicals and materials should be stored in bunded areas and kept away from waterways to avoid sediment or contaminants entering the waterway.	
Aboriginal Heritage		
AH1	Preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) prior to ground disturbance. This plan should outline requirements for the management of unexpected cultural heritage through the construction, operation and decommissioning phases of the Project. The CHMP should be prepared in consultation with the RAPs and Pejar LALC and include the following: • Unexpected finds protocol • Unexpected skeletal remains protocol • Induction policies that will include a cultural heritage awareness procedure • Legislation requirements for Aboriginal heritage • Outline how the Construction Environment Management Plan (CEMP), or equivalent, should reinforce how the cultural landscape is considered throughout the project and considered in the rehabilitation of the Project area.	Prior to construction - ongoing
AH2	All topsoil removed during the construction of road access within the Project area is to remain on site and used in rehabilitation works. This will ensure that in the low likelihood that any Aboriginal objects are in the soil that they will remain 'on Country'.	Construction - ongoing
AH3	All works proposed must be constrained to within the assessed area of the Project area (including access tracks and lay down areas). If changes are made to the proposed works which could impact locations outside of the assessed Project area, further archaeological investigation may be required. This may include consultation with the RAPs and Pejar LALC and further field inspection.	Design and during construction - ongoing
AH4	If any objects of suspected Aboriginal heritage origin are encountered during the proposed works, work in the area of the find should cease and the unexpected finds protocols should be implemented.	During construction - ongoing
AH5	In the unlikely event that human remains are discovered during the proposed works, all works must cease in the immediate vicinity. The local police and Heritage NSW should be notified. Further assessment would be undertaken to determine if the remains are Aboriginal or non-Aboriginal. Should the remains be identified as Aboriginal in origin Heritage NSW will identify the appropriate course of action.	During construction - ongoing
Historic Heritage		

ID	Safeguards and mitigation measures	Project stage
H1	If potential archaeological relics are encountered during the proposed works, activity in the immediate area of the find should cease and the unexpected finds protocol detailed in the Cultural Heritage Management Plan (CHMP) would be followed. Depending on the nature of the discovery, additional assessment and excavation permit may be required prior to the recommencement of construction in the affected area. The Heritage Council would be notified in writing in accordance with Section 146 of the NSW *Heritage Act 1977* if it was confirmed that relics had been identified.	Construction, operation and decommissioning
H2	Verify no impacts on Pelican Homestead (Inn) and Shearing Shed curtilage, with reference to accurate site surveying of any possible road intersection works.	Design stage.
Land Compatibility		
LC 1	A 30m set back from panels to the site boundary would be applied, where horticulture / cropping activities are demonstrated to be present on adjacent land prior to Project approval.	Design
LC 2	The array layout would be designed to allow sufficient space between panels to establish and promote groundcover beneath the panels, allow for implementation of weed controls and ground cover management activities. Specific planning for agrivoltaics, if adopted, would be included, such as row spacing / heights / wiring.	Design
LC 3	An Environmental Management Strategy (EMS) would be developed for the Project. The EMS will provide the framework for all specific management plans required for the Project.	All stages
LC 4	Property Management Plan: Impacts on the involved landholdings would be addressed by the development and implementation of a detailed Property Management Plan (PMP). The PMP would be central to the agreement between the Applicant and the involved landholder for access to the Project area. It would cover site access and movements (personal, vehicles and machinery), agricultural infrastructure, biosecurity requirements, management of livestock disturbance and fire management. For the decommissioning phase, an updated PMP would be developed. Specific planning for agrivoltaics, if adopted, would be included. This would cover fencing, stock watering and reticulation, pasture management, mustering and shearing requirements.	All stages
LC 5	A Soil and Water Management Plan (SWMP) (with site-specific erosion and sediment control plans) would be prepared, implemented and monitored during the Project, in accordance with the 'Blue Book' (Landcom, 2004) to minimise soil (and water) impacts. Specific guidance is provided in Appendix F.3 & F.4. The following broad principles for management of soil erosion would be utilised:	Construction and operation

