SOMEVA RENEWABLES

MAKING COMPLEX EASY

POTTINGER SOLAR FARM

Scoping Report

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1 INTRODUCTION

This section introduces the Applicant and Project. It includes the objectives of the Project as well as relevant site information and any related development. Relevant background is provided as well as key strategies to avoid, minimise or offset the Project impacts.

1.1 Preamble

Pottinger Renewables Pty Ltd (Applicant) seeks to construct, operate, maintain and decommission the 300 Megawatt (MW) Pottinger Solar Farm (Project). Someva Pty Ltd (Someva Renewables) will develop the Project. Located 60 km south of Hay in NSW in the rural locality of Booroorban, the Project is located entirely within the South West Renewable Energy Zone (REZ) as shown in **Figure 1.1.**

The preliminary Project Area as utilised in this Scoping Report is shown on **Figure 1.2** in the context of its regional setting and comprises a property in single landownership of approximately 1,460 ha. Preliminary Lot and DP details applicable to the Scoping Report are discussed in **Section 2.3.1.4**.

The Project has a preliminary Capital Investment Value (CIV) of approximately $570 Million (M) and will provide Full Time Equivalent (FTE) employment for up to 220 personnel during construction.

The Project is State Significant Development (SSD) as defined under State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) and will require a Development Consent under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

RPS Group AAP Consulting Pty Ltd (RPS) has been engaged by the Applicant to prepare this Scoping Report to support the SSD development consent process.

The Scoping Report supports an application to the Secretary of the NSW Department of Planning and Environment (DPE) for Secretary's Environmental Assessment Requirements (SEARs). The SEARs will guide the preparation of the Project Environmental Impact Statement (EIS) which shall support the Development Application (DA) under Part 4 Division 4.7 of the EP&A Act.

The DA and supporting EIS shall be prepared in accordance with 'State Significant Development Guidelines' (DPIE, 2022a), be accompanied by the consent of the owners/s of the land as required in Section 23(1) of the *Environmental Planning and Assessment Regulation 2021* and include a Declaration from a Registered Environmental Assessment Practitioner (REAP).

The Scoping Report also supports a Referral application under Part 9 of the Commonwealth (Cwlth) *Environment Protection and Biodiversity Conservation Act 199*9 (EPBC Act).

1.2 The Applicant

Someva is an Australia renewable energy developer and advisor.

Someva develops renewable energy projects with a focus on creating new income opportunities for landowners, supporting communities grow into new industries, and providing lower cost electricity for the needs of future Australian generations.

Someva's experience across project planning, design, construction and operations is aimed at creating the future clean energy infrastructure to support a transition to a low carbon economy.

The relevant contact address is **36-38 Young Street, Sydney NSW 2000** and **ABN** is **78 617 643 384**.

Someva's team members have been involved in the full end to end life cycle of renewables projects since 2008, working across development, construction and operation of approximately 2.3 GW of assets in Australia and Asia. Someva currently has an early-stage development portfolio of approximately 2 GW.

1.3 Project Overview

The Applicant seeks in-perpetuity approval for the construction, operation and decommissioning of a 300 MW solar farm, electrical infrastructure, other infrastructure, and ancillary activities generally including the following components:

- Energy Generation:
  - Approximately 750,000 panels and 150 ha of solar arrays;
- Solar Power Conversion Unit (PCU):
  - Solar PCUs including a power station, inverter, transformer and associated equipment;
- Electrical reticulation network:
  - Up to five main transformers and an optional second satellite substation and associated transformers, switchroom, and reactive plant;
  - On-site connection to Project EnergyConnect, associated switch and other equipment at the main substation;
  - Internal electrical reticulation (both underground and overhead);
  - Approximately 500 MW / 2 gigawatt hours (GWh) Battery Energy Storage (BESS);
- Other temporary and permanent infrastructure including:
  - Operations and Maintenance (O&M) facility and infrastructure including site office, storage facilities, car parking and fencing;
  - Accommodation facilities;
  - Construction and operational compounds;
  - Internal access tracks and road turning head connecting Project infrastructure;
  - Meteorological masts;
  - Concrete batching plants, crushing facilities, gravel / borrow pits, construction laydown areas, and stockpile areas;
- Ancillary activities including sourcing of materials for construction; sourcing of water for construction; subdivision and boundary adjustments, visual screening and associated ancillary works;
- Access road use and Project-required upgrades:
  - Project Area access: via the Cobb Highway from Jerilderie Road in the north east;
  - Solar farm components access: via a major Port in either NSW, VIC, SA, via the Sturt Highway and/or Cobb Highway, then Jerilderie Road and/or West Burrabogie Road;
- Operational and construction workforces;
- Construction generally within standard construction hours and operations 24 hours per day 7 days per week; and
- Preliminary disturbance footprint of up to 630 ha.

No external transmission lines or associated easements are required for the Project.

Some of the Project-associated infrastructure will be shared with the Pottinger Wind Farm (the subject of a separate application) as shown in the dark blue polygon on **Figure 3.1**.

1.4 Background

Someva identified the South West REZ area in 2019 as an area of interest for renewables for a number of reasons including due to the Project EnergyConnect transmission line proposal, likelihood of solar and wind resource, significant distances to non-associated dwellings, suitable grazing pasture, and suitable terrain.

Someva commenced consultation with the Project's single local farming landowner in 2021 and together worked on a range of pre-feasibility activities to progress the proposal that is now the Pottinger Energy Park.

The Pottinger Energy Park, located in Hay, NSW, aims to generate up to 1 GW of renewable energy through wind, solar, and battery storage infrastructure.

The Project is named after the Pottinger family, who through two generations installed and maintained windmills in the region from the early 1900s till 1982 which aided the development of the Merino industry in the Riverina. Without this vision to embrace a new technology of the time it would have "been little short of murder to turn sheep loose into those paddocks" - Terry McGoverne, the Wool Barrons.

Pottinger Park in Conargo, a homage to Manny Pottinger who was a local windmill technician, provides a brief history of the windmill technology and its importance to growing the Merino industry and support economy in the area. This strong local history of innovation demonstrates how natural resources like wind, being "Natures Gift" – Manny Pottinger, support livelihoods in the region and would continue through the proposed Pottinger Energy Park.

Someva Renewables, the 100% Australian-owned project developer, is committed to building the energy park sustainably and responsibly, working closely with government agencies and community organisations.

The Project will create economic growth, job opportunities, and environmental benefits for the local community, while contributing significantly to Australia's renewable energy goals.

The Project is expected to raise awareness about renewable energy and environmental sustainability within the community and drive economic growth and diversification in the region.

1.5 Related Development

The Pottinger Renewable Energy Park comprises the Project and the Pottinger Wind Farm (and BESS) will combine to provide a large-scale energy system in the REZ. The Projects will progress generally in parallel, but determination timeframes are outside of the control of the Applicant and as such, approval for each is being sought separately.

The Pottinger Wind Farm is the subject of a separate DA. It will utilise some elements of the Project and this will be defined in its relevant documentation.

Conversely, the Project will utilise construction, operation, maintenance and decommissioning infrastructure, personnel and access associated with the Pottinger Wind Farm as generally described in **Section 3.2.8**.

The only other external development that the Project will require additional access to is Project EnergyConnect.

No existing use or continuing use rights are to be relied upon to facilitate the Project.

1.6 Objectives

The objectives of the Project are to:

- Create new income opportunities for landowners;
- Support communities grow into new industries;
- Provide a significant source of renewable energy to assist in reducing greenhouse gas (GHG) emissions;
- Providing lower cost electricity for the needs of future Australian generations;
- Contribute to renewable energy requirements and consequently NSW and Commonwealth targets for renewable energy;
- Collaborate with communities to allow residents, businesses and local industry to be incorporated into project design and long-term commitments that set up lasting and meaningful contributions locally;
- Provide financial benefits to its neighbours and the community through the Voluntary Planning Agreement (VPA) and neighbour benefit agreements;
- Provide employment and education opportunities during all Project phases;
- Engage with First Nations Australians to enhance social and economic outcomes;
- Ensure Project information is available and accessible to community members; and
- Achieve a high level of environment, community and safety standards.

1.7 Relevant Guidelines

The Scoping Report has been prepared in alignment with the following guidelines:

- 'Large-Scale Solar Energy Guideline' (DPE, 2022) (Solar Guideline);
- 'Technical Supplement - Landscape and Visual Impact Assessment' (DPE, 2022);
- 'State Significant Development Guidelines - Preparing a Scoping Report: Appendix A to the State Significant Development Guidelines' (DPIE, 2022a) (Scoping Report Guidelines);
- 'Social Impact Assessment Guideline for State Significant Projects' (DPIE, 2023a) (Social Guidelines);
- 'Cumulative Impact Assessment Guidelines for State Significant Projects '(DPIE, 2022b); and
- 'Undertaking Engagement Guidelines for State Significant Projects' (DPIE, 2022c) (Engagement Guidelines).

The Scoping Summary Table which is required from the Scoping Report Guidelines is completed in **Appendix A.** It describes the level of assessment required for each matter, type of engagement necessary and guidelines to be considered.

Appendix B includes a summary of the Scoping Report Guidelines' requirements and indicates where each is addressed in this Scoping Report.

Appendices C to **F** include technical specialists studies to support the Scoping Report.

1.8 Structure

This Scoping Report has the following structure:

- **Section 1** describes the preliminary Project and the Applicant, an overview of the Project for which approval is sought, and the purpose of this Scoping Report. It also notes any related development, relevant guidelines, the Project objectives and structure of this Scoping Report;
- **Section 2** outlines the strategic context for the Project, including alignment with International, Federal land local policy and strategic goals, the land use planning of the Project Area, the site setting and features, and provides a preliminary project justification;
- **Section 3** describes the Project including the Project Area, interaction with other Projects, staging and alternatives considered including environmental benefits of the preferred Project;
- **Section 4** outlines the statutory context for the Project including the power to grant approval, permissibility, other approvals and mandatory matters for consideration;
- **Section 5** describes the stakeholder engagement plan, identification, engagement conducted to date, preliminary community feedback and proposed future engagement;
- **Section 6** provides relevant background, a preliminary assessment of environmental and social aspects and includes a summary of the proposed EIS assessment approach for each; and
- **Section 7** and **Section 8** provide the Abbreviations and References, respectively.

Appendices A to **F** support the Scoping Report.

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Pottinger Solar Farm

Figure 1.1: Regional Locality Plan

Legend

Project Area
- Project Area
- Pottinger Wind Farm Project Area

Government Areas
- Edward River LGA
- Hay LGA
- Murrumbidgee LGA
- South West REZ

Existing Infrastructure
- Main Roads
- Railway Lines

Transmission Lines
- 132 kV
- 220 kV
- 330 kV
- Project Energy Connect

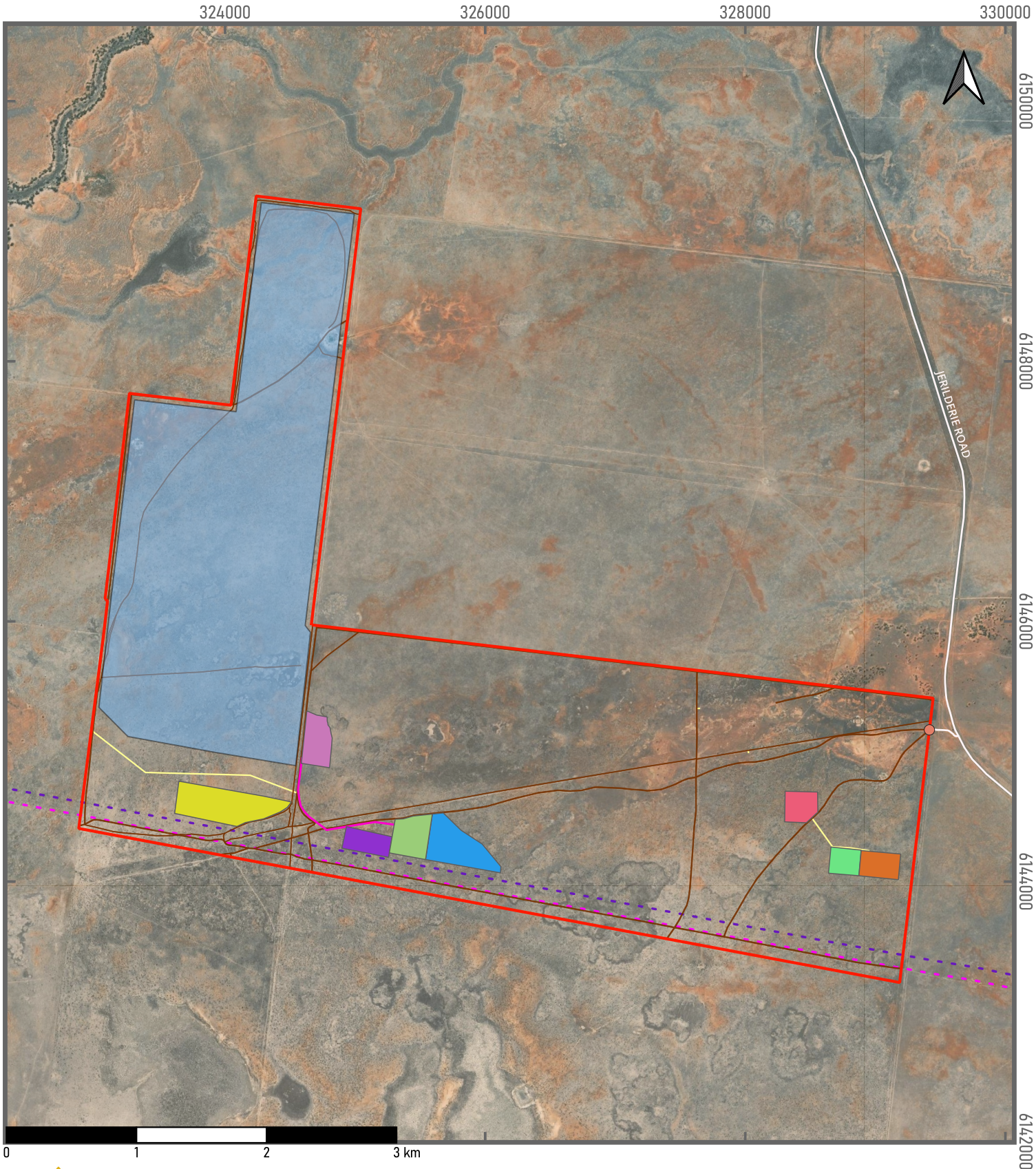
Surrounding Projects
- BESS
- Energy Hub (EH)
- Energy Park (EP)
- Solar Farm (SF)
- Wind Farm (WF)

Protected Areas
- Historic Site
- National Park
- Nature Reserve
- Regional Park
- State Conservation Area
- Hydro Area

Emergency Access
- Site Entrance A
- Site Entrance B
- Site Entrance C

Date: 07/06/2023
CRS: GDA2020 / MGA zone 55
Scale: 1650000
Basemap: ESRI (2023)

Data Sources: Spatial Services Spatial Data Services, Energy Co
Prepared By: EL Reviewed by: TS
Version: 4.3
This figure may contain third party information. This figure is provided for information purposes only and may not be to scale.



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Pottinger Solar Farm

Figure 1.2: Conceptual Preliminary Layout

Date: 05/06/2023
CRS: GDA2020 / MGA zone 55
Scale: 40000
Basemap: ESRI Satellite (2023)

Data Sources: Spatial Services Spatial Data Services
Prepared By: EL Reviewed By: TS
Version: 5.4
This figure may contain third party information. This figure is provided for information purposes only and may not be to scale.

Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastructure
- Project Energy Connect
- Existing 220kV Transmission
- Main Roads
- Existing Access Tracks

2 STRATEGIC CONTEXT

This section identifies the key strategic issues that are relevant to the assessment of the Project. It also describes the key features of the site and surrounds, existing land use and land ownership. Relevant future developments in the area that could affect or be affected by the Project have been summarised.

2.1 Policy and Strategic Goals Alignment

2.1.1 International

2.1.1.1 United Nations Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a global call for action to "*promote prosperity while protecting the planet*" (UN, 2015). The SDGs address a range of socioeconomic and environmental issues including education, health, social protection, job opportunities, climate change and environmental protection. The 17 SDGs of the 2030 Agenda for Sustainable Development came into force on 1 January 2016. Australia has been a United Nations (UN) member state since 1945 and adopted the SDGs in its national policymaking.

There are a number of SDGs that renewable energy infrastructure aligns with, the core goal being Goal 7 – Affordable and Clean Energy. Target 7.A of Goal 7 aims to *"enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology by 2030".*

Other SDGs that the Project indirectly aligns with include:

- SDG 8 – Decent Work and Economic Growth;
- SDG 9 – Industry, Innovation and Infrastructure;
- SDG 11 – Sustainable Cities and Communities; and
- SDG 13 – Climate Action.

The Project is a renewable energy project and will therefore contribute to addressing socioeconomic and environmental issues through advancing cleaner fossil-fuel technology and energy efficiency.

2.1.1.2 United Nations COP26 (2021)

A key outcome of the UN Framework Convention on Climate Change Conference of the Parties (COP) held in Glasgow in 2021 (COP26) was the agreement to "*revisit and strengthen… 2030 targets in nationally determined contributions…by the end of 2022"* (UNFCC, 2021).

Nations were also called upon to "*phase down unabated coal power and inefficient subsidies for fossil fuels".* As a result, the Australian Federal Government committed to achieve net zero GHG emissions by 2050.

The Project will contribute to the reduction of GHG emissions through renewable energy generation.

2.1.1.3 United Nations COP21

The UN Framework Convention on Climate Change COP – COP21 (The Paris Agreement) was an important stepping-stone for international relations on climate change as it brought all nations into a common cause to combat climate change. The core outcome of the Paris Agreement is to limit emissions globally, by holding the increase in the global average temperature to well-below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels (UNFCC, 2015).

The Project will contribute to meeting Australia's commitments under the Paris Agreement through reducing annual GHG emissions by approximately 280,000 million tonnes per annum (Mtpa) through renewable energy generation.

2.1.2 Federal

2.1.2.1 Government's Large-scale Renewable Energy Target

The Renewable Energy Target (RET) is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources.

The Large-scale Renewable Energy Target (LRET) incentivises the development of renewable energy power stations in Australia through a Renewable Energy Certificate Market for the creation and sale of certificates called large-scale generation certificates (LGCs). LRET-accredited power stations can create LGCs for electricity generated from that power station's renewable energy sources. LGCs can then be sold to:

- Liable entities under the RET (mainly electricity retailers); and
- Companies and individuals looking to support their claims about reducing emissions, using renewable electricity, or by surrendering offsets such as Australian Carbon Credit Units (ACCUs).

The current target under the LRET is for 33,000 GWh of additional renewable energy to be generated annually. The current targets, accreditation of power stations, and creation of LGCs will remain until the end of the scheme in 2030.

Once operational, the Project could generate up to 657 GWh of electricity annually. The Project will therefore contribute significantly to meeting the LRET target.

2.1.2.2 Climate Change Act 2022

In 2022 the Australian Government passed the *Climate Change Act 2022* (Climate Change Act) which outlines goals to combat climate change through legislative requirements. The Climate Change Act is pivotal in setting requirements for the generation of energy in Australia and targeting GHG emissions. Australia's GHG reduction targets are a 43% reduction in GHG emissions from 2005 levels by 2030 and to achieve net zero by 2050. These GHG emission targets are derived from the Paris Agreement's goals as stated in **Section 2.1.1.3**.

The Climate Change Act also introduces the requirement for the Minister for Climate Change and Energy to prepare an annual climate change statement to be presented in the House of Parliament, as informed by the Climate Change Authority.

The Project aligns with the Climate Change Act's objectives for GHG emission reduction by utilising renewable energy as a source for clean energy to Australia's electricity supply.

2.1.2.3 National Electricity Market

The National Energy Market (NEM) is a wholesale market through which electricity is traded in Australia. The NEM incorporates approximately 40,000 km of transmission lines and cables in Australia and spans the eastern and south eastern coasts (including QLD, NSW, ACT, SA, VIC and TAS) (AEMO, 2022a). It delivers around 80% of all electricity consumption in Australia (DCCEEW, 2023). The NEM facilitates the exchange of electricity between generators and retailers. Retailers resell the electricity to businesses and households. The Australian Energy Market Operator (AEMO) controls the NEM and is responsible for monitoring electricity consumption and the flow of energy across the power system (AEMO, 2021).

AEMO recognises that the NEM needs to be modernised to accommodate and respond to changes in electricity generation, emerging technologies, such as solar batteries, and shifting consumer preferences. (DCCEEW, 2023).

The 'Renewable Integration Study' (RIS) is a multi-year plan to maintain system security in the future NEM with a high share of renewable resources (AEMO, 2020). The results of the Stage 1 RIS finds that if in the next five years the recommended actions are taken to address the regional NEM-wide challenges (keeping balance in a system in which energy supply is increasingly variable and uncertain), the NEM could be operated securely with up to 75% instantaneous input of wind and solar electricity generation (AEMO, 2020).

The Project will contribute via its infrastructure to connect to the NEM and allow for its distribution to retailers. The Project will directly feed into the NEM and contribute to the large-scale goal of renewable energy generation being prominent in the market and reduce the reliance on fossil fuels.

2.1.2.4 Integrated System Plan 2022

The 'Integrated System Plan' (AEMO, 2022b) (ISP) is an integrated roadmap for the efficient development of the NEM over the next 20 years and beyond. The primary objective is to optimise value to end consumers by designing the lowest cost, secure and reliable energy system capable of meeting any emissions trajectory determined by policy makers at an acceptable level of risk (AEMO, 2022b).

The ISP also serves to inform policymakers, investors and consumers. It draws on stakeholder engagement and industry expertise in order to maximise the value and benefits to electricity consumers. The ISP provides detail on the network projects within QLD, NSW, ACT, VIC, SA and TAS, and how each will connect as well as outlines the REZs in Australia.

The Project is located within the South West REZ as shown on **Figure 1.1**. The Project will align with Phase 2 of the ISP which states "*Renewable generation development to replace energy provided by retiring coal-fired generators and supported by the actionable ISP projects"* (AEMO, 2021).

Phase 2 will be achieved through the development of Variable Renewable Energy (VRE) in the South West REZ, which is to be supported by the proposed Project EnergyConnect as shown on **Figure 1.2.**

The Project will connect to Project EnergyConnect and will therefore support the ISP.

2.1.2.5 Project EnergyConnect and the South West REZ

The Project Area is located within the Project EnergyConnect corridor which is a proposed 330 kV transmission line between SA and NSW with a total length of 900 km. The NSW component is being undertaken in two stages. The Western Section, which will connect the NSW and SA transmission networks, received state and federal planning approval in late 2021. The second stage, which connects the Buronga and Wagga Wagga substation was approved September 2022.

The Project Area is located within the South West REZ which was chosen due to:

- Abundance of high-quality wind and solar resources;
- Proximity to existing transmission lines and planned Project EnergyConnect;
- Relative land-use compatibility; and
- A strong pipeline of proposed projects.

The South West REZ was formally declared by the Minister for Energy under section 19(1) of the *Electricity Infrastructure Investment Act 2020* and published in the NSW Gazette on in November 2022.

Figure 1.1 illustrates the proximity of Project EnergyConnect and the South West REZ.

2.1.3 NSW Government's Commitments

2.1.3.1 Net Zero Plan Stage 1: 2020-2030

The 'Net Zero Plan Stage 1: 2020-2030' (DPIE, 2020a) (Net Zero Plan) sets the framework for how the NSW Government will achieve net zero emissions by 2050. In September 2021, the NSW Government announced the reduction of emissions by 50% below 2005 levels by 2030.

The Project will contribute to the Net Zero Plan's goals through the reduction of GHG emissions.

2.1.3.2 NSW Electricity Strategy

The 'NSW Electricity Strategy' (State of NSW and DPIE, 2019) (NSW Strategy) is the NSW Government's plan for a reliable, sustainable and affordable energy. The NSW Strategy aligns with the Net Zero Plan and will respond to current electricity demand challenges in an effort to combat electricity prices and reliability by:

- Delivering Australia's first coordinated REZs;
- Saving energy, especially at times of peak demand via the Energy Security Safeguard;
- Supporting the development of new electricity generators;
- Setting a target to bolster the state's energy resilience; and
- Making it easier to do energy business in NSW.

The Project is consistent with the NSW Strategy as it provides renewable energy generation and storage capacity that will ultimately result in lower cost of power in comparison to wholesale prices.

2.1.3.3 NSW Transmission Infrastructure Strategy

The 'NSW Transmission Infrastructure Strategy' (State of NSW and DPIE, 2018) (Transmission Strategy) builds upon the broader objective of making energy more affordable and securing energy supplies.

The Transmission Strategy aims to:

- Boost NSW interconnections with VIC, SA and QLD, and unlock more power from the Snowy Hydro Scheme;
- Increase NSW's energy capacity by prioritising Energy Zones in the Central-West, South West and New England regions of NSW; and
- Work with other states and regulators to streamline regulation and improve conditions for investment.

The Project will meet the objectives of the Transmission Strategy as it would increase NSW's connections with neighbouring states through Project EnergyConnect. It will also contribute to the South West REZ, resulting in an overall increase in NSW's energy capacity.

2.1.3.4 NSW Electricity Infrastructure Roadmap

The 'NSW Electricity Roadmap' (NSW Government, 2023) (Roadmap) is a plan to make the state's electricity system into one that is cheap, clean and reliable.

The Roadmap aims to streamline investment into transmission, generation, storage and the firming of infrastructure as coal-fired generation plants retire and are phased out (e.g. Vales Point in 2029, Mt Piper in 2040, Bayswater in 2033, Eraring in 2025 and Liddell in 2023) (AEMO, 2023).

2.1.3.5 Renewable Energy Zones

REZs combine renewable energy infrastructure, storage and high-voltage transmission infrastructure. Each REZ will contain multiple renewable energy projects and electricity storage, in an effort to capitalise on economies of scale to deliver cheap, reliable and clean electricity for homes and businesses in NSW.

Five REZs have been identified so far in NSW in the 'NSW Strategy and Roadmap', which include: Central-West Orana, New England, South West, Hunter-Central Coast, and Illawarra. The REZs will help lower electricity costs through increased competition and support new local jobs and business opportunities during construction and operation.

The Project will contribute to the South West REZ by reducing carbon emissions by delivering a greater mix of renewable energy to the NEM, and supporting the goals and targets identified in **Section 1.6**.

2.2 Land Use Planning

The Project Area is located within the Hay Shire Council Local Government Area (LGA). The Hay Shire Council utilises the Hay LEP 2011 in its administration.

The Hay Shire LGA is situated within the broader Riverina Murray region as shown on **Figure 1.1**.

2.2.1 Riverina Murray Regional Plan 2041

The 'Riverina Murray Regional Plan 2041' (DPE, 2023) (Regional Plan) set a 20-year framework, vision and direction for strategic planning and land use in the area. The Regional Plan covers 20 LGAs, of which Hay is a part of. The Regional Plan is prepared under the EP&A Act and draws from the Local Strategic Planning Statements (LSPSs) prepared by each council for the LGA.

The Regional Plan is underpinned by environment values and seeks to protect and harness these values to support ongoing prosperity and growth and to build resilience against natural hazards (DPE, 2023). The Regional Plan supports a transition to net zero emissions region by 2050 and will explore a future South West REZ.

The Regional Plan is made up of environment, community and economic objectives. The Project meets the following objectives from the Regional Plan:

- *"Objective 11 – Plan for integrated and resilient utility infrastructure*
  - *Ensuring the region has a sustainable and reliable power source will ensure new residential and economic development can be accommodated.*
- *Objective 13 – Support the transition to net zero by 2050.*
  - *AEMO forecasts a step-change in the transition away from fossil fuels and higher electrical demand. This transition requires fundamental changes in how electricity is generated, transported, stored and used."*

2.2.2 Hay Shire Council Local Strategic Planning Statement 2020

The 'Hay Shire Council Local Strategic Planning Statement 2020 (Hay Shire Council, 2020) (Hay LSPS) sets the framework for Hay Shire's economic, social and environmental land use needs over the next 20 years. The Hay LSPS planning priorities and actions provide the rationale for decisions on land use to achieve the community's broader visions (Hay Shire Council, 2020). The Hay LSPS is informed by the Community Strategic Plan (CSP), and also gives effect to the Regional Plan, implementing the directions and actions at a local level.

The Project directly addresses "*Planning Priority 9: Renewable Energy – Encourage the growth of Renewable Energy Installations*." This Priority recognises the opportunity that the Hay Shire presents for renewable energy generation in that it possesses high number of daylight hours, level topography, affordable land, and nearby grid connections.

This Priority has been derived from the Regional Plan "*Objective 13 – Support the transition to net zero by 2050"* as referred to in **Section 2.2.1**.

2.2.3 Hay Shire Council Community Strategic Plan 2022-2032

The 'Hay Shire Community Strategic Plan 2022-2032' is a 10-year plan that sets out the strategic direction and community vision and objectives for the community (Hay Shire Council, 2021). The CSP identifies five objectives which the CSP is built around:

- Environmental sustainability;
- Liveable and vibrant community;
- Economic prosperity and sustainability;

- Governance and organisational performance; and
- Our infrastructure.

The Project is consistent with the following objectives and targets of the CSP:

- *Environmental sustainability*
  - *A1.2 – Foster environment of investment for environmental sustainability*
  - Target: *reduction in non-renewable energy.*
- *Liveable and vibrant community*
  - B3 – Our community has access to a range of employment opportunities.
  - Target: *increase in employment options.*
- *Economic prosperity and sustainability*
  - *C1 – Our community welcomes new and innovative industry to support our future*
  - Target: *increase in business numbers and opportunities across the community.*
- *Our infrastructure*
  - *E1.1 – Deliver infrastructure and assets that are responsive to community need.*
  - *E1.3 – Provision of sustainable infrastructure that is adaptive to changing, suitable/ betterment and funding levels.*

2.3 Site Setting and Features

2.3.1 Site Context

2.3.1.1 Regional Community

The Project Area is situated in the rural locality of Booroorban, approximately 60 km south of Hay. The Project Area is within the Riverina Murray region of NSW approximately 720 km west of Sydney. It is located within the Hay LGA.

Nearby Towns and Population Centres

The nearest population centre is Hay, located north of the Project Area with a population of 2,300 (ABS, 2021). Other nearby towns located near the Project Area include:

- Hay (main centre) – 60 km north;
- Deniliquin (main centre) – 110 km south;
- Wanganella – 69 km south;
- Darlington Point – 80 km north east;
- Colleambally – 90 km east;
- Conargo – 100 km south;
- Balranald – 120 km west;
- Jerilderie – 125 km south east; and
- Swan Hill – 191 km south west.

Nearby Renewable Energy and Related Projects

There are a number of existing and/ or proposed renewable energy projects located in proximity to the Project Area which have a potential for cumulative impacts as shown on **Figure 1.1**.

Table 1 describes each in relation to its proximity to the Project and includes a description and states the status of each nearby project, as well as the number of wind turbines and/or PV panels proposed. The Project Area borders Bullawah Wind Farm immediately to the east, and The Plains Wind and Solar Farm to the north and west.

Table 1 Nearby Renewable Energy Projects

Project	Distance to Project Area	Description	Current Status
Pottinger Wind Farm	<1 km (adjacent)	• 108 WTGs • 750 MW capacity	Proposed
Bullawah Wind Farm	<1 km (adjacent)	• 170 WTGs • ~1,000 MW capacity	Proposed
The Plains Solar Farm	<1 km (adjacent)	• 900,900 (PV) panels • 500 MW capacity • BESS	EIS to be prepared
The Plains Wind Farm	<1 km (adjacent)	• 226 WTGs • 1,800 MW capacity	EIS to be prepared
Project EnergyConnect (NSW – Eastern Section)	<1 km (within Project Area)	• 330 kV transmission line	Western Section approved. Second stage to be approved.
Lang's Crossing Solar Farm	13 km	• 5 MW capacity	Determined
Hay Solar Farm	15 km	• 430,000 PV panels • 110 MW capacity	Determined
Dinawan Energy Hub	25 km	• ~2,500 MW capacity	Proposed
Baldon Wind Farm	40 km	• 162 WTGs • 800-900 MW capacity	EIS to be prepared
Yanco Delta Wind Farm	42 km	• 210 WTGs • 1,500 MW capacity	Responding to submissions
Keri Keri Wind Farm	50 km	• 170 WTGs • 1,003 MW capacity	EIS to be prepared
Keri Keri Solar Farm	65 km	• 900,000-950,000 PV panels • 400 MW capacity	EIS to be prepared
Currawarra Solar Farm	66 km	• 667,000 PV panels • 195 MW capacity	Determined
Burrawong Wind Farm	82 km	• 107 WTGs • 750 MW capacity	EIS to be prepared
Tarleigh Park Solar Farm	85 km	• 290,000 PV panels • 90 MW capacity	Determined
Southdown Solar Farm	85 km	• 335,000 PV panels • 130 MW capacity	EIS to be prepared
Limondale Solar Farm	95 km	• 300,000 PV panels • 349 MW capacity	Operational
Finley Solar Farm	97 km	• 500,000 PV panels • 175 MW capacity	Operational
Sunraysia Solar	100 km	• 750,000 PV panels • 255 MW capacity	Operational

2.3.1.2 Local Community

The Project Area is located within the Hay Plains, which is characterised by a relatively flat topography with low relief. The existing land uses are predominantly agricultural and irrigated cropping and grazing.

The Project is situated in the rural locality of Booroorban. The locality of around 33 residents sits alongside the Booroorban State Forest and features include the Royal Mail Hotel and a public hall.

2.3.1.3 Natural Features

Topography and Geology

The elevation across the Project Area is very uniform, ranging from approximately 90 m to 98 m above sea level (ASL), however predominantly flat in landscape (**Figure 2.1**)**.** The Project Area is situated upon the Shepparton Formation which consists of poorly consolidated clays, sands and gravels, forming an extensive flat alluvial floodplain (Geoscience Australia, 1988).

The region is made up of Quaternary alluvial sediments with shallow and small depressions that are as deep as 2 m. These depressions form a number of dry lakes studded in the landscape. In some areas these depressions form large scale swamps. The landform is also characterised by isolated low rises formed by aeolian processes (Environment NSW, 2011).

Climate

The nearest air quality monitoring station is located in Hay as part of the Rural NSW air quality monitoring network (DPE, 2018) and measures particulate matter (PM_{10} and $PM_{2.5}$), Total Suspended Particles; wind speed, wind direction and sigma theta; ambient temperature; and relative humidity.

This station provides hourly pollutant concentrations data, as well as 24-hour summary and air quality category (AQC) ratings. Pollutant levels are currently very low.

The nearest weather station is at Hay Airport (Station No. 075019), which lies at an elevation of 92 m Australian Height Datum (AHD). A review of the Australian Bureau of Meteorology (BOM) climatic records from– 2007 - 2022 indicate a mean summer maximum temperature of 35.9°C in January, and a mean winter minimum temperature of 3.86°C in July.

Rainfall records from this same station indicate a mean annual rainfall of 367.4 mm, with the highest monthly maximum occurring in June (35.8 mm) and the lowest monthly maximum occurring in April (25.8 mm) (BOM, 2023).

The wind in the Hay region is most often from the south from September to June, and predominantly from the west from June to September. The average hourly wind speed experiences mild seasonal variation over the course of the year. The windier part of the year is from August to March, with average wind speeds of more than 15.3 km/h, and the calmer time of the year is from mid-March to August, with an average hourly wind speed of 13.3 km/h (Weather Spark, 2023).

The Applicant has Light Detection and Ranging (LiDAR) on site which measures wind speeds at various heights. It has collected data since 2022.

Vegetation

Lack of water and dry, arid conditions support scattered stands of belah trees, saltbush and speargrass communities (NPWS, 2003). A number of saltbush and cottonbush varieties dominate the region with very sparse tree communities, thus yielding clear, open views of the expanse. The lack of tall canopy species allows higher wind speeds with continual wind actions on the landscape.

Mid-canopy species such as lignum and nitre goosefoot are occasionally visible in the landscape and are favoured for emu grazing. Predominance of low-storey vegetation allows easier grazing opportunities for sheep, thus rendering the area favourable for livestock grazing. Most canopy cover is prominent within the extents of the Oolambeyan National Park and South West Woodlands Nature Reserve extents.

Watercourses

There are no major watercourses within the Project Area. The closest are Eurolie Creek (1.3 km west) and Nyangay Creek (4.2 km west). Eurolie Creek contains Longbotoms Dam and Eurolie Dam.

The Project Area is located south of the Murrumbidgee River and north of an irrigation channel (Coleambally Outfall Drain). These watercourses are within the Murrumbidgee Catchment.

Traces of irrigated cropping and pastures are also prevalent on the outer edges of the Project Area and are flat and open. Creeklines and dry lakes create floodplains that are fertile and suitable for agricultural activities. All water channels remain dry and exhibit vegetation characteristics that are unique to the Riverina region.

National Parks and Conservation Areas

The nearest national parks and conservation areas are located to the north, east and south, and north west of the Project Area. The closest conservation area is the South West Woodland Nature Reserve located approximately 22 km south west of the nearest proposed PV panel

Oolambeyan National Park falls within the extents of land that is categorised as C1- National Parks and Nature Reserves. The National Park is located within the extents of Murrumbidgee Council. The nearest PV panel is approximately 9 km south west of the National Park. No development is proposed within the boundaries of the National Park.

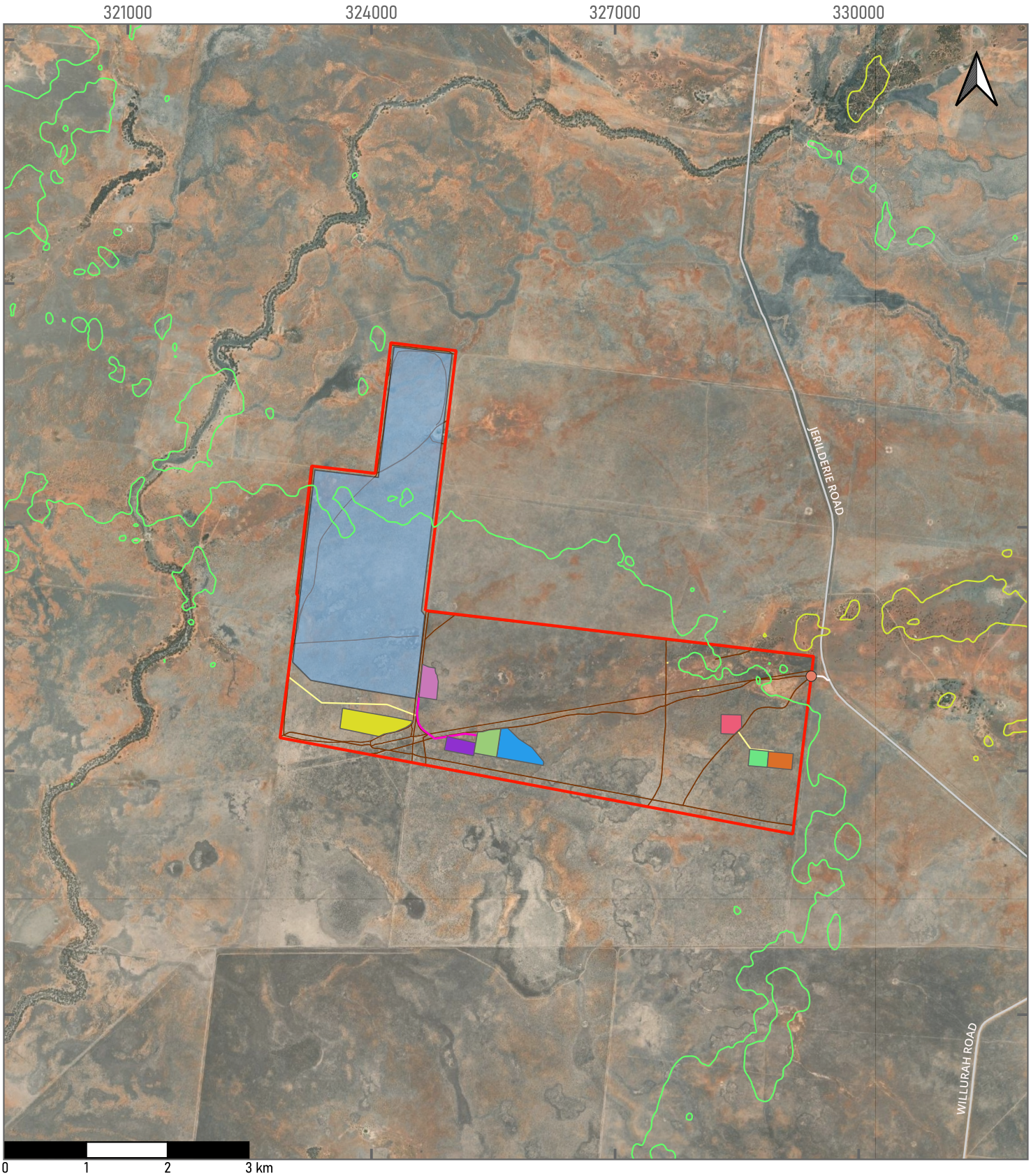
Significant ecological, cultural and historic associations have been identified for the Oolambeyan National Park which is located north east of the Project Area. The region also has significant historic and cultural associations such as Aboriginal sites, hearths, and stone artefacts along with colonial associations such as a former merino stud property of the western Riverina. Although the Park's prominent hydrological features have been modified and regulated especially in the eastern parts, it boasts a variety of biodiversity and landscape values which make it a unique representation of the Hay Plains character in south west NSW.

South West Woodland Nature Reserve is characterised by fragmented parcels of woodlands that are spread across areas closer to Coleambally and Steam Plains. The Reserve protects a number of significant endangered ecological communities and is known for educational and recreational associations such as bushwalking, birdwatching and research (Moir, 2023).

The zoning and location of the nearby national parks and conservation areas are provided in **Table 2**. It also describes the distance and direction from the nearest PV panel, which LEP the Park / Area occurs within, and relevant zoning of each.

Table 2 Nearby National Parks and Conservation Areas

Park / Area	Nearest PV panel	LEP	Zoning
Oolambeyan National Park (north east)	9 km north east	Murrumbidgee LEP 2013	C1 – National Parks and Nature Reserves
South West Woodland Nature Reserve (south west)	22 km south west	Conargo LEP 2013	C1 – National Parks and Nature Reserves



SOMEVA RENEWABLES

Pottinger Solar Farm

Figure 2.1: Topography

Date: 06/06/2023
CRS: GDA2020 / MGA zone 55
Scale: 65000
Basemap: ESRI Satellite (2022)

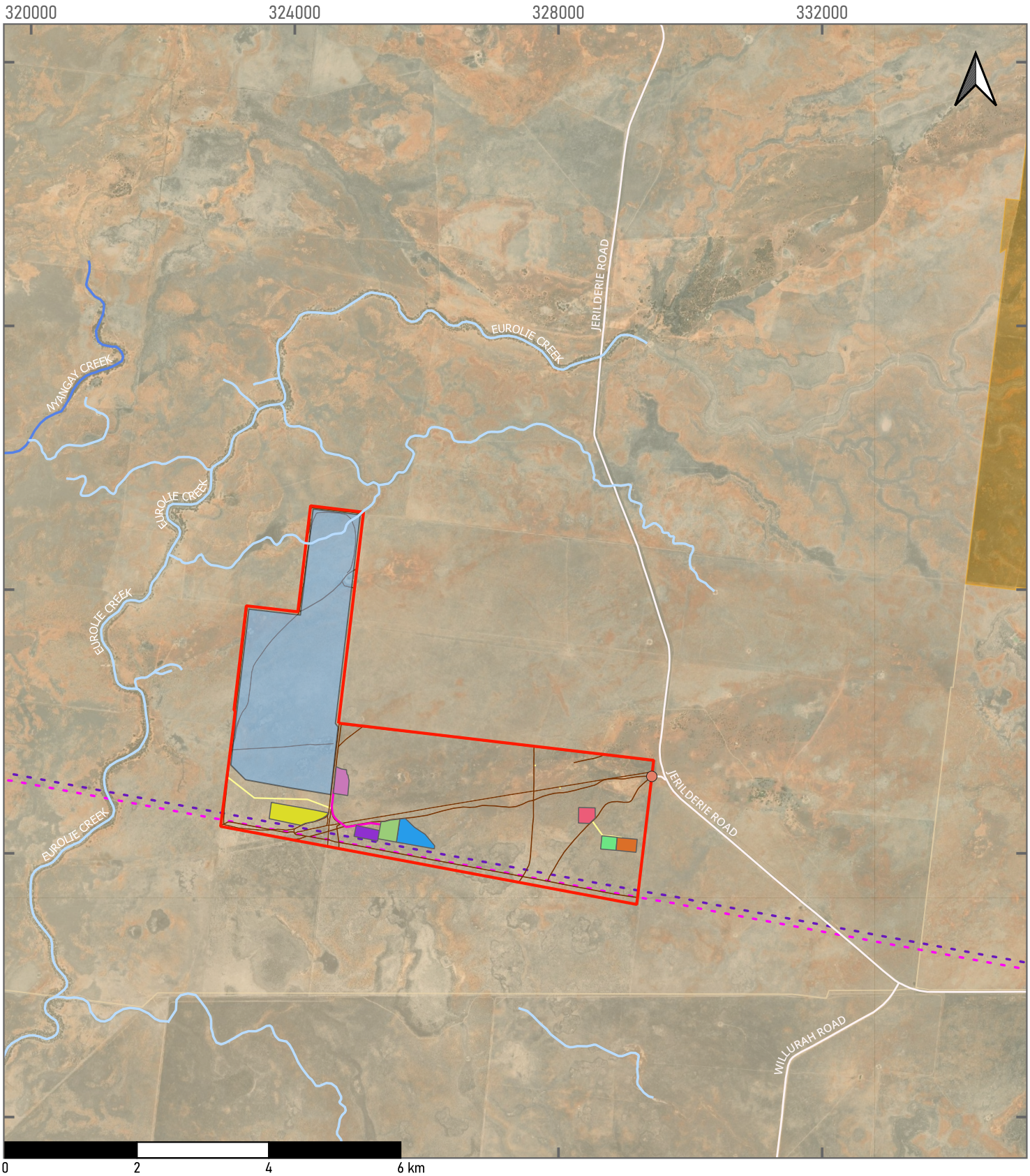
Data Sources: Spatial Services, ELVIS NSW
Prepared By: TS
Version: 3.4
This figure may contain third party information. This figure is provided for information purposes only and may not be to scale.

Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastructure
- Roads
- Existing Access Tracks

5m Contour (ELVIS)
- 95
- 100



SOMEVA RENEWABLES

Pottinger Solar Farm

Figure 2.2: Land Zoning

Date: 05/06/2023
CRS: GDA2020 / MGA zone 55
Scale: 80000
Basemap: ESRI Satellite (2022)

Data Sources: Spatial Services, NSW EPI Planning
Prepared By: EL Reviewed By: TS
Version: 3.4
This figure may contain third party information. This figure is provided for information purposes only and may not be to scale.

Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastructure
- Existing 220kV Transmission
- Project Energy Connect
- Main Roads
- Existing Access Tracks

Land Zoning - EPI Primary Planning
- C1 - National Parks and Nature Reserves
- RU1 - Primary Production

Strahler Stream Order Value
- 1
- 2

2.3.1.4 Built Features

There are no associated residences within the Project Area.

The Cobb Highway and Sturt Highway serve as important commuting corridors as they provide connection to the towns of Balranald, Hay, Wagga Wagga, Deniliquin and others. Minor road connections are provided by Willurah Road, Jerilderie Road and north Boundary Road.

The Project will directly connect to the existing 220 kV transmission line, which crosses the Project Area from west to east.

Recreational associations occur mostly within the extents of Hay and along the Murrumbidgee River to the north of the Project Area. Recreational facilities include campgrounds, ovals, parks and Bidgee Riverside Walk along the Murrumbidgee River.

2.3.2 Land Ownership

2.3.2.1 Project Area

Table 3 contains a list of lots within the Project Area of which this application applies. Lots shared between the solar farm and wind farm applications are shown with an asterisk (*).

Table 3 Lot/ DP within the Project Area

Lot	DP	Lot	DP
97	756809	107*	756809*
106	756809	42*	591554*
108*	756809*		

2.3.2.2 Associated and Non-Associated Dwellings

Table 4 lists properties and associated (AD) and non-associated dwellings (NAD) in proximity to the Project which were subject to preliminary assessments which are also shown on **Figure 2.3**. DAD_01 is a dwelling entitlement (i.e. no dwelling exists however a DA is in place).

All non-associated dwellings (NAD) are over 5 km from the closest PV panel.

Table 4 Dwellings in Proximity to the Project Area

ID	Associated*	Non-Associated	Associated with other Renewables Project	Distance to PV panel (m)
AD_01	X			5,410
NAD_01		X	X	18,034
NAD_02		X	X	6,495
NAD_03		X		20,996
NAD_04		X	X	30,402
DAD_01	X			11,640

** Pottinger Wind farm*

2.3.2.3 Agreements with Other Parties

Where dwelling owners are hosting Project infrastructure or have entered into an Agreement, they are referred to as 'Associated' dwellings, all other dwellings are referred to as 'non-Associated' dwellings. Associated and non-Associated landholders within and surrounding the Project Area are shown in **Figure 2.3**. Of note:

- One landowner (AD_01) is associated with the Project - the land where the Project will be located will be appropriately leased through an 'Associated Landholder Agreement';
- One non-associated dwelling (but associated with another project) (NAD_02) have been identified within 8,000 m of the solar farm;
- For any required subdivision, the remainder of the land parcel will continue to be utilised for agricultural purposes in consultation with the landholder;
- The Applicant will seek to enter into additional Benefit Sharing Agreements in consultation with nearby neighbours, or if relevant EIS assessments identify that relevant impact criteria cannot be met at non-Associated dwellings; and
- The Applicant will seek to enter into an appropriate offset mechanism to offset biodiversity impacts where required and as assessed in the EIS.

2.4 Land Use

The Project Area is entirely zoned RU1 – Primary Production under the Hay LEP as shown on **Figure 2.2**. The Project Area covers approximately five land parcels (i.e. individual lot / DPs).

Any land parcels with dwelling entitlements additional to those included in this Scoping Report, will be identified in the EIS.

The land parcels within the Project Area are in **Table 3**.

The Project Area is situated on a single property, "West Burrabogie Station" which is a large-scale sheep breeding property containing native grazing pastures, with some irrigated cropping areas.

2.5 Risks and Hazards

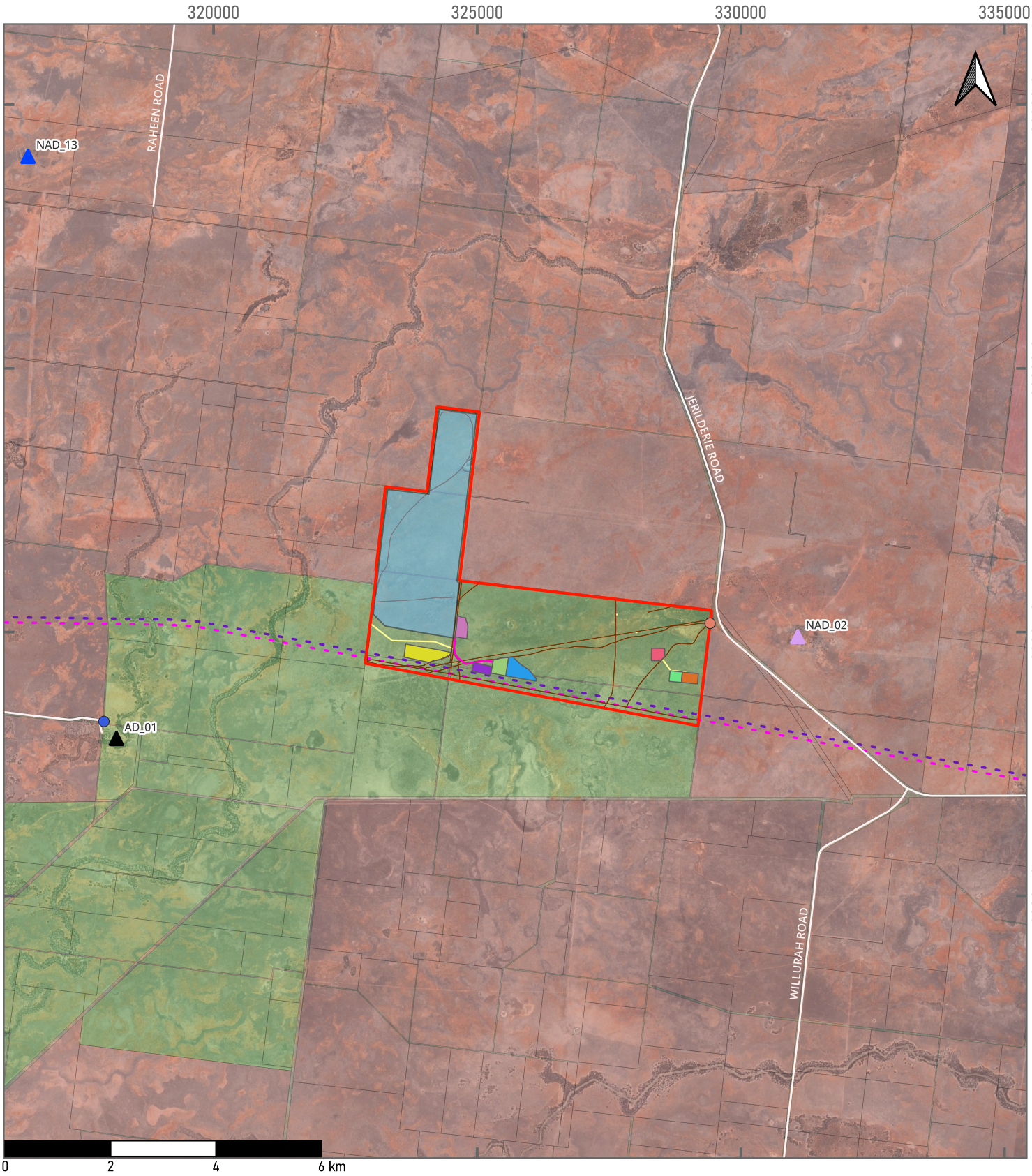
Solar farm developments by their nature require areas of land to accommodate solar arrays and ancillary infrastructures. Due to this, these developments are often located in rural areas, which typically result in changes to landscape character and may generate impacts from the Project construction and/or operation. Those that require more detailed assessment, due to an increased risk of significant impacts include biodiversity, noise and vibration, landscape and visual, and social factors.

Key potential risks of the Project on environmental and social aspects are investigated in detail in **Section 6**.

2.6 Cumulative Impacts

The Project will be assessed in accordance with the requirements of the 'Cumulative Impact Assessment Guidelines for State Significant Projects' (DPIE, 2022b). The EIS and its associated technical studies will consider relevant construction, industrial and employment generating projects within the locality, and assess potential cumulative impacts.

Projects in proximity to the Project as shown on **Figure 1.1** with each at varying approval stages as described in **Section 2.3.1**.



Pottinger Solar Farm

Figure 2.3: Land Ownership

SOMEVA RENEWABLES

Date: 05/06/2023
CRS: GDA2020 / MGA zone 55
Scale: 100000
Basemap: ESRI Satellite (2023)

Data Sources: Spatial Services Spatial Data Services, SixMaps NSW
Prepared By: EL Reviewed By: TS
Version: 4.3
This figure may contain third party information. This figure is provided for information purposes only and may not be to scale.

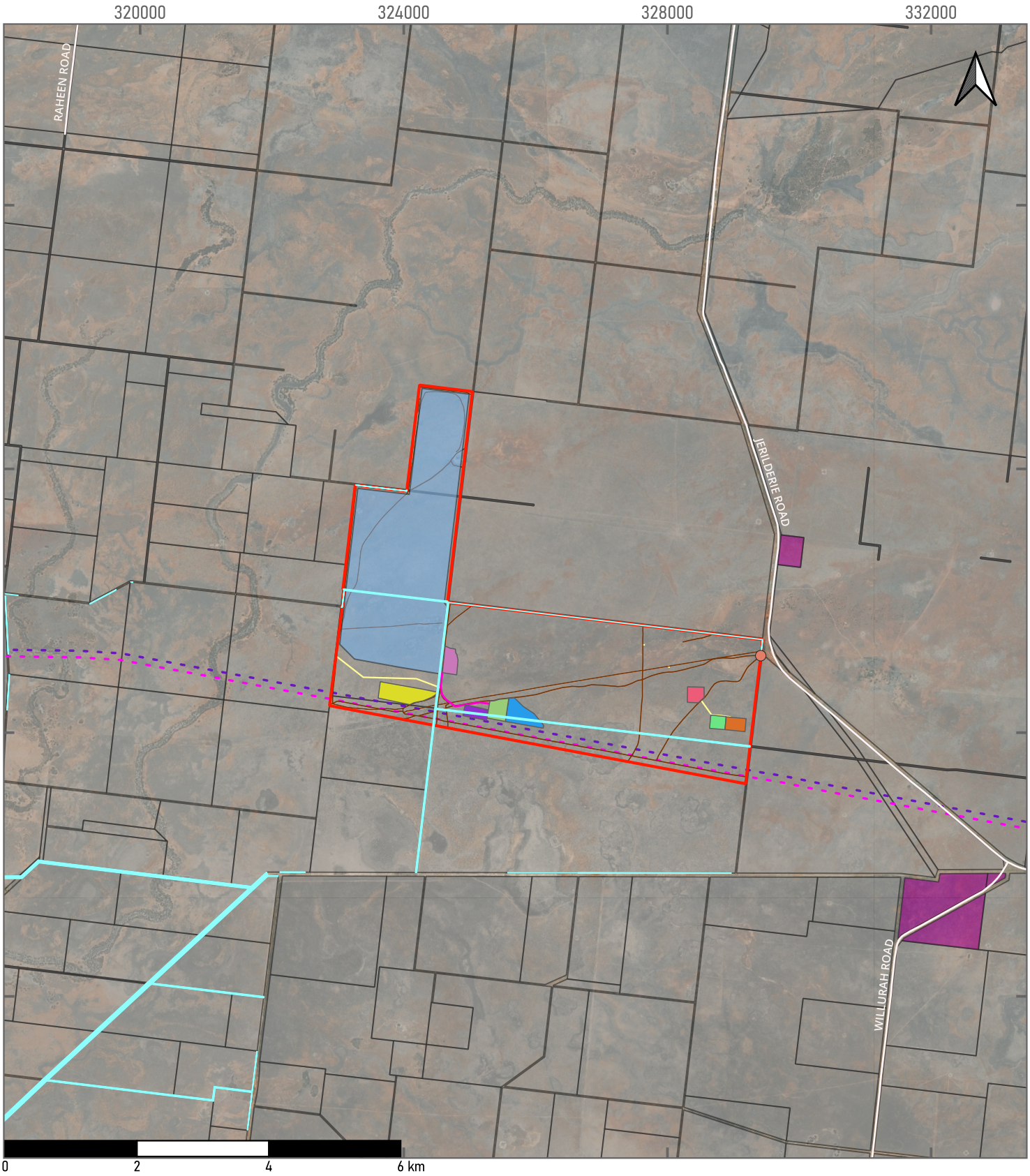
Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Emergency Access
- Site Entrance
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastructure
- Existing 220 kV Transmission
- Project Energy Connect
- Main Roads
- Existing Access Tracks

Cadastre and Land Ownership
- Associated
- Non-associated

Dwellings
- Associated
- Non-Associated
- Non-Associated (Associated with other project)



SOMEVA RENEWABLES

Pottinger Solar Farm

Figure 2.4: Land Ownership - Crown Land

Date: 05/06/2023
CRS: GDA2020 / MGA zone 55
Scale: 80000
Basemap: ESRI Satellite (2023)

Data Sources: Spatial Services Spatial Data Services, SixMaps NSW
Prepared By: EL Reviewed By: TS
Version: 4.3
This figure may contain third party information. This figure is provided for information purposes only and may not be to scale.

Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastructure
- Existing 220kV Transmission
- Project Energy Connect Transmission
- Main Roads
- Existing Access Tracks

Land Ownership
- The State Of New South Wales
- Private Land
- Crown - Paper Roads

2.7 Project Justification

This section provides a summary on why the Project has been selected and what the expected benefits and outcomes are. These benefits include long-term strategic benefits to NSW as well as to Australia's renewable energy generation prospects.

2.7.1 Project Benefits

2.7.1.1 Solar Farm Benefits

The Australian Renewable Energy Agency (ARENA) (2023) states that solar arrays generated approximately 10% of Australia's electricity in 2020-21, and is the fastest growing generation type in Australia. Large scale solar (LSS) farms are also on the rise in Australia, with almost 7 GW of generation connected to Australia's electricity grid. ARENA (2023) also outlines the benefits of LSS farms:

- More than 100 LSS projects have been accredited as registered generators by the Clean Energy Regulator, including over 80 which were connected in 2018 or later;
- The capital cost of LSS projects in Australia decreased by 25% from $1.87 to $1.39 per watt between 2015 and 2020; and
- LSS has played a significant role in meeting the Australian Government's mandated RET of generating at least 20% of electricity from renewable energy by 2020.

2.7.1.2 Project-Specific Benefits

The Project will provide renewable, low-cost energy to the NEM, and will contribute to the Commonwealth and NSW Government's emission reduction targets (refer to **Section 2.1**). This will be achieved by supporting the transition from large fossil fuel generation, towards renewable energy production and assist in GHG emission reduction.

The Project is located in the South West REZ, which will coordinate with policy in the other NSW REZs to provide up to 12 GW of renewable energy capacity within the state. The NSW Government (EnergyCo, 2023) expects the REZs to deliver benefits that include:

- Energy bill savings from reduced wholesale electricity costs;
- Emissions reduction from a cleaner energy sector;
- Reliable energy from significant amounts of new energy supply; and
- Host community benefits through strategic planning and best practice engagement and formalised benefit sharing arrangements.

In addition, the Project will provide benefits to the region and local communities including:

- Contributing to support over 220 construction jobs in the South West REZ region alone at its peak;
- Direct investment in the Murray River region;
- Opportunities for local contractors and businesses;
- Diversified income stream for rural landholders;
- Renewable low-cost energy to the national grid; and
- Development of new skilled labour in the region within the growing renewable energy industry.

2.7.2 Site Suitability

The 'Large Scale Solar Energy Guideline' (DPE, 2022) details the importance of appropriate site selection to avoid or minimise negative impacts at the outset of development. The Project Area is considered suitable for development as it is:

- Located within the Project EnergyConnect corridor, which will allow for the renewable energy generated from the Project to be supplied to the NEM;
- Located within the boundaries of the proposed South West REZ, and the Project will contribute to the future development of the REZ;
- Located within a high solar radiation area as consistent with the Global Solar Atlas (2023);
- Proximate to a number of other existing and proposed renewable energy projects located within the region and in close proximity to the Project Area;
- Located at a distance that is proximate to towns to facilitate workers' access but significant distances from a significant number of dwellings to reduce environmental amenity impacts;
- Easily accessible via the Cobb Highway; and
- Consistent with the "*RU1 – Primary Production"* zoning and will meet the following objective of the zone: to encourage sustainable primary industry production.

The Project will therefore contribute to creating greater diversity within the local economy, where land uses have experienced diversification in recent years through a growth in dryland cropping and horticulture, conservation, irrigation, native landscapes and forestry.

3 THE PROJECT

This section provides a simple and accurate overview of the preliminary Project description and includes a conceptual layout of the development for which approval is sought. It details the likely staging of Project, preliminary disturbance footprint, feasible alternative options considered and notes preliminary benefits of the preferred Project.

3.1 Project Area

The Project Area is the area of land to which the Application applies (unless otherwise stipulated in this section). The Project Area currently covers a total area of approximately 1460 ha in the Hay Local Government Area (LGA) and is zoned RU1. Land ownership is predominantly private, with small parcels or Crown land.

The Project is located approximately 60 km South of Hay in NSW. The Project Area is entirely within the South West Renewable Energy Zone (REZ) and will connect to Project EnergyConnect.

3.2 Preliminary Project Description

The Project includes the in-perpetuity approval for the construction, operation, maintenance and decommissioning of a solar farm with a nominal generating capacity of 300 MW, including associated infrastructure and ancillary activities.

The preliminary conceptual Project layout is shown in **Figure 1.2**. The indicative solar development footprint is shown on **Figure 1.2** with solar array details to be provided in the EIS.

Aspects not shown in **Figure 1.2** but which are described in **Table 5** will generally be located within the Project Area and will be confirmed in the EIS.

The final design and location of the Project elements will be subject to further detailed design and assessment, including consideration of the outcomes of technical and environmental assessments as part of the EIS. Additional disturbance areas (e.g. 'cut and fill' and Asset Protection Zones (APZ)) will also be considered during this process. The preliminary Project design components and specifications are summarised in **Table 5**. All values are approximate.

Table 5 Preliminary Project Summary

Element	Feature	Specification
Energy Generation	Solar Arrays	• 150 ha • 750,000 PV panels
Power conversion unit	Power Station (inverter, DC-AC transformer and associated equipment)	• Consisting of 43 units • Each unit approximately 2.8 m in width, 2.3 m in height
Electrical Reticulation Network	On-site Substations	• Consisting of 1 main 330 kV substation • Optional Second 'satellite' 33/330kV substation
	Internal electrical reticulation network	• 33 kV underground and potentially overhead 132kV electrical reticulation network • Solar Transmission lines which are identified as the pink line in **Figure 3.1**. • Electrical reticulation will generally follow rows of panels and parallel internal access routes. • The solar array/s will connect into the main substation directly via underground cables.
	330 kV overhead transmission lines	• Direct connection to Project EnergyConnect within the Project Area
	Switchyard	• Switch and other equipment to connect to Project EnergyConnect at main substation

Element	Feature	Specification
Other Infrastructure	Operations and Maintenance (O&M) facility	• Permanent site office and maintenance and storage facilities
	Battery Energy Storage System (BESS)	• Approximately 500 MW / 2 GWh
	Solar Temporary Storage and Construction	• Additional temporary area up to 22 ha to facilitate storage and construction of the Project
	Construction and operational infrastructure	• Permanent site office and maintenance and storage facilities • Temporary construction compounds (including office buildings, work areas, storage facilities and associated amenities) • Temporary concrete batching plants • Water management structures
Ancillary Activities	Quarrying	• Temporary site borrow pits for sand and gravel materials during construction
Access	Internal access tracks	• Nominally 6 m wide unsealed gravel access roads
	Port and Other NSW locations	• From Port via the Cobb Highway, then Jerilderie Road and/or West Burrabogie Road • Potential minor road upgrades required on the transport route
Pottinger Wind Farm Interactions	Interactions	• Infrastructure as stipulated in EIS
Personnel	Construction Operations	• 220 FTE (generally within standard construction hours) • 4 FTE 24/7
Preliminary Disturbance	Maximum Project Disturbance	• Up to 630 ha within Project Area

3.2.1 Energy Generation

The Project will utilise approximately solar photovoltaic (PV) panels with a maximum installed capacity of up to 300 megawatt peak (MWp) and an alternating current (AC) capacity of up to 231 net MW (MWn).

The solar arrays will be mounted to steel structures and utilise single axis tracking systems, with relatively little soil disturbance required.

The PV panels will be up to 2.4 m from the ground when in the horizontal position, while the lower edge of the PV panels will be no less than 0.58 m from the ground (or as indicated by the later to be defined flood depth level). The maximum height of the higher edge from ground level at the maximum tilt angle is expected to be 4.2 m. The final number and specifications will be confirmed in the EIS.

The rows of PV modules will be aligned in a north south direction, allowing the modules to rotate from east to west during the day, tracking the sun's movement.

3.2.2 Battery Energy Storage System

A centralised large-scale battery storage will support the supply of electricity to the NEM. A BESS is represented as a light blue box on Figure 3.1.

3.2.3 Power Conversion Units

The Project will include up to 43 Power Conversion Units (PCUs) containing inverters, DC-AC switch, transformer and other protections and systems to ensure efficient energy output from the Project.

The indicative dimensions for each unit is 2.8 m in width, 2.3 m in height and 1.6 m in depth. The indicative unit weight is approximately 3.7 tonnes (t), which will be within "container like" structures located within the Project Area. The final number and specification of the PCUs will be confirmed in the EIS.

3.2.4 Electrical Reticulation Network

The Project will supply energy to the NEM by connecting on site to Project EnergyConnect as generally shown on **Figure 3.1**. The electrical reticulation network will contain overhead and underground cabling to the substation(s). The interconnection infrastructure will then connect to the existing 220 kV or proposed Project EnergyConnect 330 kV transmission networks, both of which occur along the boundary of the Project Area and can be seen in **Figure 3.1**.

High-voltage overhead lines will connect the switching station to the NEM infrastructure. Underground reticulation will connect solar arrays to the power convertors (inverter) which will connect to the optional substations which in turn will connect to the main substation and switching station.

Up to two substations (inclusive of associated transformers) may be required, inclusive of system strength equipment, protection, communications equipment, switchgear and a control room.

3.2.5 Other Infrastructure

The Project will comprise various supporting infrastructure including (but not limited to) offices, workshops, LIDAR/meteorological masts, laydown areas, mobile concrete batching plant/s, rock crushing facilities (for suitable aggregates for mobile concrete batching, hardstand construction and/or for access track), borrow pits (and associated access), construction laydown areas, construction and operational compounds (including site office, maintenance and storage facilities, car parking, and security fencing).

Temporary workers accommodation for construction activities may also be required. This will be confirmed in the EIS.

3.2.6 Ancillary Activities

Ancillary onsite activities will be required to support the Project and may include: communication cables, water storage tanks, environmental monitoring equipment, hardstands, road works and access tracks, landscaping and fencing.

External ancillary activities may include: sourcing of gravel, rock and other materials for construction, sourcing of water for construction, subdivision and boundary adjustments (e.g. substations and switchyard).

3.2.7 Access

3.2.7.1 On Site

Internal access tracks will be required for the movement of equipment and materials throughout the Project Area. These tracks will facilitate the construction of the Project, as well as maintenance works required during operation and decommissioning. Where practical, these will align with existing tracks.

3.2.7.2 External

Access to the site during construction and operation will utilise the existing road network. Primary access will be via the Cobb Highway from Jerilderie Road in the north east (Site Entrance B), and West Burrabogie Road in the west (Site Entrance A). A third access point off Wargam Road (Site Entrance C) will be further assessed during the EIS stage. A separate Emergency Access is also available at the end of West Burrabogie Road.