ID	Safeguards and mitigation measures	Project stage
	Construction phase • Maintain ground cover at 70% or above wherever possible. • Utilise existing landform, avoiding unless necessary, broadscale recontouring of the lands. • Where recontouring is necessary, utilise soil and LSC assessments to guide works and erosion control measures. • At locations where high disturbance (earthworks) are necessary, such as for internal roads, cable trenching, localised erosion and sediment controls will be placed in accordance with the Landcom (2004) guidelines. • Preservation and stabilisation of drainageways and minimisation of the extent and duration of any surface disturbance will be prioritised during construction. • Revegetate disturbed areas as soon as possible in accordance with Landcom (2004) guidelines. • Erosion and sediment controls will be kept within the approved Development Footprint • Conduct regular monitoring across the Project area and use results to guide adaptive management. Operation phase • Maintain ground cover at 70% or above where possible. • Implement standard erosion and sediment control measures on all disturbed areas. It is expected that the area of disturbance with regular operations will be very low. Significant disturbance is expected only with major maintenance or repair works. • Conduct regular monitoring across the Project area and use results to guide adaptive management.	
LC 6	Highly sodic soils would be avoided (refer to Figure 3-10) unless remediation has been shown to be successful and the proposed impacts would not lead to unacceptable structural damage or pollution risks. This may include consideration of construction works methods as well as the final infrastructure layout and operational monitoring. For the remediation and management of sodic soils within the development footprint: • Disturbed areas: ○ Ground cover be maintained at 70% where possible ○ Disturbance be minimised and all topsoil to be stripped and stored from disturbed areas for replacement after completion of construction ○ Standard temporary erosion and sediment control measures are to be put in place for high disturbance areas. ○ Where sodic soils are subject to high impact disturbance activity, it is recommended to apply limestone/gypsum mix as detailed by RCC (2025) ○ Where potential erosive impacts have been identified due to the disturbance of sodic subsoils in locations of significant disturbance, soil amelioration should be undertaken as part of remediation earthworks • Trenched areas:	Construction and operation

ID	Safeguards and mitigation measures	Project stage
	○ Removal and stockpiling of topsoil, separate from subsoil, application of limestone/gypsum blend to subsoil prior to backfilling the trench and replacement of topsoil as last layer in backfilling An environmental officer be onsite during construction and early operating phase, at least until all disturbed areas have been rehabilitated.	
LC 7	A Groundcover Management Plan would be developed in consultation with an agronomist and to ensure final land use includes perennial grass cover establishment across the site as soon as practicable after construction and maintained throughout the operation phase. The plan would cover: • Soil handling, restoration and preparation requirements. • Plant Species selection. • Soil preparation. • Pasture establishment techniques - to be established prior to construction with appropriate soil amelioration and nutrition and weed control requirements having been addressed prior. • Maintenance and monitoring requirements. • Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements – i.e. A target of 70% live grass cover would apply to protect soils, landscape function and water quality. Additional measures would be implemented where practical when live grass cover falls below 70%. Grass cover would be monitored on a fortnightly basis using an accepted methodology. • Contingency measures to respond to declining soil or groundcover condition. I.e., any grazing stock would be removed from the site when cover falls below the target of 70% live ground cover. • Identification of baseline conditions for rehabilitation following decommissioning. • Preserve the native composition of areas where native pasture is dominant as much as possible.	Construction and operation
LC 8	All above ground infrastructure would be removed upon decommissioning, with the exception of substation infrastructure, cabling greater buried deeper than 500mm and tracks or other structures that the landholder wishes to retain. A Rehabilitation Plan would be prepared to ensure the Development Footprint is returned to at least or better than pre-solar farmland and soil capability during the decommissioning stage. The plan would include: • Identification and quantification of potential soil resources for rehabilitation. • Optimisation and recovery of useable topsoil and subsoil during stripping operations. • Management of soil reserves in stockpiles so as not to degrade the resource. • Establishment of effective soil amelioration procedures to maximise the availability of soil reserve for future rehabilitation works. • Returning the land to its pre-solar capability LSC rating. • Development of completion criteria and monitoring reporting.	Operation and decommissioning

ID	Safeguards and mitigation measures	Project stage
	The plan would be developed with reference to the base line soil testing and the *Land and soil capability assessment scheme: second approximation* (OEH, 2012). Soil monitoring during operation will provide certainty regarding the ability to meet the plan's targets. A decommissioning plan would be prepared. This plan would include the following key considerations: • Hardstand surfaces, access tracks and other bare areas not required for post Project land use are to be rehabilitated to pasture which may include de-compaction (ripping and sub soil amelioration) addition of topsoil, restored drainage, and restoration of native vegetation to pre-construction conditions to the extent practicable. • Where potential erosive impacts have been identified due to the disturbance of sodic subsoils in locations of significant disturbance, soil amelioration should be undertaken as part of remediation earthworks. Standard temporary erosion and sediment control measures are to be put in place for high disturbance areas. • Underground infrastructure (such as cables and footings) would be removed to ensure they present no issues with agricultural land use. • Any contamination or waste would be removed or managed in consultation with the landowners and according to government agency regulations. • Any significant residual weed infestations should be controlled during the decommissioning process. • Information is provided in Appendix F.3 & F.4 to inform these plans and specifically soil striping and works in highly sodic areas.	
LC 9	A Pest and Weed Management Plan would be developed as part of the Biodiversity Management Plan (BMP). This will address weeds, pest animals, diseases of animals and pests and diseases of plants.	All stages
LC 10	Adjacent agricultural land use For land adjacent to the Project area, procedures would be developed and implemented for the construction phase so that potential impacts on livestock are avoided where possible and appropriately managed where unavoidable. Procedures will be incorporated in the Noise Management Plan (NMP) as part of the EMS. Regular communication would be undertaken regarding the construction schedule and activities that may cause livestock disturbance, enabling management of livestock and where required modification of construction schedule.	Construction
Landscape and Visual		
LV1	Lighting during construction would be designed and operated in accordance with AS/NZS 4282:2023 Control of the obtrusive effects of outdoor lighting.	Construction
LV2	All lighting associated with the project will be designed and operated in accordance with AS/NZS 4282:2023 Control of the obtrusive effects of outdoor lighting.	Operation