The transport route from a suitable port(s) or other areas in NSW or Australia to the Project Area, as well as any required road upgrades will be identified as part of the EIS. Indicatively, major components may be via the Port of Newcastle or Port Kembla.

3.2.8 Pottinger Wind Farm Interactions

The Pottinger Wind Farm (subject of a separate DA) will utilise some elements of the Project as described in the EIS. This includes (at least): access roads, O&M and workshop, substations and other infrastructure facilitating connection to the NEM, BESS, workforce, switchyards and accesses.

3.3 Preliminary Disturbance Footprint

The Project will involve a temporary and permanent footprint that is subject to design refinement. For the purposes of this Scoping Report, up to 630 ha has been assumed to be disturbed.

The permanent development footprint is the area that will remain altered after construction of the Project is complete and generally includes areas that the following are situated on: crane pads, permanent access roads, transmission line poles and associated tracks, substations, switchyards, O&M Facilities and road upgrades required for the transport haul route.

The temporary development footprint is the area that will be disturbed during construction of the Project and rehabilitated after construction and generally includes (but is not limited to): temporary construction compound, concrete batching plants, underground transmission lines, transmission line access, laydown and assembly areas, temporary workers' accommodation.

3.4 Staging

Table 6 provides a summary of indicative staging for the Project with key stages discussed further below.

Table 6 Indicative Project Staging

Stage	Estimated Date Completion
Site selection and feasibility	2020 - 2021
Planning and approvals process	2023 – 2024
Construction	2026
Operations	2027
Decommissioning	After 50 years from operational commencement (or as stipulated in the EIS)

3.4.1 Construction

Construction activities are anticipated to commence in 2026 after the final design and procurement stage has been completed, and certainty on Project EnergyConnect connection is available. The construction of the solar arrays, electrical reticulation network and ancillary infrastructure is estimated to take 24 months including commissioning of the Project.

The Project will employ 220 FTE employees throughout the construction stage. Temporary workers' accommodation may be located within the Project Area or located offsite if it is determined to be required.

Existing site water management structures (including but not limited to pipelines, pumps, levees, drains and dams) will be either removed or maintained and potentially enlarged and utilised for the Project during construction and operation.

3.4.2 Operations

The Project will operate in-perpetuity with individual PV panels requiring replacement at periods up to 50 years. During operation, approximately 4 FTE permanent staff will be employed.

Maintenance works will be required during operation of the Project as such additional contractors may be required from time to time. Site maintenance activities will include management of internal roads, drainage, fencing and vegetation.

Additional maintenance of key infrastructure will also be required and will include service, repair or replacement of PV panels, inverters, transformers or components of the BESS, substation, or switchyard. The employed operational staff will also complete preventative maintenance and/or breakdown/damages works to ensure service intervals are met.

Existing site water management structures will be maintained, potentially enlarged and utilised for the Project during operations.

3.4.3 Decommissioning

Potential options for the decommissioning of the Project will be outline in the EIS. Solar arrays and infrastructure will continue to be upgraded and replaced within the assessed parameters of the EIS, and decommissioned (at the appropriate time).

At decommissioning, rehabilitation (i.e. restoration of groundcover) will occur and all infrastructure related to the Project would be removed, subject to consultation with associated landowners (i.e. roads and other required infrastructure may be retained).

3.5 Alternatives Considered

3.5.1 No Project

The Project Area is currently used for broad acre sheep grazing. The “do nothing” scenario would allow for broad acre sheep grazing to continue however would forgo up to 220 FTE jobs during construction and associated direct and indirect economic inputs to the local and regional economy of approximately $330 million during construction and $30 million during operations. The Project’s capital investment and associated flow on effects would also not be realised.

Proposed community contributions via a VPA and Community Benefit Fund would also not be realised.

The “do nothing” approach does not meet the objectives to develop renewable energy projects in NSW and does support the project objectives.

The Project aims to generate renewable energy and limit production of GHGs. To not progress the Project would not result in savings of 280,000 Mt of GHG and powering of 75,000 households annually. Not developing the Project would be a missed opportunity to contribute to the reduction of Australia’s use of fossil fuels for energy generation.

3.5.2 Alternative Sourcing of Energy

The Project lies within the area between Buronga, Hillston and Deniliquin within South West REZ declared in 2022.

The South West REZ policy (with other REZ’s) will provide up to 12 GW of renewable energy capacity in NSW. The Project will provide up to 300 MW alone.

The expected benefits of the NSW REZs are to provide more reliable energy from significant amounts of renewable energy supply, provide energy bill savings, reduce emissions, and create community partnerships (EnergyCo, 2023).

3.5.3 Alternative Site Location

During Project pre-feasibility, the Applicant assessed three locations within the South West REZ for the Project: Project Area, East of the Project Area; and South-West of the Project Area.

All locations were on flat terrain and considered suitable from a constructability assessment. All locations had access to equivalent solar resource and transport access. All options were in suitable proximity to the proposed grid connection point, however Option 3 was the furthest away. Option 2 was not pursued in order to reduce the potential noise impacts to NAD_02.

Primarily for biodiversity constraints reasons, the Project Area was selected as the lowest impact as it is located on land that almost entirely avoids high constraint land based on the preliminary biodiversity constraints assessment.

A preliminary social assessment also identified a higher level of non-associated dwelling density around other sites.

3.5.4 Maximised Site Layout

During pre-feasibility, upon confirmation of the proposed location identified a layout which maximised energy output and economic benefits to the State.

The Maximum Site Layout is shown on **Figure 3.1** which included 750,000 PV panels and approximately 630 ha of overall disturbance. Biodiversity constraints have been presented on a worst-case scenario basis to allow for consideration of impact minimisation over the life of the project, and strategies are likely to be able to be developed that balance impact minimisation with maximising the benefits a project of this nature can provide.

An iterative process was utilised to determine the optimum number of PV panels and associated infrastructure in relation to preliminary environmental assessment findings.

3.5.5 Benefits of Proposed Layout to Maximum Site Layout

The biodiversity specialist consultant, Biosis was engaged to identify vegetation categories which should be avoided during project development utilising the following principles for both PV arrays and project infrastructure:

- Category 1: Preferentially locate project infrastructure in areas of non-native vegetation and/or Category 1 exempt land (if determined present).
- Category 2: Consider the overall design requirements of the project and how that relates to impact minimisation from the outset. Avoidance of threatened species populations and habitat (or minimisation of impacts) can be undertaken during future design stages.
- Category 3: Minimise project infrastructure in High Constraint areas to reduce direct and indirect impacts. Impacts minimisation strategies including maintenance of infrastructure-free zones (flyways) between wetlands (stepping-stones) and other habitat feature should be employed during project design. Implement measures in designing solar arrays to dissuade perching and attracting aerial fauna. Direct and indirect impact to TECs should be avoided and minimised and all impacts will require justification for state and Commonwealth approvals.
- Category 4: No areas of DPE mapped Important Areas of Plains Wanderer habitat, or additional 100m buffer area, are expected to be impacted by the Project. Any future changes to project infrastructure are to avoid these No Go areas.

Biosis' assessment of ecological impacts is discussed at **Section 6.4**.

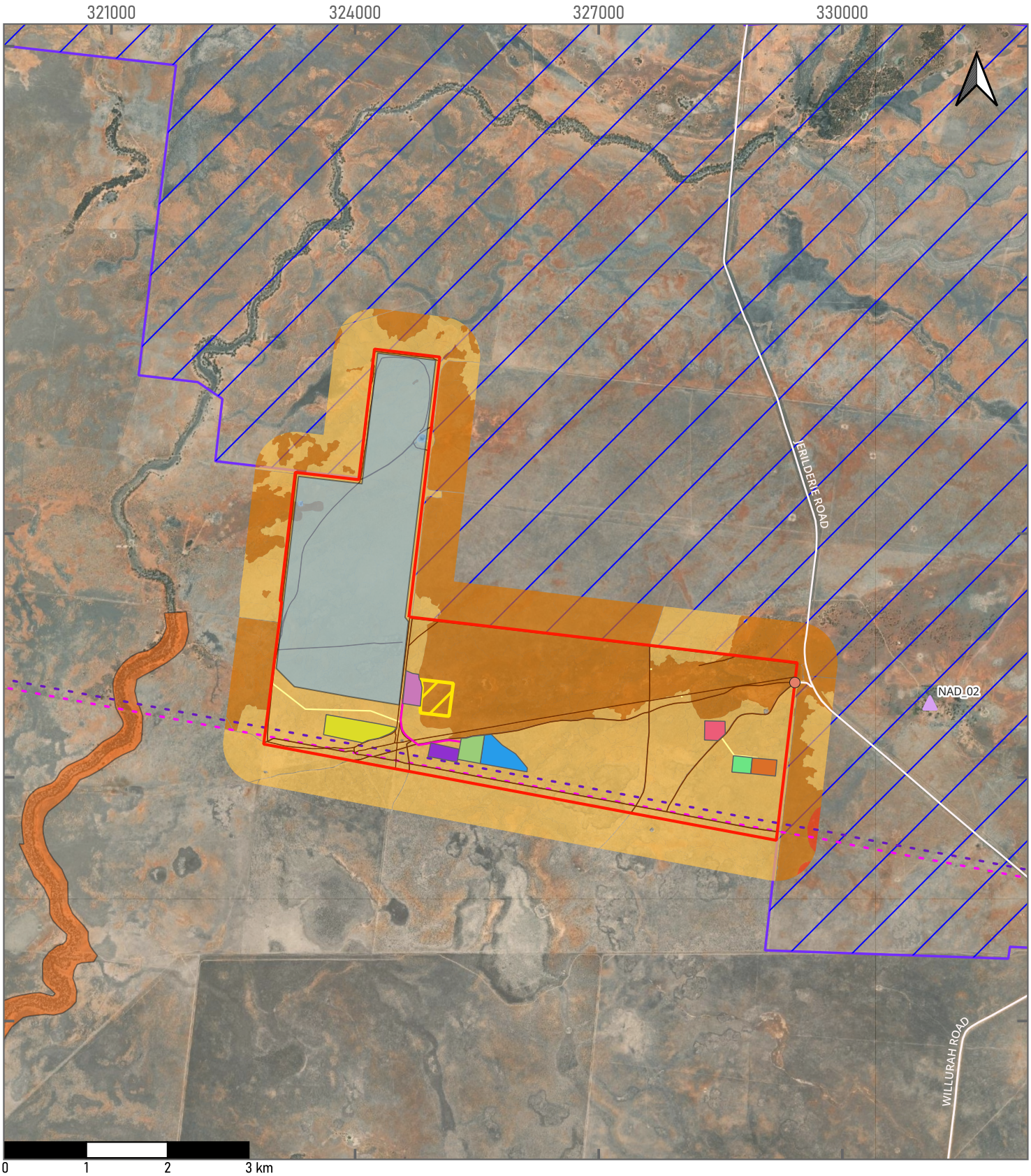
Noise, social and visual specialists were also requested to advise if any layout changes were required to response to early community engagement and/or unacceptable predicted impacts and are discussed in **Sections 6.3**, **6.12 and 6.2**, respectively.

A minimum setback of 5 km from any non-associated dwelling was adopted in the Proposed Layout. The layout will be further considered in the EIS in response to detailed findings.

Table 7 and **Figure 3.1** provides a summary of the environmental constraints of the Project compared to the maximum site layout.

Table 7 Benefits of the Project compared to the Maximum Site Layout

Feature	Layout Changes Detail	Ecology Benefits	Visual, Noise, Social or Benefits
PV Array	Visual: Ensuring the solar farm is not easily seen. Arranging panels in a way that follows the existing land contours and using lower-profile mounting systems.	None	Ensures solar farm is not easily seen.
Other infrastructure	Relocated: Solar Temporary Storage and Construction (moved up to 1 km).	15.14 ha of Cat 3 habitat	None, as no exceedances above relevant criteria identified.



SOMEVA RENEWABLES

Pottinger Solar Farm

Figure 3.1: Inital Project Constraints

Date: 05/06/2023

CRS: GDA2020 / MGA zone 55

Scale: 65000

Basemap: ESRI Satellite (2022)

Data Sources: Spatial Services, NSW Planning Portal
Prepared By: EL Reviewed By: TS
Version: 5.6
This figure may contain third party information. This figure is provided for information purposes only and may not be to scale.

Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound
- Solar Temporary Storage and Construction - Relocated

Neighbouring Projects
- Bullawah Wind Farm Project Boundary

Existing Infrastructure
- Existing 220 kV
- Project Energy Connect
- Main Roads
- Existing Acccess Tracks

Dwellings
- Non-Associated (Associated with other project)

Initial Project Constraints
- No-go
- High constraint
- Moderate constraint
- Preliminary Wetland/ Riparian Vegetation Mapping

4 STATUTORY CONTEXT

This section identifies the relevant statutory requirements for both NSW and Commonwealth legislation for in relation to all aspects of the Project. It identifies relevant statutory requirements that must be considered before the Application is determined. A discussion on how each is relevant to the justification and evaluation of the Project is included. It includes a grouped and tabulated summary of requirements.

4.1 Power to Grant Approval

NSW approval for the Project will be sought under Part 4, Division 4.7 of the EP&A Act, which outlines the approval pathway for development deemed to be SSD.

Section 4.36(2) of the EP&A Act states:

> "(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development."

Relevant SEPPs include *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP).

Under section 2.6(1) of the Planning Systems SEPP, a development is classified as SSD if:

> "(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and (b) the development is specified in Schedule 1 or 2…"

Schedule 1, section 20 in Chapter 2 of the Planning Systems SEPP determines "electricity generating works" to be SSD if it meets the following criteria:

> "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: has a capital investment value of more than $30 million…"

The term "capital investment value" is not defined in the Planning Systems SEPP. Clause 2.2(3) of the Planning System SEPP provides that language used in Chapter 2 of the Planning Systems SEPP has the same meaning as per the standard local environmental planning instrument prescribed by the *Standard Instrument (Local Environmental Plans) Order 2006*. Its Dictionary defines "electricity generating works" as "electricity generating works means a building or place used for the purpose of - (a) making or generating electricity, or (b) electricity storage."

As the Project involves development for the purpose of electricity generating works using solar power and will have a capital investment value of more than $30 million, the Project is classified as SSD under Part 4.

4.2 Permissibility

4.2.1 Transport and Infrastructure SEPP 2021

The permissibility of solar farm developments in NSW is determined by the T&I SEPP.

Section 2.36(1) states that "electricity generating works" may be carried out with development consent on land within a prescribed rural, industrial or special use zone.

The Project Area is zoned RU1 Primary Production within the Hay LEP 2011. Electricity generating works are not permitted within the RU1 zoning. Clause 2.36(1)(b) of the T&I SEPP states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone.

Under clause 2.7(1) of the TI SEPP, the provisions prevail where there are inconsistencies with any other EPIs, including LEPs. Therefore, the Project is permissible with development consent.

4.2.2 Electricity Infrastructure Investment Act 2020

The South West REZ was formally declared by the Minister for Energy under section 23(1) of the *Electricity Infrastructure Investment Act 2020* and published in the NSW Gazette (NSW Government, 2022) on 4 November 2022. The South West REZ may support up to 2.5 GW of additional transmission capacity.

The Project is located entirely within the South West REZ as shown in **Figure 1.1**.

4.3 Other Approvals

Table 8 identifies other approvals and pre-conditions required for exercising the power to grant approval for the Project and justifies each in relation to sections 4.42 of the EP&A Act, federal approvals and other NSW approvals. It also describes approvals that would have been required if the Project was not a SSD Project in accordance with section 4.41 of the EP&A Act.

Table 8 Other Required Approvals

Approval Category	Legislation	Requirement
Consistent Approvals As per section 4.42 of the EP&A Act	*Roads Act 1993* (Roads Act)	Consent from the appropriate roads' authority under section 138 of the Roads Act is required for any works undertaken on or under public roads. **An approval for works in relation to public roads will be required for the Project where public road network upgrades are identified as a direct result of the Project**.
	Crown Land Management Act 2016 (CL Act)	The CL Act provides for the administration and management of Crown land in NSW. Crown land may not be occupied, used, sold, leased, licensed, dedicated, reserved, or otherwise dealt with unless authorised by the CL Act. **Crown land "paper roads" exist in the Project Area (see Figure 2.4).** **The landholder is in consultation with Crown lands to close these paper roads. It is expected that these roads will be closed prior to construction.** **However, if roads continue to exist at the commencement of construction, an appropriate licence will be sought.** **Further information to the closure to these crown roads will be provided in the EIS.**
	Protection of the Environment Operations Act 1997 (POEO Act)	As the solar generation works required for this Project do not fall under the definition of 'electricity generation', **an EPL will not be required for the Project.**
	Coal Mine Subsidence Compensation Act 2017 (CMS Act)	Part 3 clause 22 of the CMS Act specifies that an application for approval to alter or erect improvements, or to subdivide land, within a mine subsidence district is to be made. **As the Project Area is not located on or adjacent to mine subsidence land, no engagement or approvals in this regard are required.**
	Mining Act 1992	The *Mining Act 1992* aims to encourage and facilitate the discovery and development of mineral resources in NSW. A review of MinView (MinView, 2023) indicates there are no exploration licences or leases within the Project Area. **As the Project Area is not located on or adjacent to any lands where an exploration licence exists, no engagement or approvals in this regard are required. i**
	Petroleum (Onshore) Act 1991	The *Petroleum (Onshore) Act 1991* aims to encourage and facilitate the discovery and development of petroleum resources in NSW. **A review of MinView (MinView, 2023) indicates there are no existing petroleum production leases within the Project Area.** **As the Project Area is not located on or adjacent to any lands where a petroleum production lease exists, no engagement approvals in this regard are required.**

Approval Category	Legislation	Requirement
	Pipelines Act 1967	The *Pipelines Act 1967* controls pipeline construction, operation, and licensing in NSW. Part 3 section 11 of the *Pipelines Act 1967* requires a person to be a registered holder of a licence before any construction of a pipeline commences. **The Project does not involve the construction and operation of water pipelines and as such, no approvals in this regard are required.**
Native Title (Cwlth)	*Native Title Act 1993* (NT Act)	For any Crown land within the Project Area where Native Title has not been extinguished under the NT Act a strategy should be developed. No current claims under the NT Act exist within the Project Area. **Crown land is described further at Section 2.3.2.1. Any NT Act matters will be considered further by the Applicant during the preparation of the EIS.**
EPBC Act Approval (Cwlth)	*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	Approval from the Australian Minister for the Environment and Heritage for the is required for any action that will or is likely to have a significant impact on one or more Matters of National Environmental Significance (MNES) under the EPBC Act. The Project will be assessed in the manner specified in Schedule 1 to that Agreement including addressing the matters outlined in Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulation 2000.* **Biodiversity is further discussed in Section 6.4. An application under Part 9 of the EPBC Act will be prepared and submitted.**
	'Amending Agreement – No.1 - New South Wales Assessment Bilateral Agreement' (Bilateral Agreement)	Where a NSW SSD Project is deemed "Controlled" it is assessed in accordance with the 'Bilateral Agreement' (Commonwealth of Australia & NSW, 2020). Under the Bilateral Agreement, the NSW determining authority's Assessment Report will be provided to DCCEEW inclusive of a recommendation as to whether the Project should be approved and conditions that may be applied to any Federal approval. **Biodiversity is further discussed in Section 6.4. An application under Part 9 of the EPBC Act will be prepared and submitted.**
Other Approvals	*Aboriginal Land Rights Act 1983* (AL Act)	The AL Act establishes Aboriginal Land Councils at State and Local levels. These Land Councils have a statutory obligation under the Act to take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area. Under the Act, Aboriginal Land Councils can claim Crown land which is not lawfully used or occupied and that are not needed, nor likely to be needed, for an essential public purpose. The Project Area is located within the Hay and Deniliquin Local Aboriginal Land Council (LALC) boundaries. No current claims under the AL Act exist within the Project Area. **Crown land is described further at Section 2.3.2.1. Any NT Act matters will be considered further by the Applicant during the preparation of the EIS.**
	Water Management Act 2000 (WM Act)	Any person or organisation, including a local water utility, taking water from a water source must be authorised to take water by a water access licence and a water supply work approval under section 60A of the WM Act unless an exemption applies. **The requirement for any WM Act approvals will be determined as part of the EIS.**
	Conveyancing Act 1919 (Conveyancing Act)	The Project Area will require lease of premises under the Conveyancing Act. Subdivision consent is generally not required under section 23G of the Conveyancing Act, may apply if subdivision for the purpose of construction, operation and maintenance of a substation is required. **The need for any lease from the owners of the land and or subdivision will be determined as part of the EIS.**

Approval Category	Legislation	Requirement
	Biodiversity Conservation Act 2016 (BC Act)	Part 7, Division 2 of the BC Act specifies the requirements for a biodiversity assessment depending on the planning pathway under the EP&A Act. If an activity is likely to have a significant impact or will be carried out in a declared area of outstanding biodiversity value, the proponent must apply the Biodiversity Assessment Method (BAM) and a Biodiversity Development Assessment Report (BDAR). **A BDAR will be prepared for the Project and provide a discussion of the management and protection of listed threatened species of native flora and fauna and threatened ecological communities (TECs) and assess biodiversity offsets consistent with the Biodiversity Offset Scheme (BOS). Biodiversity is discussed at Section 6.4.**
	Local Land Services Act 2013 (LLS Act)	Division 5 clause 60S, clearing of native vegetation in a regulated rural area is authorised without any approval or other authority under this Part if it is clearing carried out by or on behalf of the landholder in accordance with a land management (native vegetation) code under this Division. **Biodiversity is further discussed in Section 6.4. There is no Category 1 "Exempt Land" within the Project Area. An assessment of any 'Category 2 "regulated land" and "excluded land" relevant to the Project will be conducted during the EIS.**
Approvals not required under SSD **section 4.41 of the EP&A Act**	*Fisheries Management Act 1994* (FM Act)	Section 201, 205 and 219 require a permit for the purpose of dredging works, any harm to marine vegetation, or for any activities that block the passage of fish, respectively. **The Project will not involve dredging works, impact marine vegetation or block the passage of fish and as such, no approvals in this regard are required. The methodology of the BDAR is discussed at Section 6.4.3.**
	Heritage Act 1977 (Heritage Act)	Approval is required to carry out an act, matter or thing referred to in Section 57(1), or an excavation permit under section 139. **The Project will not require an approval under section 57 or 139 subject to section 4.41 of the EP&A Act. The methodology of the Heritage assessment is discussed at Section 6.6.3.**
	National Parks and Wildlife Act 1974 (NPW Act)	Sections 86, 87 and 90 require approval for any works which may impact an item of Aboriginal heritage. **The Project will not require approvals under 86,87 or 90 subject to section 4.41 of the EP&A Act. The methodology of the Heritage assessment is discussed at Section 6.6.3.**
	Rural Fires Act 1997 (RF Act)	Where a project requires subdivision for residential or rural residential development, a bush fire safety authority under Section 100B is required. **An approval under section 100B will not be required subject to section 4.41 of the EP&A Act. The methodology of the Bushfire assessment is discussed at Section 6.13.2.**
	Water Management Act 2000 (WM Act)	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 WM Act is required where impacts are predicted. **The methodology of the water assessment is discussed at Section 6.8 which will determine if a water use approval under the WM Act is required for the Project.**

4.4 Mandatory Matters for Consideration

Table 9 describes mandatory conditions that must be satisfied before the determining Authority may grant approval.