ID	Safeguards and mitigation measures	Project stage
LV3	The solar inverter stations, switch rooms, battery enclosures, office and maintenance building, and water tanks will be a neutral colour, such as green or grey, to reduce their prominence in views from surrounding dwellings where visible.	All stages
Noise		
N1	A noise management plan will be prepared and implemented as part of the CEMP. The Noise Management Plan would include the following precautions to reduce noise: • All engine covers would be kept closed while equipment is operating. • Where possible use less noisy plant and equipment. • Provide special attention to the use and maintenance of 'noise control' or silencing kits fitted to machines to ensure they perform as intended. • Plant and equipment should be properly maintained. • Avoid any unnecessary noise when carrying out manual operations and when operating plant. • Switch off plant when not in use. • Trucks should not be left idling where possible. • As far as possible, heights from which materials are dropped, into or out of trucks, would be minimised. • Machines found to produce excessive noise compared to industry best practice would be removed from the site or stood down until repairs or modifications can be made.	Pre-construction and construction
N2	Establish a complaints procedure, including signage and other means to advertise the contact number regarding complaints. Respond to complaints in a timely manner and keep relevant parties informed of progress.	All stages
Transport and Access		
T1	A Traffic Management Plan (TMP) is to be developed and include the following measures: • Prior to construction, a pre-condition survey of the relevant sections of the existing road network should be undertaken in consultation with Council. During construction, the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the Project would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction. • Neighbours of the Project are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access. • Heavy vehicles should avoid travel during peak bus operating times to limit the interaction of larger vehicles and vulnerable road users. • It is recommended that any OSOM vehicle trips be timed so that they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.	All stages

ID	Safeguards and mitigation measures	Project stage

	• Vehicles transporting construction staff to site will not be able to enter the Site from the south. The below turning movements into site are prohibited:
	  ○ A right-turn onto Painters Lane from the south of Braidwood Road
	  ○ A left turn onto either Painters Lane or access point #1 from Windellama Road.	

T2	The implementation of a community information and awareness program would assist in managing the traffic impacts. Prior to construction commencing and during the construction period, a program of consultation shall be initiated to ensure local residents are aware of construction traffic accessing the project. This program may include elements of the following as appropriate to the phase of works and may include: • Press releases in local newspapers. • Specific emails, newsletters and individual letter drops to neighbouring residents along the access route to the project. • Provision of a website providing details of the status of works and contact details for complaints or enquiries. • Provision of key contacts, including out of hours contact information to residents, schools, public activities and business operating alongside the local route. • Neighbours consultation regarding the timing of major deliveries which may require additional traffic control and disrupt access.	
T3	If deemed necessary, specific warning signs advising of the changed traffic operations and heavy vehicles are to be appropriately located on approaches to and from the transport routes on Council roads. These should warn existing road users of changed traffic conditions. The use of day warning notices where signs are activated on a specific day to warn local road users of construction activities may also be applied	Construction
T4	On-site traffic protocols would be included in the TMP and include: • On-site speed restrictions. • Appropriate dust suppression measures. • Maintenance program for on-site access tracks to ensure safe access. • Loading and unloading to occur within the work area. No streets or roads would be used for material storage at any times. • Sufficient car parking to be provided within the Development Footprint to ensure vehicles do not park on the surrounding road network. • All car parking and loading areas to be designed in accordance with the relevant Australian Standard (2890 series) and Council requirements.	All stages
T5	Driver Protocols A driver code of conduct is to be implemented as a measure to maintain safety within and around the site to include: • All vehicles would enter and exit the site in a forward direction • Heavy vehicle movements should avoid peak bus operating times to limit the interaction of larger vehicles and vulnerable road users.	Pre-construction