Table 9 Mandatory Considerations – Planning

Statutory Reference	Mandatory Consideration
EP&A Act and Regulation	
Section 1.3 - Objects of the Act	The Objects of the Act are: a) 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, b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment, c) to promote the orderly and economic use and development of land, d) to promote the delivery and maintenance of affordable housing, e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats, f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage), g) to promote good design and amenity of the built environment, h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants, i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State, j) to provide increased opportunity for community participation in environmental planning and assessment. **The EIS will address each relevant Object of the Act and provide a justification on how the Project meets each.**
Section 4.15 – Evaluation	The consent authority is required to take the following matters into consideration in determining a development application: • Relevant environmental planning instruments including – T&I SEPP – *State Environmental Planning Policy (Resilience and Hazards) 2021* (Hazards SEPP) – SEPP (Biodiversity and Conservation) 2021 – Hay LEP • The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality • The suitability of the site for the development • Any submissions made in accordance with this Act or the regulations • The public interest **The EIS will address each evaluation matter and provide relevant detail in relation to how the Project is consistent with each.**
Relevant EPIs	
T&I SEPP	See **Section 4.2.1**

Statutory Reference	Mandatory Consideration
Hazards SEPP – Chapter 3	Chapter 3 of the Hazards SEPP assesses the potential hazards associated with a Project by providing definitions and guidelines for hazardous industry, offensive industry, hazardous storage establishments, and offensive storage establishments. In accordance with Section 3.7 of Hazards SEPP, consideration will be given to current circulars or guidelines published by DPE relating to hazardous or offensive development, including: • Hazardous Industry Planning Advisory Paper No 3 – Risk Assessment • Hazardous Industry Planning Advisory Paper No 12 – Hazards **A preliminary risk screening assessment will be undertaken for the Project as described in Section 6.13.1.**
Hazards SEPP – Chapter 4	Chapter 4 of the Hazards SEPP provides a state-wide planning approach to the remediation of contaminated land. Under Section 4.6(1) of the Resilience and Hazards SEPP, a consent authority is required to consider whether a proposed development site is contaminated before granting consent. **An assessment will be prepared to determine the potential contamination risk associated with the Project as described in Section 6.13.1. Noting the agricultural land use of the Project Area, the assessment will take in the consideration of historical land use that may have resulted in contamination within and surrounding the Project Area.**
Hay Local Environmental Plan 2011 (Hay LEP)	Relevant components of the Hay LEP include: • Section 1.2 – Aims of Plan • Land Use Table – Objectives and permissible uses of the RU1 – Primary Production zone **The EIS will address relevant sections of the Hay LEP.**
Development Control Plans (DCP)	Under Section 2.10 of the Planning Systems SEPP, DCPs do not apply to SSD projects as: *"Exclusion of application of the development control plans* *Development control plans (whether made before or after the commencement of this policy) do not apply to-* *a) State significant development, or* *b) development for which a relevant council is the consent authority under section 4.37 of the Act."* **As such, DCPs do not apply to the Project Area.**

5 STAKEHOLDER ENGAGEMENT

5.1 Introduction

To date, the engagement planning has identified key stakeholders and suitable engagement strategies specific to each stakeholder group and stage of the Project. Early engagement with host landowners, nearby neighbours (within 8 km of Project Area), LALCs and local Councils noted their preference for the engagement methods identified in **Table 10**.

Consultation methods will continue to be modified in response to stakeholder feedback, as additional stakeholders are identified and as monitoring data is captured, providing a more comprehensive understanding of the impact of each engagement tool.

5.2 Stakeholder Engagement Plan

Consultation methods will continue to be modified in response to stakeholder feedback, as additional stakeholders are identified and as monitoring data is captured, providing a more comprehensive understanding of the impact of each engagement tool.

Table 10 Preferred Engagement Methods

Indicative Preference Level	Engagement Tool
High	Individual meetings (face-to-face / 1-1)
	Email communications (for significant Project updates and general notification of when we are in-region for follow up meetings / engagements)
	Limited group size Project briefings/ meetings (both virtual and in-person), among key stakeholder groups (mainly nearby neighbours indicate preference for this) Groups sizes have typically included 2-3 family members and/or individuals at one time
Medium	Individual meetings (phone and video conference calls methods)
	Community / stakeholder surveys, including options for follow up face-to-face engagements / survey administering
	Project website (Pottinger Energy Park) with frequent updates and direct notification of updates to key stakeholders by the Applicant
	Letters and newsletters (via email and mailbox drops)
	Newspaper ad updates (to Hay and Deniliquin and surrounds community)
Low	Mass community information sessions (virtual, and drop-in) – which are planned to commence post-issuing of SEARs.

5.3 Stakeholder Identification

Table 11 identifies a diverse range of community stakeholder groups to be potentially engaged throughout the Project. The following table will be modified in response to stakeholder feedback and as additional stakeholders are identified via ‘snowball sampling’. A detailed stakeholder register is maintained in Someva’s secure cloud-based community engagement software program to ensure privacy and confidentiality is maintained (where required).

Table 11 Initial Stakeholder Identification

Stakeholder Group	Details / Key Areas of Interest / Risk Responses
Associated (solar farm and other Project infrastructure - host landowners)	• One landowner hosting the Project are financial beneficiaries. Have direct impacts from construction and operational activities, including traffic management, land management, electrical infrastructure, and road maintenance.
Neighbours (within 8 km), non-associated dwellings. Direct adjoining landowners and residents adjacent the Project Area.	• Four neighbours identified (initial assessment), with a further two neighbours around 10 km from Project Area, and 10+ neighbour dwellings between 12-21 km away from Project Area. • Direct impacts from construction and operational activities. • Visual impacts from the Project and related infrastructure are likely.
Federal Government Departments and representative/s	• MP Sussan Ley, Member for Farrer. Deputy Leader of the Opposition. • Department of Regional NSW • Department of Environment; Department of Infrastructure and Regional Development; Department of Agriculture, Water and Environment • MP Tanya Plibersek, Minister for the Environment and Water.
State Government Agencies, Departments and Representatives	• Biodiversity and Conservation Directorate (BCD) • Transport for NSW (TfNSW) • DPE Water • MP Helen Jennifer Dalton, Member for Murray. Member of the Legislative Assembly, • MP Penny Sharpe, Minister for portfolios covering Energy, Environment, Heritage and Climate Change. Member of the Legislative Assembly. • NSW Department of Planning and Environment; Transport for NSW; Environmental Protection Authority; Office of Environment and Heritage; Energy Corporation of NSW; NSW National Parks and Wildlife Services; Australian Alpine National Park.
Local Council Representatives (Hay Shire Council)	• Hay Shire a. Council: David Webb (General Manager); Jack Treblanche (Director Planning and Development); Alison McLean (Economic Development Officer); Mark Dowling (Director Corporate and Community Services) b. Councillors: Cr Carol Oataway (Mayor); Cr Lionel Garner (Deputy Mayor); Cr Geoff Chapman; Cr Jenny Dwyer; Cr Martyn Quinn; Cr Paul Porter; Cr Peter Handford.
Nearby town centres	• Near: Hay; Deniliquin; Booroorban (village) • Further afar: Coleambally; Conargo; Swan Hill; Griffith.
NSW Roads and Maritime Authority	• NSW R&M are responsible for building and maintaining road infrastructure and managing the day-to-day compliance and safety for roads and waterways in NSW.
Local Media	• Radio stations; newspapers; community newsletters; community Facebook groups. This includes Deniliquin Pastoral Times, The Riverine Grazier, and ABC Radio Riverina.
Local community members	• Community members, organisations and groups who live greater than 12 km from proposed Project infrastructure.
Emergency Services	• Hay / Deniliquin Hospital and Health Service • Fire and Rescue NSW Fire Station – Deniliquin and Hay • NSW Ambulance– Deniliquin and Hay • NSW Police Service– Deniliquin and Hay

Stakeholder Group	Details / Key Areas of Interest / Risk Responses
Airports	• Hay Airport. • Ravensworth Airport • Deniliquin Airport
Traditional Owners and other Aboriginal Groups	• Hay Local Aboriginal Land Council • Deniliquin Local Aboriginal Land Council • Registered Aboriginal Parties (RAPs) • Nari Nari Tribal Council (Hay) • Hay Aboriginal Community Corporation Working Party • Hay Aboriginal Medical Service • NSW Aboriginal Land Council
Local Business and Employment Agencies	• Regional/local suppliers, businesses, and industry capability networks. • Local Business Chambers
Industry and interest groups	• Clean Energy Council; NSW Farmers Association; and others, as identified post-SEARs.
Local Schools and Education Institutions	• Primary and high schools, such as HCS Preschool; Booligal Public School; Hay Public School Hay War Memorial High School • Education or other Hay School of the Air • Hay Inc. (Rural Education Program) • TAFE NSW Hay
Electricity / Utility Network Service Providers	• The three electricity distributors in NSW: Essential Energy; Endeavour Energy; Ausgrid • Telstra; Optus; NBNCo
Other renewable energy industry interest groups	• South West REZ industry reference group • Surrounding largescale renewable energy project developers

5.4 Engagement Conducted

The Project team has undertaken two in-region visits (December 2022; February 2023) to engage with key stakeholders and soft-launch the Project to reduce community engagement fatigue. Direct engagement, including meetings with neighbour groups near the Project Area is being prioritised to ensure their active engagement with the Project.

The Project website was launched in March 2023 at https://www.somevarenewables.com.au/project-pottinger. It includes access to the online community survey, Project Fact Sheet, Frequently Asked Questions, and key points of contact to engage directly and discuss the Project.

Outcomes from activities undertaken to date are shown in **Table 12**. Dwellings are shown on **Figure 2.3**.

Table 12 Outcomes from Stakeholder Engagement

Stakeholder	Date/s	Consultation Activity and Key Outcomes
Host Landowners (AD #1)	Continuous since Project inception (2020)	Provided Project updates >three times per month, including to planning and development schedules proposed. Regular updates regarding stakeholder engagement, ecological, visual, noise and other survey work. Favourable responses received.
Neighbours (NADs) within 8 km of the Project Area. (NADs #01-04) – 4 NAD landowners identified, noting some NADs own multiple dwellings across their properties. The Project Team is in direct contact with all 4 of the NADs, including NAD11 (10 km from Project Area).	12 December 2022 onwards	Two in-region consultations were conducted, 12-13 December 2022 and 7-9 February 2023, coupled with remote consultations, to directly engage with stakeholders (focusing on neighbours within 8 km zone) and 'ground-truth' desktop assessments. >30 communications via phone calls, emails, and face-to-face meetings with all identified landowners of the identified NADs provided overview of the Project. All four NADs support the project: • Three of the NADs, who are also associated with other renewable energy projects, have provided verbal support for the Project. • Only NAD_03 is identified as not hosting any related aspect of renewable energy development projects at the time of this report.
Hay Council General Manager; Economic Development Officer.	29 Nov 2022 onwards	13 December 2022: Presentation to Hay Council leader/s to introduce the Project and the Project Team. Supportive response from Council. Key points of contact established for ongoing Project engagement. Project team continues to engage with the identified Hay council point of contact regularly to ensure relevant updates of project progress and stakeholder engagements.
Sussan Ley, MP (Federal Government, Member for Farrer)	29 Nov 2022 onwards.	Emails and phone calls to coordinate meetings and introduce the Project and the company. 02 February 2023: face to face meeting with MP Ley to brief on the project. Supportive response received. Project team committed to frequent updates as project development progresses.

Stakeholder	Date/s	Consultation Activity and Key Outcomes
Helen Dalton, MP (State Government, Member for Murray).	29 Nov 2022 onwards	Seven emails and four phone calls to introduce the Project and the company. Acknowledgement of communication received. 31 Jan 2023: MP's office advised via phone call they would be a to meet the earliest they could meet would be end of March. We agreed to send through project-significant updates via email to ensure MP Dalton's office is kept updated on the project. Latest project briefing material was email through following the phone call.
Department of Planning and Environment (DPE)	19 January 2023	Scoping phase update and introduction of the Project. Key points of contact established.
Biodiversity and Conservation Directorate (BCD)	2 June 2023	Following a request to BCD on 26 May 2023, BCD confirmed on 2 June 2023 the following in regard to early engagement on the Project: "*while our preference is always for early consultation on proposed SSD projects, in this instance we are OK to have that engagement once we receive the Scoping Report and during the preparation of SEARs.*"
Transport for NSW	7 June 2023	Following a request to TfNSW on 26 May 2023, TfNSW had no comment on the transport route for Project infrastructure, and that the TTIA be prepared during the EIS phase of the Project.
Hay Local Aboriginal Land Council (LALC)	5 December 2022 onwards.	One face-to-face meeting with Hay LALC on 12 December 2022. >10 emails and five phone calls to sustain engagement and coordinate schedules. Favourable response and support received. Engagement and Project information provided via email and f2f. Ongoing engagement to ensure the Project Team are engaging with Registered Aboriginal Parties authorised to engage with the Project on behalf of their communities.
Deniliquin Local Aboriginal Land Council (LALC)	5 December 2022 onwards	One face-to-face meeting with Deniliquin LALC on 9 February 2023 to introduce the Project and discuss strategies to risk-mitigate potential Project impacts on Aboriginal heritage and other cultural matters. >Four phone calls and four emails prior to f2f meeting. Follow up video-calls to brief on project progress and next steps in April. Favourable response and support received. Deniliquin LALC are keen to be involved in the cultural heritage management and any future soil turn activities at identified Project sites that fall on the Edward River LGA side of the Project.

5.5 Community Feedback to Date

The key issues identified from the community engagement to date show a broad suite of interests regarding all aspects of the Project including in the planning and assessment of the Project, environmental and social impacts, opportunities for economic and other social benefits and the Project's interaction with other large developments in the region. This is detailed below in **Table 13**.

Table 13 Feedback from initial Stakeholder Consultation

Concern/s Raised	Source of Feedback	Feedback Received	Issues raised
A change in the natural environment and visual amenity	NAD neighbours within 8 km of the Project.	A minor issue raised by stakeholders for this Project. The flat uninterrupted views of Hay plains carry value for some local neighbours, however it was noted by all neighbours they support large-scale renewable development in their area.	Visual impact on Hay Plains
Project benefits sharing.	NAD Neighbours within 8 km of the Project; local councils (Hay Shire); LALCs	Access to a neighbour benefit sharing program (i.e. project proximity revenue streams and/or other benefits) was noted by the Project's neighbours as something they would value. The value of establishing a consistent standard across any proposed neighbour benefits sharing that may emerge from nearby projects as well was noted. VPAs were cited as a significant benefit local stakeholders were envisaging, though concerns were raised over the need to potentially consolidate efforts, design and administration of these funds with other potential renewable energy projects that may emerge in the LGA due to low local capacity.	Social impact and economic benefits to neighbours
Housing and accommodation	Local councils (Hay Shire).	Hay and Edward River councils noted they are under existing housing demand pressures, and this issue is expected to increase as proposed largescale renewable development projects in the area approach construction phase in the coming years. Both councils advised a coordinated approach to address construction-phase accommodation matters for nearby renewable energy projects needs to be made a priority by Applicants.	Social impact to locally communities
Local infrastructure (road network and electricity grid)	Host landowners; Neighbours within 8 km of the Project; local council (Hay Shire).	Several stakeholders wanted to understand the Project scope and scale, and extent of potential local infrastructure upgrades, including to roads and energy distribution networks (grid / transmission line upgrades). Concerns were raised by project neighbours about the constraints on the electricity grid stemming from additional renewable energy generation projects in the area. This concern also stems from the reality that three of the four project neighbours are also hosting renewable energy development projects (wind/solar), so a related concern to note is the potential for future community disharmony / division to emerge as some projects proceed at the cost of others (due to grid access or other constraints).	Social impact to locally communities Traffic impacts Cumulative impact to dwellings
Community disharmony / division	Host landowners; Neighbours within 8 km of the Project; local council (Hay Shire).	Noting the above, three of the four project neighbours are also hosting renewable energy development projects (wind/solar) on their property. All project neighbours are aware there is limited access to the grid to enable energy transmission, which is a critical enabler to project development success. The potential for disharmony to emerge between project neighbours, as some projects proceed at the cost of others (due to grid access constraints), was frequently noted.	Cumulative and social impact to associated and non-associated dwellings
Aboriginal Heritage	LALCs (Hay; Deniliquin); Host landowners; local council (Hay Shire).	Minimal concerns raised by both LALCs following initial discussions about potential scope and future impacts of the Project. Both LALCs noted the value of early engagement, including through site visit/s to ensure familiarity and early identification of potential sensitive locations for further investigation during EIS.	Aboriginal heritage impact

Concern/s Raised	Source of Feedback	Feedback Received	Issues raised
Diversity of income streams	Host landowners; Neighbours within 8 km of the Project; local council (Hay Shire); LALCs	Stakeholders noted the severe impact of the recent droughts on the landscape and ability to continue stock grazing (sheep and cattle) activities. Sharing of economic benefits (financial) resulting from the Project was noted as a key benefit sought to improve agribusiness resilience. One local business operator (project neighbour) also noted the potential for eco-tourism opportunities to emerge, given the large scale and number of renewable energy projects proposed.	Social impact to communities
Demands for local goods and services	Host landowners; local council (Hay Shire); LALC	This project is forecasted to result in a significant increase in demand for local goods and services, and result in the emergence of a renewable energy service economy. Several stakeholders noted the value of exploring 'Local Content' targets for the Project (i.e. prioritising supply from local goods/services first, where appropriate), including for First Nations peoples.	Social impact to communities
Fires (grass and bush)	Neighbours within 8 km of the Project	Stakeholders noted the enduring risk of bush and grass fires in the area to agribusiness operations and livelihoods. Stakeholders noted the potential benefits that may result from the project due to upgraded local infrastructure and increased local traffic (early fire detection).	Biodiversity and bushfire impact to surrounding areas
Health and wellbeing	Neighbours within 8 km of the Project	There were no concerns raised through consultations about the potential for any other health/wellbeing matters that typically emerge from community feedback for renewable energy projects (such as noise output, electromagnetic fields, visual, blade throw or any other matter along this line).	Amenity
Future solar farm decommissioning	Neighbour within 8 km of the Project	Limited number of stakeholders (neighbours) cited concerns about the extent to which solar panels and related infrastructure could be recycled in the future and/or replaced ('re-energised'). The neighbours want assurance that they will continue to deliver value or be replaced/removed in the future. They also wanted to understand what happens if the Project is on-sold to another operator and wanted assurances the renewable energy generating assets would not be abandoned.	Decommissioning impacts

5.6 Proposed Future Engagement

Details of the proposed future engagement based on current community and stakeholder engagement are provided in **Table 14**. Comprehensive and relevant regulatory engagement (including DPE Water) will be undertaken during the preparation of the EIS.

Table 14 Proposed Future Engagement

Stakeholder Group	Engagement Activities
Host landowners	• Face-to-face (f2f) meetings • Email / letter / phone calls / factsheet / newsletter updates / website / direct contact line (mobile + email) • Community information sessions
Neighbours (landowners) within 8 km of the Project site	• Door knocking • f2f meetings • Email / letter / phone calls / factsheet / newsletter updates / website / direct contact line • Community information sessions
Nearby towns	• Information sessions (virtual and in-region) / website / direct contact line (mobile + email) / newsletter and email updates • Advertising in local newspaper and via local council channels
Hay Shire Council	• f2f meetings • Email / letter / phone calls / factsheet / newsletter updates / website / direct contact line (mobile + email) • Community information sessions
Local Businesses	• Information sessions (virtual and in-region) / website / direct contact line (mobile + email) / newsletter and email updates • Advertising in local newspaper and via local council channels
Traditional Owners and other Aboriginal Groups	• f2f meetings • Email / letter / phone calls / factsheet / newsletter updates / website / direct contact line
Emergency Services (Hay and Deniliquin), including local Hay Airport	• Meetings / briefings / emails / phone calls / factsheet + Project updates / website / direct contact line (mobile + email) • Advertising in local newspaper and via local council channels • Information sessions
Chambers of Commerce	• Meetings / information sessions (virtual and in-region) / website / direct contact line (mobile + email) / newsletter and email updates • Advertising in local newspaper and via local council channels
Local Media	• Presentations • Emails / factsheet + Project updates / website / direct contact line (mobile + email) • Information sessions
Federal Government Departments and representative/s	• f2f meetings • Email / letter / phone calls / factsheet / newsletter updates / website / direct contact line (mobile + email)
State Government Agencies, Departments, and representative/s	• f2f meetings or remote/virtual • Email / letter / phone calls / factsheet / newsletter updates / website / direct contact line (mobile + email)
Community Organisations	• Emails / factsheet + Project updates / website / direct contact line (mobile + email) • Information sessions

6 ASSESSMENT OF IMPACTS

This section outlines matters requiring further assessment in the EIS and the level of assessment that will be undertaken for each aspect.

6.1 Aspect Categorisation

Appendix A provides a list of all potential environmental and social issues which have been identified in relation with the Scoping Report Guidelines.

Each aspect has been considered in relation to the project description at **Section 3** and allocated a relevant level of assessment.

The key matters requiring more detailed assessments have been identified on a preliminary assessment of the Project Area and by taking into consideration other solar farm developments in NSW.

6.2 Visual

A Preliminary Visual and Lighting Impact Assessment (PLVIA) has been prepared by Moir Landscape Architecture Pty Ltd (MLA) and is included in full at **Appendix C**. Relevant guidelines and policies are listed at **Appendix A**.

A summary of the key background, preliminary assessment and EIS assessment approach is provided below.

6.2.1 Preliminary Assessment

The PLVIA Study Area conservatively includes the Project Area and surrounding land up to 7 km from the nearest solar array as no non-associated dwellings were located within 5 km.

The closest landmarks include the towns of Hay and Booroorban, South West Woodlands Nature Reserve and Oolambeyan National Park (refer to **Figure 1.1**).

The following has been undertaken to develop the PVIA:

- Desktop Assessment:
  - Application of Preliminary Assessment Tools to determine receivers with potential sensitivity;
  - Preparation of a preliminary Zone of Visual Influence (ZVI) to establish a theoretical zone of visibility of the Project;
  - Identification of key viewpoints and landscape features using available mapping and background documents;
- Site Inspection:
  - Photographic survey work for the assessment was undertaken in February 2023 to carry out a preliminary assessment of the existing landscape character from publicly accessible land within the Study Area. The findings of the site inspection have been included in the PLVIA and will form the basis for discussion with the community in the EIS Phase of the Project; and
- Community Consultation:
  - Community consultation has been undertaken through the scoping phase of the Project. Results of the community consultation have also been utilised to gain perspective on the landscape values held by the community to inform the PLVIA.

6.2.2 Background

The following section provides an overview of the key features identified within and around the Study Area. **Figure 1.2** illustrates key features of the Project.

Creeks, swamps and dry lakes

Given the dry and arid conditions of the region, the lakes and creek lines remain dry through most of the year. The most significant hydrological features in close proximity of the Project Area include Nyangay Creek, Eurolie Creek, Eurolie Dam, and Longbottoms Dam.

Lakes or depressions are generally shallow and defined by low-storey, scrubby vegetation such as saltbush and canegrass species (Environment NSW, 2011). These areas have the capacity to hold water and are generally favoured for sheep and emu grazing. Creek floodplains, on the other hand, are defined by a denser vegetation character with scattered clumps of belah trees, saltbush, speargrass and forbs (Environment NSW, 2011). The region also presents swamps and pans with dillon bush, canegrass and nitre goosefoot spread across extensive grey clays (Environment NSW, 2011).

Lack of availability of fresh water sources has led to the prominence of native grazing pastures with occasional modified pastures and dryland cropping.

Geology and landform

The region is made up of Quaternary alluvial sediments with shallow and small depressions that are as deep as 2 m (Environment NSW, 2011). These depressions form a number of dry lakes studded in the landscape. In some areas these depressions form large scale swamps. The landform is also characterised by isolated low rises formed by aeolian processes, i.e., through wind action (Environment NSW, 2011). Landform is generally flat with dry distributary channels and floodplains (NPWS, 2003).