ID	Safeguards and mitigation measures	Project stage
	• Safety initiatives for impacts to residential areas and/or school bus zones. • Utilisation of only the designated transport routes • Construction vehicle movements are to abide by finalised schedules are agreed by the relevant authorities • All permits for working within the road reserve must be received from the relevant authority prior to works commencing.	
T6	The required turn treatments will be undertaken prior to construction commencing. This includes: • Upgrading the Braidwood Road and Painters Lane intersection to provide an AUL(s) turn • Construction of a CHR(s) turn treatment at the Windellama Road site access (#1) • Widening of Painters Lane to a minimum of 7.0 m from Braidwood Road to the Painters Lane site access east (#7)	Pre-construction
T7	Two locations along the Over Size Over Mass vehicle haul route have also been identified for works, if the Port of Melbourne haulage route is used. All necessary assessment and permits to satisfy Victorian legislation would be sought, if this haul route is used.	Pre-construction
Water		
Flooding		
W1	Buildings and structures • Located outside high Hazard areas (H5 and above). • Finished floor level of all buildings would be a minimum 500mm above the 1%AEP flood level. • Fixed solar panel modules • Mounting height of module frames would be designed so that the lower edge of the frame is clear of the 1% AEP plus 500mm Freeboard. • Solar tracking modules • Tracking axis should be located above the 1%AEP plus 500mm freeboard. • Modules rotated to the horizontal during significant flood events to provide maximum clearance to the predicted flood level. • Modules located in floodplain • Designed to withstand forces of floodwater and potential debris loading up to the 1% flood event (depth and velocity of flood waters). Electrical infrastructure • All electrical infrastructure including power conversion stations and substation located above the 1% AEP flood level plus minimum 500mm freeboard. • Where electrical cabling is required to be constructed below the 1% AEP flood level it should be capable of continuous submergence in water.	Design

ID	Safeguards and mitigation measures	Project stage
	Perimeter fencing • Avoid/minimise security fencing in floodplain • If required, security fencing should be constructed to minimise the effect of flow of the floodwater and be designed to withstand the forces of floodwater or collapse in a controlled manner to prevent impediment to floodwater. Works in waterways • Designed to minimise any hydraulic impact in accord with Laying Pipes and Cable in Watercourses on Waterfront (DPE, 2022a) • Crossings designed in accordance with Guidelines for Watercourse Crossings on Waterfront Land (DPE, 2022b) Access roads • Floodplain – keep as close to natural ground levels as possible. • Surface treatment – give regard to velocity of floodwaters to minimise potential for souring during flood events.	
W2	An Emergency Response Plan incorporating a Flood Response Plan would be prepared prior to construction covering all phases of the proposal. In relation to flooding the plan will: • Detail who would be responsible for monitoring the flood threat and how this is to be done. • Detail specific response measures to ensure site safety and environmental protection. • Outline a process for removing any necessary equipment and materials offsite and out of flood risk areas (i.e., rotate array modules to provide maximum clearance of the predicted flood level). • Consider site access in the event that some tracks become flooded. • Consider appropriate vehicles used to transport staff to and from site, with 4WDs being the preferred vehicle. • Establish an evacuation point. • Define communication protocols with emergency services agencies.	Construction Operation Decommissioning
W3	Final design must take into consideration more detailed geotechnical investigations to ensure groundwater interception is avoided by cut and fill works.	Design
<u>Erosion, Water Use and Water Quality</u>		
W4	A Water Cycle Management Study (WCMS) will be used to demonstrate a *neutral or beneficial impact* on water quality[21].	Design

[21] Hydrological modelling is progressing in tandem with Project design to inform the specific requirements to achieve a *neutral or beneficial impact* on water quality; this will centred on enhancement of waterway vegetation and is expected to be provided prior to Project determination.

ID	Safeguards and mitigation measures	Project stage
W5	No dams will be removed as part of the development, unless further assessment of impacts (specifically biodiversity) and modelling (specifically hydrology) supports this. If removed, they would be to reinstated within the Development Footprint, to retain the same surface water collection volume / stock watering capacity.	Design
W6	Water supply agreements will be secured in consultation with Goulburn Mulwaree Regional Council and private water suppliers prior to construction to ensure adequate water supply is secured for construction and operation.	Pre-construction
W7	Re-use of collected stormwater will be considered wherever possible.	Construction Operation Decommissioning
W8	Areas of existing erosion would be stabilised prior to erection of solar array to ensure ongoing stability.	Prior to construction
W9	As part of the CEMP, the SWMP (incorporating a Site Drainage Plan and Erosion and Sediment Control Plan) will include the following water considerations: • Identify and protect sensitive features such as dams and water courses • Erosion and sediment control measures should be implemented in line with the 'Blue Book' (Landcom, 2004) • ANZECC (2000) water quality criteria are met as far as practicable. • Ensure excavations are not scheduled when heavy rainfall events are predicted, or soils are saturated.	Pre-construction Construction
W10	The Spill and Contamination Response Plan prepared as part of the Emergency Response Plan would include measures to: • Respond to the discovery of existing contaminants at the site (e.g., Pesticide containers or asbestos), including stop work protocols and remediation and disposal requirements, • Manage the storage of any potential contaminants on-site, • Mitigate the effects of soil and water contamination by fuels or other chemicals (including emergency response and EPA notification procedures), • Ensure that machinery and materials arrive on site in a clean and secure condition, • Prevent contaminants affecting adjacent pastures, water courses, dams and native vegetation, • Monitor and maintain spill equipment including spill kits in relevant machinery, • Induct and train site staff, • Detail fuels, chemicals, and liquids storage locations that are at least 50m from any waterways or drainage lines, in an appropriate bunded area,	Construction Operation Decommissioning