Vegetation character

Lack of water and dry, arid conditions support scattered stands of belah trees, saltbush and speargrass communities (NPWS, 2003). A number of saltbush and cottonbush varieties dominate the region with very sparse tree communities, thus yielding clear, open views of the expanse. The lack of tall canopy species allows higher wind speeds with continual wind actions on the landscape. Mid-canopy species such as lignum and nitre goosefoot are occasionally visible in the landscape and are favoured for emu grazing. Predominance of low-storey vegetation allows easier grazing opportunities for sheep, thus rendering the area favourable for livestock grazing. Most canopy cover is prominent within the extents of the Oolambeyan National Park and South West Woodlands Nature Reserve extents.

Nature Reserves, State Conservation Area and National Park

Significant ecological, cultural and historic associations have been identified for the Oolambeyan National Park which is located over 5.4 km north east of the Project Area. The region also has significant historic and cultural associations such as Aboriginal sites, hearths, and stone artefacts along with colonial associations such as a former merino stud property of the western Riverina (NPWS, 2003). Although the Park's prominent hydrological features have been modified and regulated especially in the eastern parts, it boasts a variety of biodiversity and landscape values which make it a unique representation of the Hay Plains character in south west NSW.

Consultation

Community consultation has been undertaken by Lecroma between Q4 2022 and Q1 2023. A questionnaire was distributed to both associated and non-associated landholders.

Below provides a summary of responses received through the preliminary Community Consultation:

> *"No views of significant value identified outside of a general value for the expansive flat Hay plains (noting this was not mentioned frequently at all). Most of the landscape has been heavily altered through multi-generational broad acre farming operations. The area is highly exposed to the effects of climate (especially droughts) which we were cited as severely impacting farming operations during extended drought periods, creating economic and mental health hardship.*
>
> *Most of the project neighbours have already signed on with competing renewable energy project developers, and noted their general support for renewable energy project developments in their area (i.e. no objecting neighbour groups to renewable energy projects have been identified at this stage).*

In general, it is the protection of local endangered species (plains wanderer) that appears to be of most concern to project neighbours when asked about what they value most and might be impacted on by renewable energy development projects.

Local employment opportunities were another frequently mentioned value to project neighbours, as there are sparse opportunities for employment outside of large broad acre farming operations (and ancillary support services).”

The only visual impact concern cited is the risk that projects could spoil their “big sky” for which the Hay Plains is famous with photographers and tourists, particularly on the drive from Deniliquin to Hay.

Engagement with the nearby private receivers indicated concerns were raised in relation to protection of local endangered species, protection of local Heritage and Aboriginal Artefacts and regarding local employment opportunities. Community’s perspective towards the Project is generally positive. It is important to note that many of the surrounding landholdings have been engaged with other Renewable Energy Project Developers.

6.2.3 Results

The potential visual impacts of the Project have been assessed in accordance with the visual guidelines. Preliminary Assessment Tools involve the analysis of the following visual parameters:

- Viewshed mapping;
- Reverse viewshed mapping;
- Viewpoint selection;
- Vertical Field of View Calculation; and
- Horizontal Field of View Calculation.

Dwellings identified through the application of the Preliminary Assessment Tools have been assessed in detail in the PLVIA.

6.2.3.1 Viewshed Mapping

A viewshed map identified all areas from which a project may be viewed. Viewshed mapping was undertaken for the Project to eliminate viewpoint locations that will not have a line of sight to the Project. This preliminary assessment is based on theoretical worst-case scenario that do not consider the impact of vegetation or structures. Ground-truthing during field work will ascertain potential visibility by taking into account structures and vegetation.

Due to the flat terrain within and the surrounding Study Area, the viewshed map indicates that majority of the Project will be visible from all public locations within 4 km of the Project Area.

No non-associated dwellings were identified within 5 km of the Project. However, due to the flat terrain and lack of intervening vegetation, a non-associated dwelling (associated with another project) (NAD_02) was identified within the 7 km of the Project Area. NAD_02 is located east of the Project and will have views toward up to half of the Project.

6.2.3.2 Reverse Viewshed Mapping

The Reverse Viewshed Mapping is used to highlight parts of the Project that can be seen from the greatest number of viewpoints. This preliminary assessment is based on theoretical worst-case scenario that do not consider the impact of vegetation or structures.

NAD_02 was identified within the Study Area (6.5 km from the development footprint) and will likely view the northern tip and the majority of the southern portions of the Project.

6.2.3.3 Viewpoint Selection

The following provides an overview of the viewpoint selection process. Viewpoints (VP01-03) have been illustrated in **Figure 6.1** and detailed in **Table 15**.

Public roads and rail lines

In accordance with the Technical Supplement, all viewpoints from public roads and rail lines within 2.5 km of the nearest solar array panel must be assessed. No road or rail receiver viewpoints have been identified to represent views along the roads within 2.5 km of the nearest solar array panel. Jerilderie Road is the closest public road to the Project located 4 km east of the nearest solar array panel.

Three viewpoints have been identified to represent views from Jerilderie Road as shown in **Figure 6.1**.

Other public and private viewpoints

In accordance with the Technical Supplement, other public and private viewpoints within 4 km of the nearest solar array panel were identified.

No other non-associated dwellings or Private Receivers were identified within 4 km of the nearest solar array panel.

Additional viewpoints

The Technical Supplement states that additional viewpoints should be considered if ancillary infrastructure, such as substations, have the potential to cause impacts beyond the prescribed distances in the tool. Only NAD_02 was identified within 7 km of the Project and therefore additional assessment is not required.

6.2.3.4 Results of Preliminary Assessment Tool

The Preliminary Assessment Tool was used to identify viewpoints (public and private) within the Study Area. Application of the Preliminary Assessment Tools identified one non-associated dwelling (NAD_02).

Due to the distance of the dwelling from the Project, no detailed assessment was required from this dwelling. There are no publicly accessible locations within 2.5 km of the Project.

All three road viewpoints identified within the Study Area along Jerilderie Road require no additional assessment due to the distance between the Project and these locations. **Table 15** provides a summary of these results.

Table 15 Results of Preliminary Visual Viewpoint Assessment

ID	Distance to nearest panel (m)	Elevation of receiver (m)	Relative Height Difference (m)	Vertical field of view	Horizontal extent of view	Horizontal field of view	Visible based on viewshed mapping	Detailed Assessment Required?
VP01	5,084	97	1	0˚	234˚-209˚	35˚	Yes	No
VP02	3,763	97	1	0˚	257˚-217˚	40˚	Yes	No
VP03	4,937	98	0	0˚	304˚-257˚	47˚	Yes	No

6.2.3.5 Cumulative Visual Impact

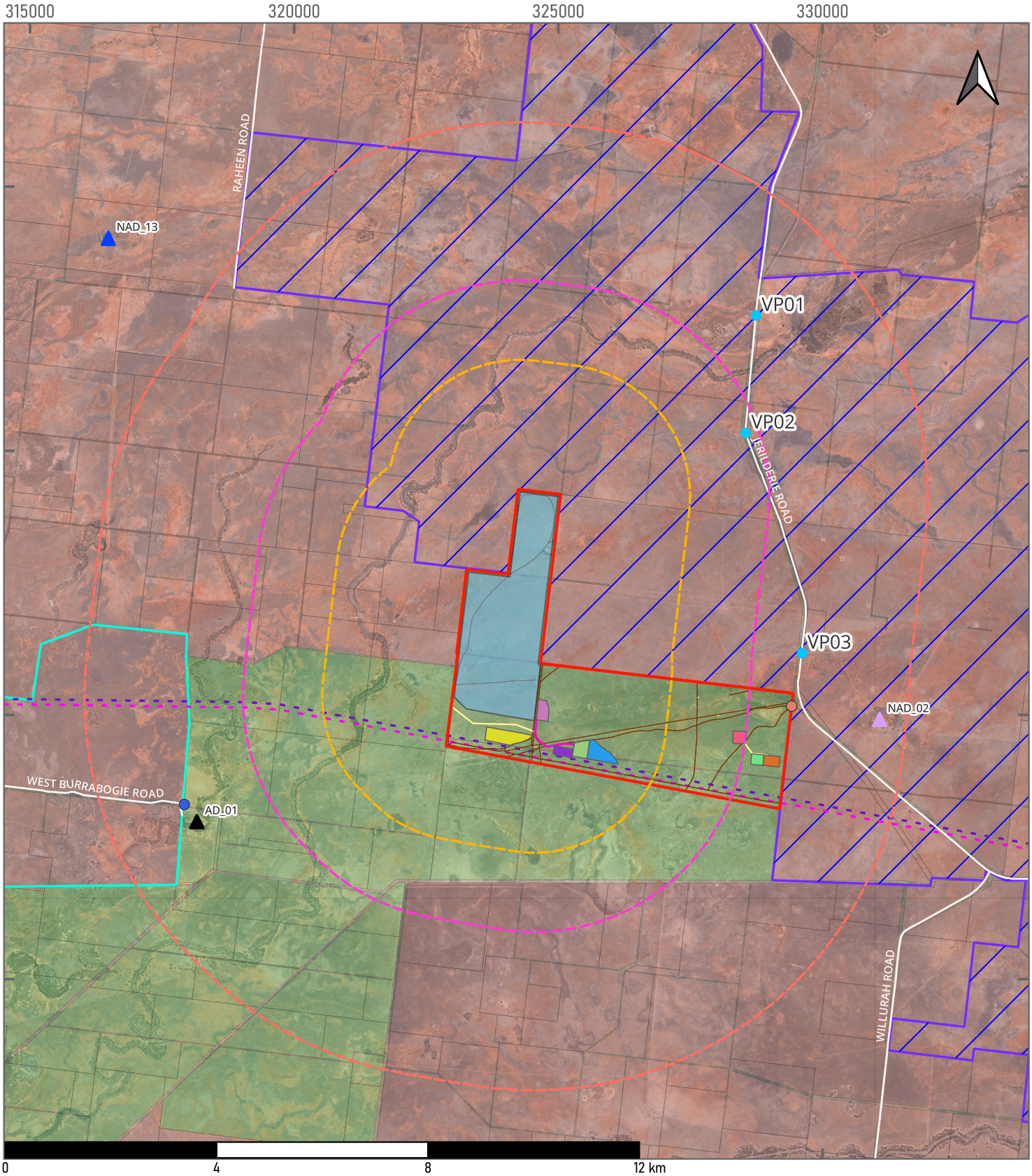
Due to the Project Area's topography and obtrusive landscape features, it is likely that there will be areas from which multiple renewable energy projects will be visible simultaneously.

Of these, two proposed wind farm projects are located west and one wind farm is located to the east of the Project. Consideration of cumulative impacts of Pottinger Energy Park Wind Farm, The Plains Wind Farm (TPWF) and Bullawah Wind Farm (BWF). The Project will be assessed in detail during the EIS Phase in relation to the other nearby projects as detailed in **Table 1** and **Figure 1.1**.

6.2.4 EIS Assessment Approach

The LVIA will include:

- Detailed site investigations to confirm the results of the preliminary assessments;
- Specialised modelling tools and visualisations (including photomontages);
- An assessment of the landscape and visual impact resulting from all associated infrastructure and ancillary structures, and consideration of cumulative impacts of nearby infrastructure;
- Further assessment to assess potential glint and glare impacts;
- Ongoing community consultation;
- Cumulative impacts of surrounding renewable energy projects will also be assessed; and
- On-site and off-site visual landscape mitigation strategies will be developed in response to the assessment and community consultation.



Pottinger Solar Farm

Figure 6.1: Visual Preliminary Assessment Locations

Date: 05/06/2023

CRS: GDA2020 / MGA zone 55

Scale: 100000

Basemap: ESRI Satellite (2022)

Data Sources: Spatial Services Spatial Data Services, SixMaps NSW
Prepared By: EL Reviewed By: TS
Version: 1.3
This figure may contain third party information. This figure is provided for information purposes only and may not be to scale.

Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission
- Emergency Access
- Site Entrance B
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound
- Access Tracks

Neighbouring Projects
- Bullawah Wind Farm Project Boundary

Cadastre and Land Ownership
- Associated
- Non-associated

Existing Infrastructure
- Existing 220 kV Transmission
- Project Energy Connect
- Main Roads
- Existing Access Tracks

Solar Visual Buffers
- 2.5km
- 4km
- 7km
- Preliminary Viewpoint Assessment Locations

Dwellings
- Associated
- Non-Associated
- Non-Associated (Associated with other project)

6.3 Noise and Vibration

A Preliminary Noise Impact Assessment (PNIA) has been prepared by Sonus Pty Ltd and is included in full at **Appendix D**. Relevant guidelines and policies are listed at **Appendix A**.

A summary of the key background, preliminary assessment and EIS assessment approach is provided below.

6.3.1 Background

The Project Area is located within a rural setting and the associated background noise levels are expected to be largely from road traffic on the Cobb Highway and from agricultural activities. There is one associated receiver within the Project Area as described in **Section 2.3.2.2**. There are no non-associated receivers within the Project Area. The closest non-associated receiver is 5.3 km from a noise source (NAD_02) – and is associated with another project.

6.3.2 Preliminary Assessment

6.3.2.1 Infrastructure and BESS

The Noise Bulletin provides criteria based on the higher of 35 dB(A) or 5 dB(A) above the background noise level at each integer wind speed for non-associated residences. The PNIA is based on the baseline criteria of 35 dB(A). Background noise monitoring will be conducted as part of the Noise Impact Assessment for the EIS may result in an increase in the criteria above the baseline.

The PNIA was conducted assuming the following conservative maximum sound power levels (SPLs) for the following indicative plant:

- 95 dB(A) SPL for 60 5 MW PCUs for a 300 MW solar farm;
- 120 dB(A) SPL for a 500 MW / 2 GWh BESS system; and
- 100 dB(A) SPL for five 250 mega volt amp (MVA) transformers.

The key noise source locations are assessed in the PNIA include:

- Project Area - Solar Noise Sources;
- BESS; and
- Main substation.

Table 16 contains the preliminary results of the PNIA at each the associated, non-associated and non-associated (but associated with another project) dwellings in relation to the nearest noise source. It also indicates distance to closest noise source and predicted noise levels.

Based on the preliminary modelling, there are no residences that have a predicted noise level greater than or equal to 35 dB(A), and as such, the Project Noise Trigger Levels are achieved at all sensitive receivers. The highest prediction is 29 dB(A). Noise predictions are inclusive of a 5 dB(A) correction for tonality.

Table 16 Noise Source Impact Predictions

Residence ID	Receiver coordinates		Category	Distance to Nearest source (m)	Predicted Level (dB(A))
	Easting	Northing			
AD_01	318158	6142984	Associated	7,300	24
NAD_02	331081	6144917	Non-Associated (Associated with another project)	5,335	29

6.3.3 EIS Assessment Approach

A detailed NIA will be prepared for inclusion in the EIS according to the guidelines outlined in **Appendix A**.

The NIA will include:

- Consideration of the background noise monitoring results;
- Establishment of criteria in accordance with the Policy;
- Predictions which account for the sound power levels and locations of solar farm, BESS units and ancillary infrastructure;
- A construction noise assessment;
- A traffic noise assessment;
- An assessment of vibration; and
- Noise reduction measures where the relevant operational or construction assessment criteria are not achieved.

The Project will be refined as part of the ongoing design process to seek to minimise noise impacts at all non-associated receivers. Potential modifications to the Project layout or agreements with landowners are options that will be further considered in the EIS process to ensure that compliance with relevant criteria at all residences is maintained.

6.4 Biodiversity

A Preliminary Biodiversity Development Assessment Report (PBDAR) has been prepared by Biosis Pty Ltd and is included in full in **Appendix E**. Relevant guidelines and policies are listed at **Appendix A**.

The PBDAR describes the biodiversity values and constraints associated with the Project, within the subject land (consistent with Project Area in **Figure 1.2**).

A summary of the key background, preliminary assessment and EIS assessment approach is provided below.

6.4.1 Background

The following has been undertaken to develop the PBDAR:

- Database searches;
- Literature review and regulator consultation;
- Land category and desktop vegetation mapping assessment;
- Field investigation, State Vegetation Type Mapping validation;
  - A rapid field validation survey of the subject land between was completed between 15 -17 February 2023 which included preliminary vegetation mapping of PCTs and TECs, undertaking opportunistic surveys for threatened species, preliminary habitat assessment to determine the potential for threatened species, indicative mapping of ecological constraints, and a flora and fauna species inventory;
- Biodiversity constraints mapping:
  - Landscape features and mapped biodiversity values present outside the subject land were considered to ensure the influence of any values beyond the site were captured.
  - Constraints were primarily developed with a focus on the Pottinger Wind Farm, however overhead powerlines associated with the Project presents potential indirect impacts to bird and bat species. Further detail is provided in **Appendix E**.

6.4.2 Preliminary Assessment

The subject land contains areas conducive to semi-arid chenopod dominated landscapes with grasslands areas supporting various densities of woody shrubs interspersed with open Pine and Myall woodlands, with Black Box woodland/wetlands and Lignum / Nitre Goosefoot wetlands present in areas more frequently inundated. The subject land predominantly supports native vegetation, with only highly disturbed areas, a result of ongoing agricultural uses, devoid of native species.

Native vegetation and habitat occur in a range of condition states, however the majority is considered to be on moderate ecological condition, with some areas occurring in a more natural state and others being more degraded by historical land management practices.

6.4.2.1 Land Category Assessment

The desktop search revealed that none of the subject land is classed as Category 1 exempt land (**Figure 3.1**). Areas of Category 1 exempt land occur within the broader Pottinger Energy Park boundary, mainly associated with cropping land and an area which has recently been subject to large scale replanting of eucalypts in windrows over an area of approximately 250 hectares. Several other smaller patches of Category 1 exempt land exist in the locality, however none are currently proposed for development as a result of the Project.

6.4.2.2 Vegetation Communities

A total of 7 PCTs were confirmed as present during the field investigation of the subject land, ranging from wetlands and woodland / wetlands to drier sandplain / sand hill woodlands, chenopod shrubland and grasslands.

Vegetation condition ranged from high condition in areas less subject to historical pressures such as clearing and grazing, to low condition in areas of ongoing disturbance from agricultural activities. The majority of the subject land's vegetation is considered to be in moderate ecological condition, subject to some level of historical/ongoing disturbance but a generally lower level of current negative pressures such as exotic species infestations, erosion, overgrazing, trampling etc. However, this will be confirmed in the BDAR during the EIS phase.

A summary of ground validated PCTs and TECs within the subject land is provided in **Table 17**. A number of 'modelled only' PCTs remain included as their presence (or potential presence) throughout the broader subject land provides background habitats and to the potential original PCTs in areas of derived grasslands/shrublands.

Table 17 Plant Community Types within the subject land

PCT No.	BC Act	EPBC Act	SAII
17	N/a	N/a	N/a
26	EEC - Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	EEC - Weeping Myall Woodlands	N/a
28	EEC - Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	N/a	N/a
44	N/a	CEEC - Natural Grasslands of the Murray Valley Plains (potential)	N/a
45	N/a	CEEC - Natural Grasslands of the Murray Valley Plains (potential)	N/a
160	N/a	N/a	N/a
164	N/a	N/a	N/a

6.4.2.3 Threatened Ecological Communities

A preliminary field investigation was performed to validate the PCTs (and TECs) present within the subject land and immediate surrounds. There are two TECs under the BC Act and/or EPBC Act as identified with the PMST tool as likely to be present within the subject land:

- Natural Grasslands of the Murray Valley Plains (CEEC) – potentially recorded within the subject land;
- Weeping Myall Woodlands (Endangered) – present within the subject land.

The one TEC listed under the BC Act present within the subject land is the Sandhill Pine Woodland (EEC).

6.4.2.4 Aquatic Habitats

Hydrological features occur within the subject land include ephemeral drainage lines and farm dams.

The aquatic ecological communities within the subject land and broader locality are typified by wetland specialist and lowland river generalists, generally comprising highly modified watercourses, altered flow regimes, channel formation, diversions and removal or modification of riparian vegetation.

Nevertheless, during peak periods and overflow, parts of subject land and surrounds provide significant habitat for a diverse range, and large number of species. All native fish and aquatic invertebrates within all water bodies in the area are part of the FM Act listed threatened ecological community "Aquatic ecological community in the natural drainage system of the lower Murray River catchment.'

6.4.2.5 Threatened Flora and Fauna Species

A total of 33 candidate species credit species and 36 predicted ecosystem credit species, have been generated as potentially occurring as shown in **Table 18**.

Table 18 Preliminary List of Candidate Species

Scientific name	Common name	Conservation Status
Flora		
Austrostipa wakoolica	A spear-grass	Endangered (EPBC Act) Endangered (BC Act)
Brachyscome muelleroides	Claypan Daisy	Vulnerable (EPBC Act) Vulnerable (BC Act)
Brachyscome papillosa	Mossgiel Daisy	Vulnerable (EPBC Act) Vulnerable (BC Act)
Caladenia arenaria	Sand-hill Spider Orchid	Endangered (EPBC Act) Endangered (BC Act)
Calotis moorei	A burr-daisy	Endangered (EPBC Act) Endangered (BC Act)
Convolvulus tedmoorei	Bindweed	Endangered (BC Act)
Cullen parvum	Small Scurf-pea	Endangered (BC Act)
Eucalyptus leucoxylon subsp. *pruinosa*	Yellow Gum	Vulnerable (BC Act)
Lepidium monoplocoides	Winged Peppercress	Endangered (EPBC Act) Endangered (BC Act)
Leptorhynchos orientalis	Lanky Buttons	Endangered (BC Act)
Maireana cheelii	Chariot Wheels	Vulnerable (EPBC Act) Vulnerable (BC Act)
Pilularia novae-hollandiae	Austral Pillwort	Endangered (BC Act)
Sclerolaena napiformis	Turnip Copperburr	Endangered (EPBC Act) Endangered (BC Act)

Scientific name	Common name	Conservation Status
Solanum karsense	Menindee Nightshade	Vulnerable (EPBC Act) Vulnerable (BC Act)
Swainsona murrayana	Slender Darling Pea	Vulnerable (EPBC Act) Vulnerable (BC Act)
Swainsona plagiotropis	Red Darling Pea	Vulnerable (EPBC Act) Vulnerable (BC Act)
Swainsona sericea	Silky Swainson-pea	Vulnerable (BC Act)
Fauna		
Ardeotis australis	Australian Bustard	Endangered (BC Act)
Burhinus grallarius	Bush Stone-curlew	Endangered (BC Act)
Calidris ferruginea	Curlew Sandpiper	Endangered (BC Act) Critically endangered (EPBC Act)
Haliaeetus leucogaster (Breeding)	White-bellied Sea-Eagle	Vulnerable (BC Act)
Hieraaetus morphnoides (Breeding)	Little Eagle	Vulnerable (BC Act)
Lathamus discolor	Swift Parrot	Endangered (BC Act) Critically endangered (EPBC Act)
Litoria raniformis	Southern Bell Frog	Endangered (BC Act) Vulnerable (EPBC Act)
Lophochroa leadbeateri (Breeding)	Major Mitchell's Cockatoo	Vulnerable (BC Act) Endangered (EPBC Act)
Lophoictinia isura (Breeding)	Square-tailed Kite	Vulnerable (BC Act)
Myotis macropus	Southern Myotis	Vulnerable (BC Act)
Ninox connivens (Breeding)	Barking Owl	Vulnerable (BC Act)
Pedionomus torquatus	Plains-wanderer	Endangered (BC Act) Critically endangered (EPBC Act)
Phascolarctos cinereus	Koala	Endangered (EPBC Act) Endangered (BC Act)
Polytelis anthopeplus monarchoides (Breeding)	Regent Parrot (eastern subspecies)	Endangered (BC Act) Vulnerable (EPBC Act)
Polytelis swainsonii (Breeding)	Superb Parrot	Vulnerable (EPBC Act) Vulnerable (BC Act)
Tyto novaehollandiae (Breeding)	Masked Owl	Vulnerable (BC Act)

6.4.2.6 Matter of National Environmental Significance

Based on the results of a Protected Matters Search Tool run in March 2023, and the findings of the preliminary field investigations, MNES potentially of relevance to the Project include:

- Five Commonwealth listed TECs are predicted to occur within the subject land and/or 30 km buffer;
- 31 listed threatened species are predicted to occur within the subject land and 30 km buffer;
- 10 listed threatened species are predicted to occur within the subject land and 30 km buffer.

MNES listed above, along with any other MNES recorded or predicted as likely to occur within the subject land, will require consideration as part of ongoing ecological assessments.

A Referral of the Project to DCCEEW will provide a determination as to whether the Project is considered a 'Controlled Action' under the EPBC Act. The above listed MNES will form the basis of potential impacts included in the Referral. The MNES search results are contained within **Appendix E**.

6.4.2.7 Direct Impacts to Biodiversity Values

The indicative development footprint has been developed following initial efforts to avoid and minimise impacts to biodiversity values as outlined in **Section 3.5.5**.

Native vegetation disturbance is approximately 618.4 ha and shown in **Figure 6.2**.

Approximate direct impacts associated with the Project are outlined in **Table 19** and illustrated in **Figure 6.3**.

Preliminary TEC total impacts of 14 ha and SAII candidate species habitat impacts of up to 617 ha are predicted.

Table 19 Estimated Project Direct Impacts to Biodiversity

Biodiversity value	Estimated impacts (ha except where indicated)
Native vegetation	
7 PCTs (based on rapid field validation survey)	618.36
TECs	
• Myall Woodland (PCT 26) • Sandhill Pine Woodland (PCT 28) • Potential Natural Grasslands of the Murray Valley Plains (PCT 44, 45)	• 5.05 • 3.97 • 5.43
Potential SAII candidate species habitat	
• Plains Wanderer (*Pedionomus torquatus*) • Bindweed (*Convolvulus tedmoorei*)	• No mapped important areas, but potential habitat remains present • 617.17 of potential habitat

6.4.3 EIS Assessment Approach

Higher risk areas are associated with TECs including Myall Woodland, Sandhill Pine Woodland (although present in lower condition) and the potential occurrence of Natural Grasslands of the Murray Valley Plains. Ongoing application of the principles of avoid, minimise and mitigate will be essential in development of a project design with further detailed surveys to be completed as part of the BDAR.

There are however, opportunities to locate project infrastructure in areas considered to be of lower risk to biodiversity values, albeit generally still within areas of native vegetation.

Impacts within these areas will require further detailed assessment for direct and/or indirect impacts to Plains Wanderer in accordance with the assessment for serious and Irreversible impacts (SAIIs) on biodiversity values. This assessment would be required as part of the BDAR, with the consent authority (upon recommendation from BCD) making the final determination on whether a SAII is likely to occur.

Following further detailed field survey, existing population of threatened species and/or higher condition habitats will form part of avoidance and minimise considerations and will represents specific biodiversity constraints to be considered.

6.4.3.1 BAM Assessment Pathway

The BAM assessment pathway will determine the presence of SAII species and communities within the subject land. SAII species and communities have the potential to occur within the subject land. The potential for SAIIs will be further investigated as part of the preparation of the BDAR, however to date include:

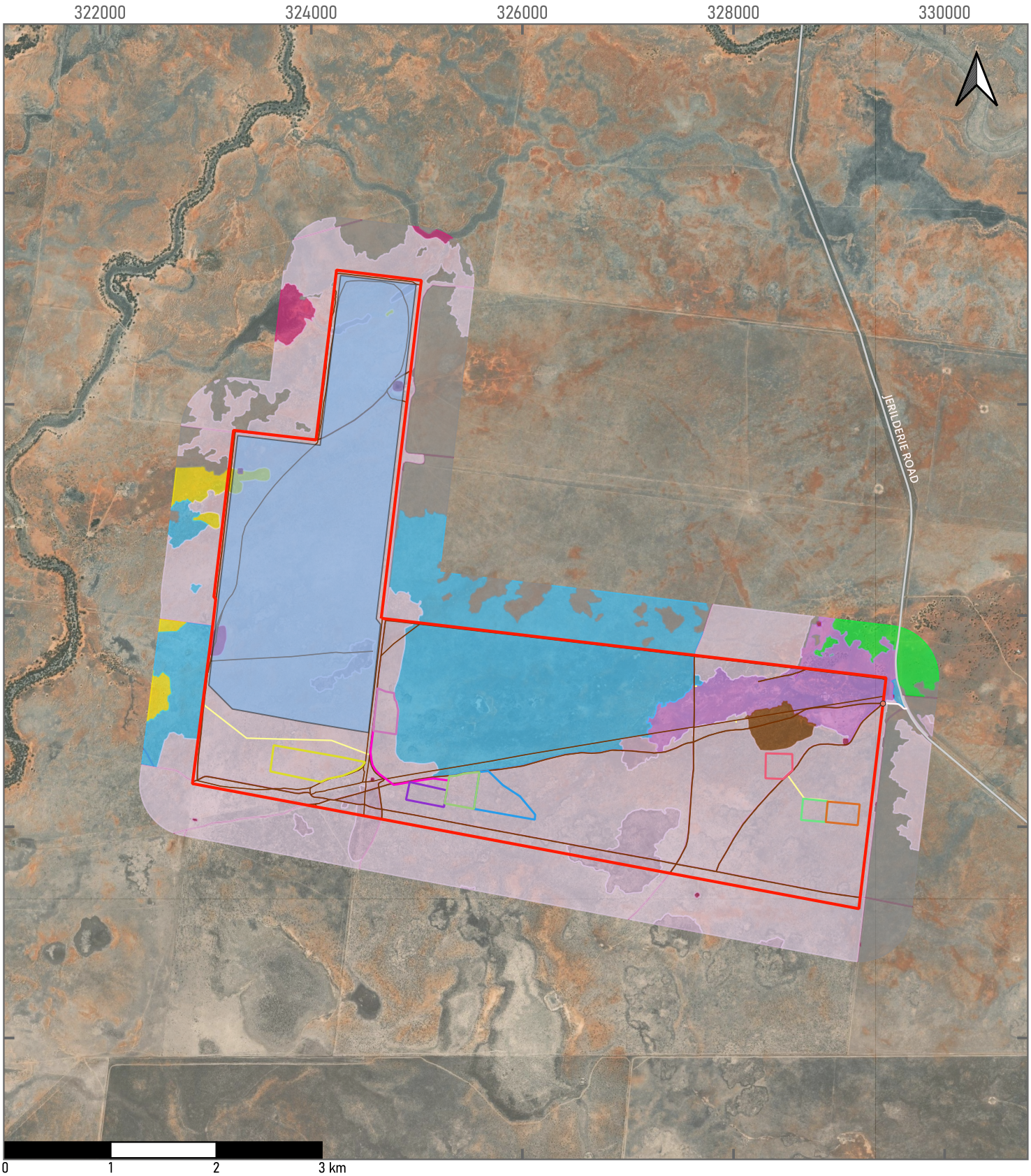
- Plains Wanderer *(Pedionomus torquatus)*; and
- Bindweed *(Convolvulus tedmoorei).*

6.4.3.2 Biodiversity Development Assessment Report

As part of a BDAR, detailed ecological surveys, investigations and assessment will be undertaken including:

- Collection of floristic plot data;
- Confirmation of extent of all TECs present;
- Targeted surveys for candidate flora and fauna species;
- Assessment of all direct, indirect and prescribed impacts; and
- Offset planning for unavoidable residual impacts.

The BOS will apply to the assessment, generating an offset requirement for the Project. Establishment of Biodiversity Stewardship Sites to satisfy the Project's offset credit obligation is likely to be the most effective approach for the Project and has the greatest local biodiversity outcome.



Pottinger Solar Farm

Figure 6.2: Vegetation PCT

SOMEVA RENEWABLES

Date: 08/06/2023

CRS: GDA2020 / MGA zone 55

Scale: 50000

Basemap: ESRI Satellite (2023)

Data Sources: NSW BioNet, NSW SVTM
Prepared By: EL Reviewed By: TS
Version: 2.4
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Legend

Project Infrastructure

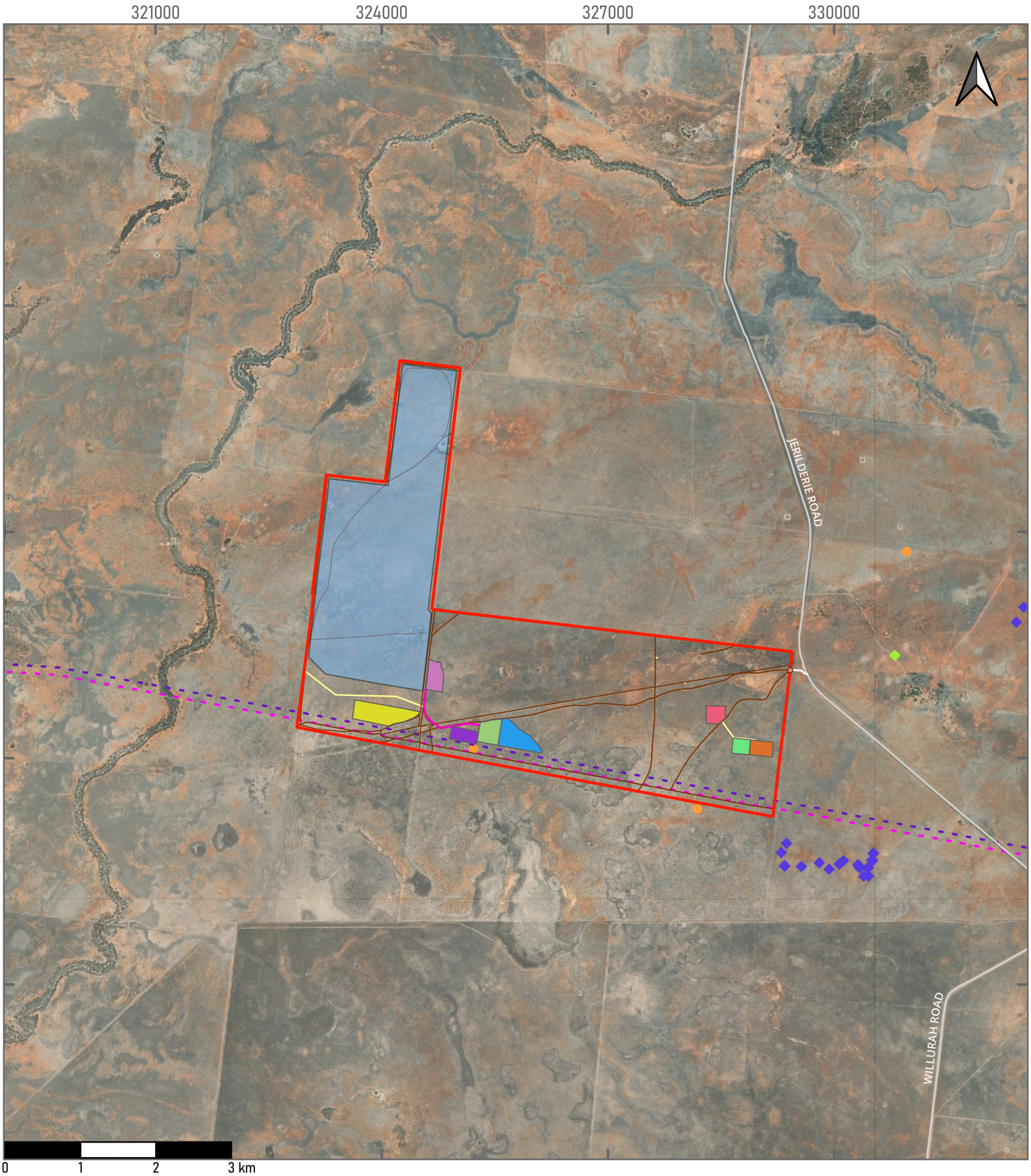
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastructure

- Existing Access Tracks

Plant Community Types

- 0 - Not Native
- 17 - Lignum shrubland wetland
- 160 - Nitre Goosefoot shrubland wetland
- 164 - Cotton Bush open shrubland
- 165 - Derived corkscrew grass grassland/forbland
- 19 - Cypress Pine woodland (BC)
- 26 - Weeping Myall open woodland (EPBC and BC)
- 44 - Forb-rich Speargrass - Windmill Grass - White Top grassland (EPBC)
- 45 - Plains Grass grassland (EPBC)
- 46 - Curly Windmill Grass - Speargrass - wallaby grass grassland (EPBC)
- 28 - White Cypress Pine open woodland (BC)



SOMEVA RENEWABLES

Pottinger Solar Farm

Figure 6.3: Flora and Fauna Ecology

Date: 08/06/2023

CRS: GDA2020 / MGA zone 55

Scale: 70000

Basemap: ESRI Satellite (2022)

Data Sources: NSW BioNet, NSW SVTM
Prepared By: EL Reviewed By: TS
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Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance
- Access Tracks
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- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastrucutre
- Existing 220 kV Transmission
- Project Energy Connect
- 2
- Existing Access Tracks

Bionet Atlas

Fauna Threatened Species
- Grey Falcon - Vulnerable
- Plains-wanderer - Endangered

Flora Threatened Species
- Slender Darling Pea - Vulnerable

6.5 Aboriginal Heritage

6.5.1 Background

The Project Area is situated on the lands of Wiradjuri people within the Hay and Deniliquin LALCs. The Wiradjuri people occupied and settled along the current rivers, as well as ancient rivers that now exist as palaeochannels (i.e. rivers that have been filled with sediment). Records in the nearby Murray-Darling Basin, around 200 km north west of the Project Area, indicate some of the oldest dates of occupation indicating a long association with the land in this region.

The environmental context (including landscape features and landforms) of the region is important to understand in terms of identifying whether there is potential for Aboriginal archaeology. The Project Area is located within the Murrumbidgee subregion of the Riverina Bioregion, which comprises a natural flat landscape largely consisting of clays, silts and sands which historically has been subject to a consistent cycle of flooding (Martin, S., Beck, W. and Davidson, I., 2007).

Within the Murrumbidgee subregion, the Hay Plains is a region of vast alluvial plains and contains extensive Aboriginal cultural deposits in the form of mounded cultural deposits. Mounds contain archaeological material such as ash, charcoal, faunal remains stone tools and occasionally burials, and represent former areas of congregation by Aboriginal people. Mounds are located across the Murrumbidgee subregion in vast quantities and vary in their height and length from centimetres to metres (Martin, S., Beck, W. and Davidson, I., 2007).

Previous studies indicate that the landscape features surrounding the Project Area with archaeological potential include (Martin, S., Beck, W. and Davidson, I., 2007):

- Rivers – with the greatest concentration of potential archaeological sites identified within close proximity to water courses (i.e. within 12 km of river channels, particularly those with sandy paleochannel features, and within 8 km of lakes);
- Open plains – in areas where wind and water erosion has stripped the topsoil along channelled plains and which may be associated with burials;
- Large (former) open water lakes – identified to have a higher than average artefact site density and
- Mounds – characterised by material such as ash, charcoal, fauna remains and occasionally burials and which have been noted to be particularly dense along active and ancient streams within the Project Area.

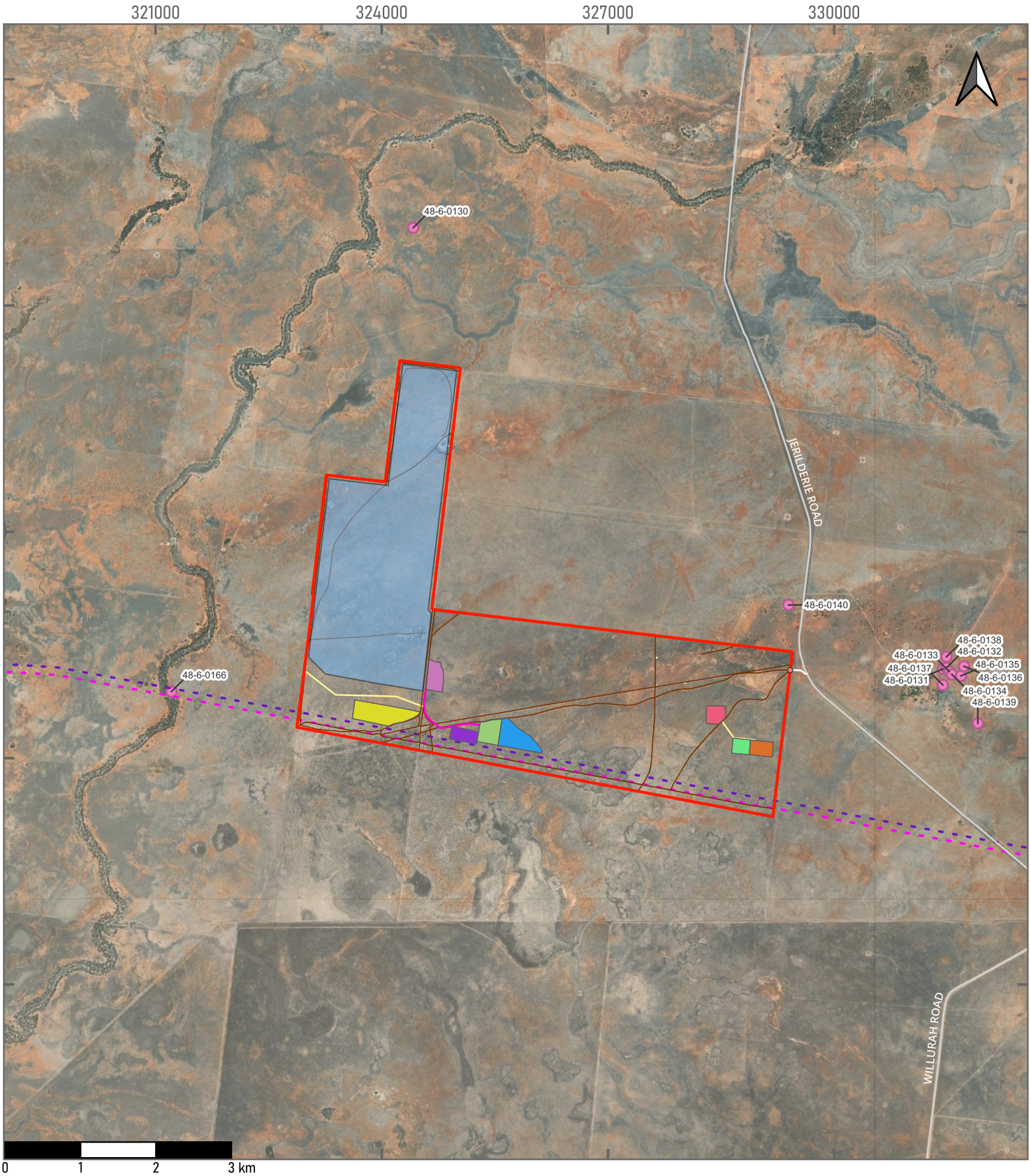
In addition to Aboriginal archaeological sites, it is also noted that there are significant cultural values associated with the land in the Murrumbidgee Province. Aboriginal Dreaming is inextricably linked to the land and common Dreaming sites along the Hay Plains may include landscape features such as bends in the river, waterholes, palaeochannels, lakes, hills, trees or other minor features (Martin, S., & Pardoe, C., 2001).

6.5.2 Preliminary Assessment

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was carried out in February 2023 for the Project Area and a buffer of 15 km. No AHIMS sites were identified within the Project Area. The nearest identified AHIMS sites are 625 m from the Project Area.

Figure 6.4 shows the location of the AHIMS sites in relation to the Project Area.

A search of the National Native Title Tribunal database in February 2023 found that there are no Native Title claims currently registered in the Project Area.



SOMEVA RENEWABLES

Pottinger Solar Farm

Figure 6.4: Heritage

Date: 08/06/2023

CRS: GDA2020 / MGA zone 55

Scale: 70000

Basemap: ESRI Satellite (2022)

Data Sources: Spatial Services Spatial Data Services
Prepared By: EL Reviewed By: TS
Version: 3.4
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Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance B
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastructure
- Existing 220 kV Transmission
- Project Energy Connect
- 2
- Existing Access Tracks
- AHIMS Extant Site

6.5.3 EIS Assessment Approach

An Aboriginal Cultural Heritage Assessment Report (ACHAR) will be prepared to support the EIS in accordance with the 'Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW' (DCCEW, 2010a). It will consider the archaeological potential of the Project Area, and document environmental mitigation measures that would be implemented.

The ACHAR will include:

- Literature review and predictive model development (as required);
- Comprehensive investigation (including adequate pedestrian field survey, consultation with RAPs, sensitivity mapping, and results from any archaeological test excavation (if required)). Any required investigations will be undertaken in accordance with all relevant guidelines as outlined in **Appendix A**.
- Identification of Project impacts on items of Aboriginal heritage and cultural values;
- Definition of any required management and mitigation measures in relation to the identified impacts; and
- As required by conditions of development consent, commitment to the preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) in consultation with RAPs to ensure appropriate management of any identified heritage.

6.6 Historic Heritage

6.6.1 Background

Early European exploration of the Murrumbidgee Region occurred in the early 1800s (Martin, S., & Pardoe, C., 2001). Non-Aboriginal history of the area is associated with exploration and transportation developments. Pastoralism has historically been the predominant land use in the region irrespective of changes in property boundaries and/or ownership. The first non-Aboriginal explorer to the region was Charles Sturt, who explored the route of the Murrumbidgee River in 1829 (Martin, S., & Pardoe, C., 2001).

The locality where Hay township developed was originally known by Europeans as Lang's Crossing place, which was the crossing on the Murrumbidgee River of a well-travelled stock-route (known as "the Great North Road") leading to the markets of Victoria. In 1859 the township was renamed Hay (Martin, S., & Pardoe, C., 2001). The Murrumbidgee District was subdivided into smaller pastoral allotments by 1860.

By 1923, mapping of the region indicates that larger sections of land were subdivided into small allotments. The majority of the landowners across the Project area had comprised of several individuals or companies who owned large areas of land. In addition to waterways, water bodies and roadways, features across the Project area include typical rural features such as wells, dams, tanks and travelling stock and cattle reserves, along with homestead complexes and woolsheds (Martin, S., & Pardoe, C., 2001).

6.6.2 Preliminary Assessment

6.6.2.1 Heritage Register Searches

Commonwealth Heritage List

The Commonwealth Heritage List includes natural, Indigenous and historical heritage places owned or controlled by the Australian Government. Items on the list have satisfied the Minister as having one or more Commonwealth Heritage values.

A search of the Commonwealth Heritage Register was conducted in February 2023.

There are no Commonwealth Heritage listed places within or in proximity to the Project Area.

National Heritage List

The Australian National Heritage List contains natural, historic, and Indigenous places deemed to be of outstanding heritage significance to Australia. Before a site is placed on the list, a nominated place is assessed against nine criteria by the Australia Heritage Council.

A search of the National Heritage List was conducted in February 2023.

There are no National Heritage listed places within or in proximity to the Project Area.

State Heritage Register

A search of the NSW State Heritage Register (SHR) was conducted in February 2023.

No historic heritage listings have been identified for the Project Area. Proximate listings are outlined as follows:

- Royal Mail Hotel (located 30 km south west from the Project Area) (Hay Road, Booroorban, NSW, 2710) (LEP item #I3); and
- Black Swamp (located 37 km south west from the Project Area) (LEP item #I9).