ID	Safeguards and mitigation measures	Project stage
	• Disposal process for contaminated materials. • Inspect stormwater control measures before and after rainfall of more than 10mm in 24 hours and at least quarterly.	
Hazards and Risks		
Air, water and soil contamination		
HA1	A Preliminary Site Investigation will be conducted to determine whether contaminants have the potential to occur within the site, in accordance with the State Environmental Planning Policy (Resilience and Hazards) 2021 (Hazards SEPP), prior to Project determination.	Prior to Project determination
HA2	All vehicles and machinery used at the site will be in good condition, fitted with appropriate emission controls and comply with the requirements of the POEO Act, relevant Australian standards and manufacturer's operating recommendations. Plant will be operated efficiently and turned off when not in use. Fires and material burning is prohibited on the Development site.	All stages
HA3	Management protocols will include measures to minimise impacts on air quality including: • Identification of high-risk construction activities with potential to generate dust, and control measures for the activities • A process for monitoring dust on-site and weather conditions, as well as procedures for altering management measures where required • A map identifying locations of sensitive receivers • Notification of relevant stakeholders to hours of work and duration of work • An accessible complaints process with a timely response protocol. • Dust generation by vehicles accessing the site and earthworks at the site will be suppressed using water applications or other means as required, using visual cues. • Covering dirt, sand, soil, or any lose material while in transport • Clean-up of any material spillage on the roads • Limiting construction vehicle speeds on unsealed roads • Checking of weather conditions (such as wind strength and direction) prior to major potential dust emitting activities • Stockpiles will be covered or stored in areas not subject to high winds, and vehicle loads of material which may create dust would be covered while using the public road system. • Materials will be delivered as full loads, and local suppliers utilised where possible, to minimise haulage emissions.	Construction/ decommissioning
HA4	Management protocols will include measures to minimise risks of soil contamination including:	Construction/

ID	Safeguards and mitigation measures	Project stage
	• An Unexpected Finds Procedure will be prepared and implemented if contaminated soils are uncovered or suspected (due to odour, discolouration, presence of fill material and/or building demolition waste). • Trucks and machinery will be checked for leaks as per maintenance schedule or prestart checks and appropriate spill skits will be available onsite at all times • A Spill Response Procedure will be developed and included within the SWMP. The procedure will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities.	decommissioning
HA5	Management protocols will include measures to minimise risks of water contamination including: • All chemicals and fuels will be stored in suitable bunded areas within the site compound and away from waterways. • The capacity of the bunded area will be at least 110 per cent of the largest chemical container stored within the bunded area. • The refuelling of plant and maintenance of machinery will be undertaken in impervious bunded areas at least 40m from waterways.	Construction/ decommissioning
HA6	Contaminant monitoring will be included within the soil monitoring program, developed to ensure decommissioning commitments can be met (refer to commitment LC7 to return the site to the existing or better land compatibility class).	Operation
HA7	A Fire Water Management Plan would be prepared in accordance with the Victorian Country Fire Authority's (CFA's) large-scale renewable facility *Design Guidelines and model requirements for Renewable Energy Facilities"* (CFA, 2023). This would include the installation of impervious retention facilities to capture run-off from fire and smoke supressing activities and would detail suitable treatment plants for the disposal of contaminated water and in accordance with the appropriate Australian standards for the storage and handling of dangerous goods.	Design
Bushfire		
HA8	Dangerous or hazardous materials would be stored and handled in accordance with AS1940-2004: *The storage and handling of flammable and combustible liquids*.	Construction/ operation/ decommissioning
HA9	Develop a BFEMOP to include but not be limited to: • Detailed measures to prevent or mitigate fires igniting; • Work that should not be carried out during total fire bans; • Availability of fire-suppression equipment, access and water; • Storage and maintenance of fuels and other flammable materials; • Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate;	Construction/ operation/ decommissioning

ID	Safeguards and mitigation measures	Project stage
	• Appropriate bushfire emergency management planning. In developing the BFEMOP, NSW RFS and FRNSW would be consulted on the volume of water supplies, fire-fighting equipment maintained on-site, fire truck connectivity requirements, proposed APZ and access arrangements, communications, vegetation fuel levels and hazard reduction measures.	
HA10	All APZs are to be established prior to the commencement of construction. An APZ of minimum 10m would be maintained surrounding solar farm infrastructure. The APZ surrounding the proposed BESS unit, substation, and associated ancillary infrastructure would be a minimum of 12m to the southeast and northwest, and 10m in all other directions. Grass height within the APZ and operational footprint would be managed at low levels throughout the October to March fire season.	Construction/ operation/ decommissioning
HA11	Non-combustible (steel or concrete) water storage tanks should be installed adjoining the main internal access road, or nearby the BESS, for fire-fighting and other non-potable water uses, with a 65mm Storz outlet, a metal valve and a minimum of 20,000 litres reserved for fire-fighting purposes, in accordance with PBP. The final location/s of water tanks will be determined in agreement with NSW RFS and FRNSW recommendations.	Construction
HA12	Appropriate fire-fighting equipment would be held on site to respond to any fires that may occur at the site during construction. This equipment would include fire extinguishers, a 1000 litre water cart (fitted with suitable hosing, fittings and diesel firefighting pump) retained on site on a precautionary basis, particularly during any blasting and welding operations. Equipment lists would be detailed in Work Method Statements.	Construction
HA13	The NSW RFS and Fire and Rescue NSW would be provided with a contact point for the solar farm, during construction and operation.	Construction/ operation
HA14	Following commissioning of the solar farm, the local NSW RFS and Fire and Rescue brigades would be invited to an information and orientation day covering access, infrastructure, firefighting resources on-site, fire control strategies and risks/hazards at the site	Operation
HA15	The perimeter access track would comply with the requirements of perimeter roads in accordance with Table 5.3b of the PBP. All access and egress tracks on the site would be maintained and kept free of parked vehicles to enable rapid response for firefighting crews and to avoid entrapment of staff in the case of bushfire emergencies. Access tracks would be constructed as through roads as far as practicable. Dead end tracks would be signposted and include provision for turning firefighting vehicles.	Construction/ operation/ decommissioning
HA16	A Hot Works Permit system would be applied to ensure that adequate safety measures are in place. Fire extinguishers would be present during all hot works. Where practicable hot works would be carried out in specific safe areas (such as the Construction Compound temporary workshop areas).	Construction/ operation/ decommissioning

ID	Safeguards and mitigation measures	Project stage
HA17	Machinery capable of causing an ignition would not be used during bushfire danger weather, including Total Fire Ban days.	Construction/ operation/ decommissioning
HA18	Prior to operation of the solar farm, an Emergency Response Plan (ERP) would be prepared in consultation with Council, the RFS and Fire and Rescue NSW. This plan must include but not be limited to: • Specifically addresses foreseeable onsite and off-site fire events and other emergency incidents. • Risk control measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the PV system (either in its entirety or partially, as determined by risk assessment). • Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site. • Two copies of the ERP are stored in a prominent 'Emergency Information Cabinet' which is located in a position directly adjacent to the site's main entry point/s. Once constructed and prior to operation, the operator of the facility would contact the relevant local emergency management committee.	All stages
HA19	Fire risks associated with the lithium-ion energy storage facility would be addressed by design measures including: • Locating the BESS as far as practicable from any sensitive receptors or large stands of vegetation (currently demonstrated by the Indicative layout). • Installing reliable automated monitoring (voltage and temperature), alarm and shutdown response systems. • Installing reliable integrated fire detection and fire suppression systems (inert gas). • Ensuring the battery containers are not vulnerable to external heat effects in the event of a bush fire. • Designing appropriate separation and isolation between battery containers and between batteries and other infrastructure, including gravel surfacing around the facility for a minimum 10m in accordance with APZ. • Compliance with all relevant guidelines and standards. • Preparation of a specific Battery Fire Response Plan, under the general BFEMOP, in consultation with fire authorities, fire suppression experts and in reference to relevant standards and guidelines. • Facilitation of first responder training in the management of Lithium-ion battery fires at the site for local brigades.	Design
HA20	Where applicable, buildings and other infrastructure should be constructed to withstand no greater than 29kw per m^2 (kW/m^2) calculated at 1090 Kelvin (K), corresponding to a BAL-29 or less separation distance. Construction is not permitted in BAL-40 or BAL-FZ	Design/construction/ operation
BESS		

ID	Safeguards and mitigation measures	Project stage
HA21	The results of the Preliminary Hazards Assessment would be used to inform other safety studies including: • Fire Safety Study • Emergency Response Plan	Pre-construction
HA22	Detail design of the BESS will be undertaken to comply with the requirements of section 3.2 of the Preliminary Hazard Analysis, including OEM specified separation distances, UL9540A test reports and OEM recommendations The detailed design will consider the controls listed in the hazard register (refer Appendix E.8). If the Applicant chooses to use the Tesla Megapack, all recommendations from the Victorian Big Battery Fire Statement of Technical Findings – Victorian Government 2021 will be implemented.	Detailed design
Electric and magnetic fields		
HA23	All electrical equipment will be designed in accordance with relevant codes and industry best practice standards in Australia.	Design
HA24	All design and engineering will be undertaken by qualified and competent person/s with the support of specialists as required.	Design
HA25	Design of electrical infrastructure will minimise EMFs.	Design
Social and economic		
SIA1	Community and Stakeholder Engagement Strategy will be developed for the upcoming phases of the Project and would: • Outline open, transparent, timely, and accessible communication of Project information to minimise uncertainty and address concerns. • Proactively address both real and perceived concerns about potential amenity and safety impacts, including traffic, noise, visual changes, and environmental impacts • Continue regular engagement with Councils, particularly during construction, to monitor, discuss and adaptively respond to any emerging community and local business concerns • Develop accessible and responsive grievance and remedy mechanisms to ensure that community concerns and complaints are handled appropriately and fairly • Clearly communicate accommodation arrangements for both construction and operational workforces, including their expected footprint and duration • Provide robust engagement with the community to address and alleviate concerns based on perception as well as technical realities • Establish a community benefit sharing, ensuring these initiatives offer ongoing opportunities for meaningful community involvement and decision-making	Prior to construction

ID	Safeguards and mitigation measures	Project stage
	• Collaborate with local councils and relevant regional stakeholders to support initiatives that promote regional economic and social development • Engage economic development agencies to share and promote the Project's positive outcomes, showcasing the renewable energy industry's contribution to the region	
SIA2	• Implementation of the management and mitigation measures outlined in the Social Impact Assessment included in Appendix F.11.	Pre-construction, Construction
SIA3	Implementation of the Accommodation Strategy Action Plan and the Employment Strategy Action Plan included in Appendix F.12. Delivery of these Strategies will commence during the pre-construction phase to allow adequate lead time for skills development, stakeholder coordination, industry engagement planning lead time, improved transparency for local communities, and preventing reactive accommodation sourcing once workforce peaks occur. The Project will prioritise solutions that minimise adverse social impacts such as reduced housing availability or affordability for existing residents Implementation will be overseen by the Applicant in collaboration with local training providers, councils, and regional industry representatives	Pre-construction, Construction
SIA4	The Applicant will implement a Community Benefits Scheme (CBS). The CBS will aim to maximise benefits for local community members throughout the Project lifecycle. The Applicant has committed to entering into planning agreements for the Project with the Council. In addition to the CBSP, the Applicant will explore opportunities to support local initiatives through community sponsorships to ensure that both the CBSP and community sponsorships deliver meaningful and lasting impact,	Pre-construction
Waste		
WM1	A Waste Management Plan (WMP) would be finalised with input from Council, to minimise waste, including: • Identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy. • Quantification and classification of all waste streams. • Provision for recycling management on-site. • Provision of toilet facilities for on-site workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant). • Tracking of all waste leaving the site. • Disposal of waste at facilities permitted to accept the waste.	Construction/ Operation/ Decommissioning

ID	Safeguards and mitigation measures	Project stage
	• Requirements for hauling waste (such as covered loads).	
WM2	Some or all of the metal components would be recycled at an approved metal recycling facility.	All stages
WM3	Solar panel arrays would be recycled at a facility with the capacity to recover a large proportion of the end-of-life solar PV modules and all associated materials.	Decommissioning
WM4	Lithium-Ion Batteries would be kept, stored, managed and transported according to manufacturer's instructions and the ADG Code Any spent batteries would be recycled at a B-Cycle accredited, EPA permitted and licensed recycler of Li-Ion batteries.	Construction/ Operation/ Decommissioning
WM5	Any onsite wastewater management system would be subject to the preparation of an Onsite Wastewater Assessment and would be installed, operated and maintained in line with: • Goulburn-Mulwaree Regional Council's Onsite Wastewater Management Guidelines • Designing and Installing On-Site Wastewater Management Systems: A WaterNSW Current Recommended Practice • AS/NZS 1547:2012	Construction/ Operation/ Decommissioning
WM6	Develop a Decommissioning Waste Management Plan, when the project is planned for decommissioning.	Decommissioning
WM7	Put in reasonable effort to select manufacturers, distributors and installers of PV panels that: • Are members of relevant product stewardship scheme • Minimise packaging • Maximise recyclable components of packaging	

Appendix C Statutory compliance table

C.1 Section 4.15 (1) of the EP&A Act

Matter for consideration	Section addressed
(a) the provisions of: (i) any environmental planning instrument, and (ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and (iii) any development control plan, and (iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),	(i) Section 4 (ii) Section 4 (iii) Not applicable to SSD's under the provisions of the Planning Systems SEPP (iiia) Section 2.5 (iv) Section 4
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	Section 6
(c) the suitability of the site for the development,	Section 2.4.1
(d) any submissions made in accordance with this Act or the regulations,	Facilitated by public exhibition on the DPHI planning portal.
(e) the public interest.	Section 2

C.2 Division 5 Environmental Planning and Assessment Regulation 2021

Matter	Section addressed
Section 190 Form of an environmental impact statement	
(1) An environmental impact statement must contain the following information— (a) the name, address and professional qualifications of the person who prepared the statement, (b) the name and address of the responsible person, (c) the address of the land— (i) to which the development application relates, or (ii) on which the activity or infrastructure to which the statement relates will be carried out, (d) a description of the development, activity or infrastructure, (e) an assessment by the person who prepared the statement of the environmental impact of the development, activity or infrastructure, dealing with the matters referred to in this Division.	(a) Certification page (b) Certification page and Section 1.2 (c) Appendix A (d) Section 2.3.2 (e) Certification page
(2) The person preparing the statement must have regard to— (a) for State significant development—the State Significant Development Guidelines, or ~~(b) for State significant infrastructure—the State Significant Infrastructure Guidelines.~~	Certification page
(3) An environmental impact statement must also contain a declaration by a relevant person that— (a) the statement has been prepared in accordance with this Regulation, and (b) the statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure, and (c) the information contained in the statement is not false or misleading, and (d) for State significant development or State significant infrastructure—the statement contains the information required under the Registered Environmental Assessment Practitioner Guidelines.	Certification page
Section 191 Compliance with environmental assessment requirements	
The environmental impact statement must comply with the environmental assessment requirements notified under	Appendix A

Matter	Section addressed
section 176 or the Act, section 5.16(4).	
Section 192 Content of environmental impact statement	
(1) An environmental impact statement must contain the following— (a) a summary of the environmental impact statement, (b) a statement of the objectives of the development, activity or infrastructure, (c) an analysis of feasible alternatives to the carrying out of the development, activity or infrastructure, considering its objectives, including the consequences of not carrying out the development, activity or infrastructure, (d) an analysis of the development, activity or infrastructure, including— (i) a full description of the development, activity or infrastructure, and (ii) a general description of the environment likely to be affected by the development, activity or infrastructure and a detailed description of the aspects of the environment that are likely to be significantly affected, and (iii) the likely impact on the environment of the development, activity or infrastructure, and (iv) a full description of the measures to mitigate adverse effects of the development, activity or infrastructure on the environment, and (v) a list of the approvals that must be obtained under another Act or law before the development, activity or infrastructure may lawfully be carried out, (e) a compilation, in a single section of the environmental impact statement, of the measures referred to in paragraph (d)(iv), (f) the reasons justifying the carrying out of the development, activity or infrastructure, considering biophysical, economic and social factors, including the principles of ecologically sustainable development set out in section 193.	(a) Executive summary (b) Section 1.3.1 (c) Section 2.4 (d) (i) Section 3 (ii) Section 3, Section 6 (iii) Section 6 (iv) Section 6 and Appendix B (v) Section 4 (e) Appendix B (f) Section 2 and Section 7

C.3 Statutory compliance list

Statute	Section addressed
Commonwealth statutes	
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Section 4, Section 6.1 and Appendix F.1
Native Title Act 1993	Section 4
NSW statutes	
Environmental *Planning and Assessment Act 1979* (EP&A Act)	Section 4 and Appendix C.1
Environmental Planning and Assessment Regulation 2021	Section 4 and Appendix C.2
Roads Act 1993 (Roads Act)	Section 4
Protection of the Environment Operations Act 1997 (POEO Act)	Section 4
Crown Lands Management Act 2016 (CLM Act)	Section 4
Fisheries Management Act 1994 (FM Act)	Section 4
Heritage Act 1977	Section 4
National Parks and Wildlife Act 1974 (NPW Act)	Section 4
Water Management Act 2000 (WM Act)	Section 4
Biodiversity Conservation Act 2016	Section 4 and Section 6.1
NSW planning policies and local provisions	

Statute	Section addressed
State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)	Chapter 4
State Environmental Panning Policy (Transport and Infrastructure) 2021 (TISEPP),	Section 4, Section 6.7 and Appendix F.7
State Environmental Planning Policy (Resilience and Hazards) 2021	Section 4, Section 6.9.3 and Appendix F.9
State Environmental Planning Policy (Biodiversity and Conservation) 2021	Section 4, Section 6.1 and Appendix F.1
State Environmental Planning Policy (Primary Production and Rural Development) 2021	Section 4, Section 6.4 and Appendix F.3
Goulburn Mulwaree Local Environmental Plan 2009	Section 4