Section 170 Heritage Register

Section 170 of the *Heritage Act 1977* requires all NSW state agencies to identify, conserve and manage the heritage assets owned, managed and occupied by that agency. In order to facilitate this, Section 170 heritage registers were established for all NSW government agencies. These registers are held and maintained by each state agency and updated as assets are acquired, altered, or decommissioned.

A search of the Section 170 Heritage Register was conducted in February 2023.

No Section 170 heritage places are located within or in close proximity to the Project Area.

The Project Area is immediately adjacent several Travelling Stock Reserves (TSRs) (refer to **Figure 2.4**).

6.6.3 EIS Assessment Approach

This preliminary assessment did not identify any historic heritage items within the Project Area listed on National, State or Local statutory heritage registers. There remains the potential for historic heritage items to be present in the Project Area considering the continuous European presence since the 19th century. Further assessment is required to establish the historic archaeological potential for the Project Area.

A Historic Heritage Impact Assessment will be prepared having regard to the 'Assessing heritage significance – a NSW Heritage Manual update' (DPIE, 2022d) to support the EIS and will include (but not be limited to):

- A desktop assessment;
- Site inspection to ground-truth the desktop assessment;
- Significance assessment;
- Impact assessment; and
- Identification of any required mitigation and management for any items of significance.

The Historic Heritage Impact Assessment would align with the guidelines outlined in **Appendix A**.

6.7 Traffic and Transport

6.7.1 Background

Construction of the Project will result in increased volumes of traffic, both of light-duty vehicles used to transport workers and materials and heavy vehicle movements to transport components and other equipment. Once construction of the Project has been completed, traffic associated with ongoing operations of the power station is minimal and generally involves only light vehicle movements operational personnel.

The Project Area is located approximately 380 km from Melbourne, 650 km from Adelaide, and 750 km from Sydney (by road). The solar arrays and ancillary infrastructure for the Project are anticipated to be delivered to a port and transported by road to the Project Area.

The Project Area is serviced by the Sturt Highway and Cobb Highway, both of which are major highways which have the capacity to carry oversize and overmass (OSOM) vehicles to and from the Project Area.

Sturt Highway and Cobb Highway serve as important commuting corridors as they provide connection to the towns of Balranald, Hay, Wagga Wagga, Deniliquin and others. Minor road connections are provided by Willurah Road, Jerilderie Road and North Boundary Road.

The transport route of the PV panels and other Project related materials will be subject to a Port and Transport Route Assessment only if required and the outcomes will be incorporated into the Traffic and Transport Impact Assessment (TTIA). This will identify an indicative transport route from the receiving port(s) to the Project Area. Although unlikely it will also identify any required road upgrades.

Whilst a port and transport route has not yet been determined, the ports of origin in **Table 20** will be refined and/or the preferred route(s) confirmed in the EIS.

Table 20 Potential port options and distance to Project Area

Port	City and State	Approx. distance from Project Area (by road) (km)
Appleton Dock	Melbourne, VIC	400
Port of Geelong	Geelong, VIC	430
Port of Portland	Portland, VIC	620
Port Adelaide	Adelaide, SA	680
Port Botany	Sydney, NSW	770
Port of Newcastle	Newcastle, NSW	920
Port Kembla	Wollongong, NSW	740

6.7.2 Preliminary Assessment

The Project may require upgrades to roads along the transport route. The details and specifications of these upgrades will be dependent on the size of the vehicles and infrastructure required to be delivered to the Project Area, and are subject to assessment in a Transport Route Assessment.

In addition, the construction of access tracks will also be required throughout the Project Area to facilitate construction and to allow for maintenance to occur throughout the operational and decommissioning phases of the Project. The Cobb Highway and Sturt Highway are expected to be utilised for the Project and as such may require road upgrades and impacts on local roads and local traffic.

6.7.3 EIS Assessment Approach

As part of the EIS, a Transport Route Assessment included in the TTIA will be prepared, which will consider potential transportation routes for construction traffic and potential impacts of the size, loads, and volumes of vehicles on the road network. The TTIA will generally be prepared in accordance with the guidelines outlined in **Appendix A**.

The scope of the TTIA will likely involve:

- Assessment of haulage routes, access points, and swept paths through intersections to determine potential risks and impacts from the largest vehicles (OSOM);
- Review of any previous traffic impact assessments undertaken for the surrounding area and traffic counts in selected areas;
- Assessment of likely project-alone and cumulative traffic impacts during the construction and operational phases of the project (including intersection performance, capacity, safety and site access);
- Assessment of the potential traffic impacts of the Project on road network function including intersection performance, site access arrangements, site access and haulage routes, and road safety (including school bus routes and school zones);
- Identification of any road upgrades required, if any;
- Assessment of the potential impacts of the proposed works on residences and access ways; and
- Identification of mitigation and management measures if required.

6.8 Water Resources

6.8.1 Background

Soils will be subject to disturbance during construction activities associated with site establishment, installation of infrastructure and replacement of soils for revegetation, and therefore the Project has a potential to result in impacts to downstream watercourses, in the absence of management and mitigation measures. Operational and maintenance activities require water use and may also lead to impacts on water resources, in the absence of management and mitigation measures.

6.8.2 Preliminary Assessment

The Project Area is located within the Murrumbidgee Catchment of the Murray Darling Basin. The Murrumbidgee Catchment covers an area if 84,000 km^2 and comprises 8% of the total area of the Murray-Darling Basin (MDBA, 2021).

The Project Area is located immediately south of the Murrumbidgee River. The dry and arid conditions of the region result in the lakes and creeklines remaining dry thorough most of the year. There are no major watercourses within the Project Area, however there are two creeks in proximity to the Project Area, which are Nyangay Creek and Eurolie Creek.

A search of the BOM GDE Atlas did not identify any GDEs within the Project Area. It identified one aquatic GDE (Eurolie creek) approximately 3 km west from the Project Area which is a low potential GDE.

The Project Area is located between 90 m ASL and 98 m ASL. A search of the ePlanning portal in March 2023 did not indicate the Project Area was located on flood prone land. The surrounding LGAs of Hay and Edward River experience flooding from the Murrumbidgee River, Lachlan River and Mirool Creek. There have been 20 floods greater than 8.0 m since 1952, with the largest recorded in 1956 (8.99 m), 1974 (9.02 m), 2010 (8.48 m) and 2012 (8.99 m) (SES, 2014). Due to its topography, flooding can be wide-spread across the floodplain and can last several months due to poor natural drainage (SES, 2014).

Due to the nature of the proposed construction works, there would be limited to no impact to groundwater. Standard mitigation measures would manage the small risk of contaminants into groundwater.

6.8.3 EIS Assessment Approach

A relevant assessment of water resources will be undertaken for inclusion in the EIS which includes:

- Flooding and Hydrology Assessment:
  - Existing flood behaviour through review of existing available data, developing computer models and defining flood levels, depths, velocities and flood hazard category for the Project Area for existing topographic conditions; and
  - Post development flood behaviour, including quantifying flood levels, depths, velocities and flood hazard category with the Project in place, and measures proposed to monitor, reduce and mitigate impacts.
- Water Resources Assessment:
  - Identify the existing water resources and environment;
  - Assess the potential impacts of the Project on hydrology;
  - Identify and indicatively quantify sources of water required during construction and operation of the Project and determine whether any water access licences under the WM Act are required.
- An assessment of the likely impacts on surface water resources, including local waterbodies and groundwater dependent ecosystems (GDEs);
- Identification of any works within 40 m of the high bank of any waterfront land, impacts and required mitigation;
- A discussion of construction erosion and sediment control measures to ensure that impacts during excavation, road works, transport of machinery, etc. are adequately mitigated through avoidance, minimisation and management; and
- Measures to monitor, reduce and mitigate the impacts of the Project.

The water impact assessment will be generally undertaken in accordance with the guideline outlined in **Appendix A**.:

A groundwater assessment is not required for the Project and will only be addressed in the EIS in relation to proposed minor management measures as part of post-approvals' documentation.

6.9 Agriculture and Land Resources

6.9.1 Background

Soils will be subject to disturbance during construction activities associated with site establishment, installation of infrastructure and replacement of soils for revegetation. Operational and maintenance activities may also lead to impacts on land resources of the Project Area.

6.9.2 Preliminary Assessment

A preliminary review of the Soil and Land Capability Mapping data for NSW (DPIE, 2021a) suggests that the Land and Soil Capability (LSC) class within the Project Area is:

- LSC Class 6 – very severe limitations: land incapable of sustaining many land use practises (e.g. cropping, moderate to high intensity grazing and horticulture). Located through the north eastern portion of the Project Area; and
- LSC Class 4 – moderate to severe limitations: land generally not capable of sustaining high impact land uses unless using specialised management practises with high level of knowledge, expertise, inputs and investment. Located across the majority of the Project Area.

No LSC Classes 1-3 are present in the Project Area as shown on **Figure 6.5**.

A search of the 'Australian Soil Classification (ASC) Soil Type Map of NSW' (DPIE, 2011) shows that the Project Area has the following soil order:

- Vertosols (VE) – located across the entirety of the Project Area;

No Biophysical Strategic Agricultural Land (BSAL) is located within or immediately adjacent to the Project area.

6.9.3 EIS Assessment Approach

The Solar Guidelines provide guidance on the process for assessing impacts on agricultural land. The EIS will follow the process generally outlined in Appendix A of the Solar Guidelines. Figure 4 in the Solar Guidelines contains a flow chart to determine the level of assessment required for the EIS. Based on this flow chart, the Project:

- Is located on RU1 zoned land; and
- Is located on LSC Class 4 land.

Therefore, site verification will be undertaken to determine whether the land within the Project Area is one of the following:

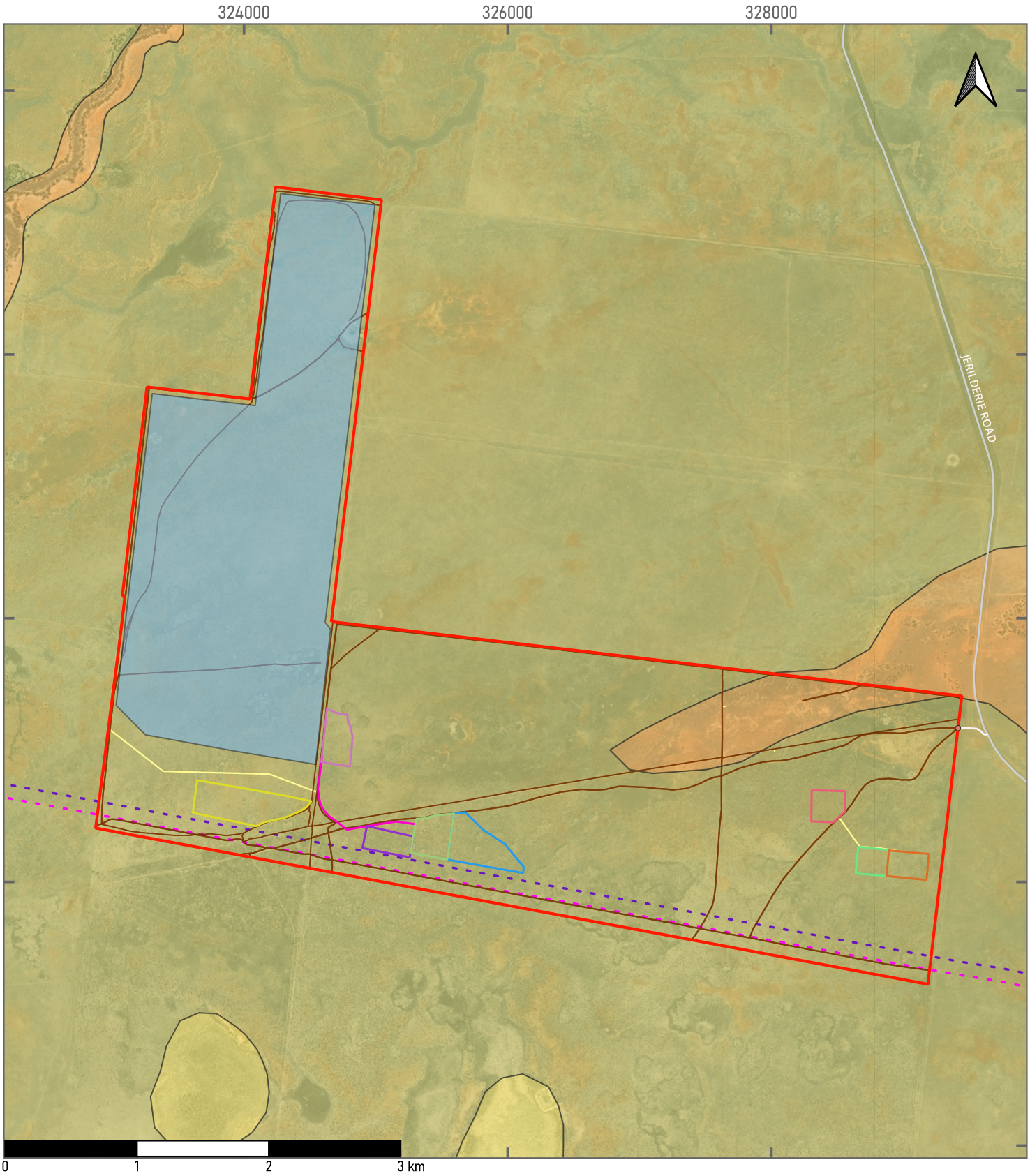
- LSC Class 1-3: Level 3 Detailed assessment is required; or
- LSC Class 4: Level 2 Reduced assessment is required; or
- Adjacent to land zoned RU1: Level 1 Basic assessment is required.

Subject to verification, a Level 2 Reduced Agricultural Impact Assessment will likely be required to be prepared. This will include:

- A description of the nature, location, intensity and duration of the project and include a map of the project area;
- A description of the regional context;
- A description of the site characteristics and land use;
- A LUCRA assessment;
- A description of impacts on agricultural land; and
- Mitigation strategies to avoid impacts on agricultural land and minimise land use conflict.

Further assessment requirements that will be adhered to are included within the Solar Guidelines.

The Agricultural and Soil Assessment will consider the requirements and guidelines outlined in **Appendix A**.



SOMEVA RENEWABLES

Pottinger Solar Farm

Figure 6.5: Soil and Land Capability

Date: 08/06/2023

CRS: GDA2020 / MGA zone 55

Scale: 40000

Basemap: ESRI Satellite (2022)

Data Sources: Spatial Services, DPE
Prepared By: EL Reviewed By: TS
Version: 3.4
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Legend

Project Infrastructure
- Project Area
- Solar Array Area
- Solar Transmission Line
- Site Entrance
- Access Tracks
- BESS
- Main Substation
- O&M
- Solar Substation
- Solar Temporary Storage and Construction
- Switching Station
- Temporary Accommodation Facilities
- Temporary Construction Compound

Existing Infrastrucutre
- 220 kV Exisiting Transmission
- Project Energy Connect
- 2
- Existing Access Tracks

Soil Capabillity DPE
- Class IV Moderate to severe limitations
- Class V Severe limitations
- Class VI Very severe limitations

6.10 Economics

6.10.1 Background

The employment status for Hay in 2021 indicates that 59.3% are full time workers, 30.4% are part time, and 4.0% are unemployed (ABS, 2021). Edward River (Deniliquin and surrounds) contains 59% fulltime workers, 31.5% work part-time, and 3.6% are unemployed.

The three largest employment industry sectors within Hay in 2021 (ABS, 2021) are sheep farming (7.5%), local government administration (4.0%) and primary education (3.8%). Compared to Edward River where the top industries of employment are social assistance services (4.5%), hospitals (3.7%) and sheep and cattle farming (3.3%).

The three most popular occupations in Hay are Managers (19.0%); Labourers (17.7%); Technicians and trade workers (14.8%). Within Edward River the top occupations are Managers (19.3%); Professionals (14.7%); Community and personal service workers (13.1%).

Further detail is provided on demographics relevant to economics are in **Section 6.12.1.3**.

6.10.2 Preliminary Assessment

During construction, the Project will involve the procurement of broad array of equipment, products and services, some of which may be procured from within the Hay and Edward River LGAs and broader NSW. Construction supplies and construction-related services, including local civil, labour and electrical businesses in particular are likely to benefit from the Project. Additionally, because of the inter-linkages between sectors, many indirect businesses would also benefit through increased economic activity.

The presence of the construction workforce would also increase demand for food, accommodation and other consumables in the local region, which would deliver a positive impact for existing retail, beverage, food and accommodation service providers in towns such as Hay, Deniliquin, Coleambally, and Conargo.

During operations, the Project would provide a long-term benefit to the local economy through employment and business opportunities, that would service the Project.

Additional benefits to the local economy will be delivered through the neighbour benefit sharing program and VPA that will be established for the Project.

6.10.3 EIS Assessment Approach

An Economic Assessment will be undertaken for the EIS, which will review the impacts or benefits of the Project for the region and State as a whole.

It will consider any increase in demand and impact on local and regional economy during construction and operation of the Project, as well as reduction in agricultural activity as a result of the Project development, and other economic issues such as potential impact on land values and regional wages, house prices, tourism, and cumulative impacts.

6.11 Capital Investment Value

The EIS will be supported by a CIV report prepared by an AIQS Certified Quantity Surveyor or RICS Chartered Quantity Surveyor in accordance with ‘Planning Circular PS 21-020: Calculation of Capital Investment Value’ (or latest version).

The estimated CIV will be accurate at the date of application and include methodological assumptions and details of all components and assumptions from which it is derived. It will also provide an estimate of the jobs that would be created during the construction and operational phases of the Project.

6.12 Social

6.12.1 Background

6.12.1.1 Introduction

This section provides the preliminary Social Impact Assessment (PSIA) undertaken for the Project, in accordance with the DPIE's Social Guidelines, Technical Supplement (DPIE, 2023*),* and Engagement Guidelines.

The PSIA was prepared by Greg Ley from Lecroma Pty Ltd (ABN 83 653 481 862). Greg Ley has a Bachelor of Arts majoring in Pacific Security Analysis (minor in Economics, Politics and Linguistics), and post graduate qualifications in National Security Policy. Greg has more than a decade of experience working with Australian Federal Government and in the private sector delivering complex stakeholder engagement processes, social science research projects and written advice – experiences well suited to social impact assessment for large-scale renewable energy development projects.

Greg's experience includes focused research and field work to develop written advice for informing: Australian foreign policy decisions in the Indo-Pacific region; international law enforcement strategy; and program design and evaluation activities for international development and national security sector initiatives for Australian Government. Greg is a member of the Australian Evaluation Society (since 2014) and continues to consult to Australian and foreign governments on matters of international development and national security.

In accordance with the Social Guidelines, the PSIA involves scoping and preliminary assessment, identifies the level of assessment to be applied, and sets further parameters for the second phase SIA (the assessment report to be appended to the EIS). Accordingly, the first phase SIA includes:

- Defining the Project's Social Locality;
- Describing the profile of the community in the preliminary social baseline, outlining the potential social impacts, and
- Outlining the approach that will be undertaken to complete the second phase SIA.

Someva Renewables is committed to an engagement process that is respectful and balances the interests of agriculture, economic development, and community cohesiveness through socially responsible renewable energy development. A Community Engagement Strategy has also been prepared by the Applicant to ensure the following objectives are achieved:

- Produce clear information on the Project, potential impacts (positive and negative) and benefits for the environment, community, and region by delivering high- quality communication channels across all targeted channels.
- Ensure the Project has a positive impact on the region with clear demonstration of shared local and broader regional social, economic, and environmental benefits.
- Develop a sense of local ownership in the Project by identifying local advocates with an interest in the Project.
- Work together with the community in a collaborative way by identifying issues and likely mitigations throughout Project phases.
- Support an uplift in the regional economy and level of local prosperity via a regional economic assessment.
- Demonstrate sharing of Project benefits with a creation of a successful community led Community Benefit Scheme and VPAs with local councils.
- Support and engage local capabilities, engaging several local suppliers including Aboriginal peoples owned suppliers.

This preliminary phase SIA has prioritised ensuring appropriate engagement with project neighbours, local Shire councils and local Aboriginal land councils to identify immediate issues and interests.

The Project is situated in a low population remote rural farming community and consultation fatigue was identified very early as a key risk for the Project to attempt to avoid. Targeted and meaningful engagement will be prioritised, however persistent engagement will be avoided to lessen community engagement fatigue.

6.12.1.2 Social Locality

The Project is situated in the rural locality of Booroorban, approximately 60 km south of Hay and 110 km north of Deniliquin (based on travel distance to the associated (host)-landowner's primary dwelling to the Project Area). The Project is within the Hay LGA.

The social locality includes:

- Associated host landowner and adjacent/near neighbour properties, including residents and local businesses;
- Localities likely to be impacted and/or benefit from the Project; and
- Localities likely to experience construction-related workforce, procurement, and traffic impacts.

In determining the Social Locality the following aspects were taken into consideration:

- Site location and Project layout, including proposed location of all project-related infrastructure in the Project Area;
- Location of the above Project components relative to project neighbours (nearby residential dwellings), major highways/transport routes, potential sensitive land uses and structures; and
- Construction and operation phase activities.

When considering these aspects and the general isolation of the Project Area relative to other proposed renewable energy projects in the surrounding region, it was determined the Project's Social Locality includes: the Project Area, haulage routes, and larger nearby centres (Hay; Deniliquin). This will be refined as the Project continues to evolve.

For the purposes of this PSIA, the Project's Social Locality comprises of the following three components:

- The Project Area and immediate surrounding areas located within the Australian Bureau of Statistics (ABS) LGA references: LGA13850; LGA12730; and LGA15560. Data on these LGAs has been used provide an understanding of the broader and comparative social context;
- The transportation and haulage routes, including vehicular routes from the south and north east via the Cobb Highway, and from the east and west via Sturt Highway. Indicative travel distances and direction from each associated landowners' primary dwelling to the Project Area are provided in **Table 21**; and
- The surrounding towns and regional centres of Hay, Deniliquin, Swan Hill, and Griffith, which may provide construction and operations phase goods and services to support the Project.

Table 21 Distances to Project Area

Town/Regional Centre	Travel Distance (measured from host landowner primary dwelling) and Direction from Project Site
Hay (main centre)	North, 60 km
Deniliquin (main centre)	South, 110 km
Wanganella	South, 69 km
Coleambally	East, 90 km
Conargo	South, 100 km (using main roads)
Jerilderie	South east, 125 km
Swan Hill	South west, 191 km

6.12.1.3 Community Profile

The community profile presented in this section will inform the social baseline in the second phase SIA (part of the EIS) and is largely based on ABS 2021 census data.

Table 22 outlines the primary ABS datasets identified to provide key demographic data across the Project's Social Locality.

Table 22 Relevant ABS Datasets

Location	ABS Data Reference (Census)
Hay	LGA13850; UCL115075
Edward River, including Deniliquin and Surrounds	LGA12730; UCL114010
Murrumbidgee	LGA15560
Statistical Area Level 1 (SA1)	10902117711 (north of project site); 10903118311 (south of project site)
Griffith	LGA13450; UCL113007
Swan Hill	LGA26610; UCL213015
NSW	STE Code 1

In addition to the above listed ABS datasets, the second phase SIA social baseline will be informed by a desktop review of sources from a range of publicly available information. Further, this data will be supplemented by primary data collected from the community through the administering of surveys (quantitative and qualitative data collection methods). Information relating to the economic profile of the Project Area is also provided by ABS 2021 Census data, with local and State government documentation providing guidance on policy priorities and regional challenges. Combined, this data will provide the primary source of understanding the potential social impacts of this project on the immediate Social Locality.

Table 23 draws on the ABS datasets noted above, providing a demographic overview focusing on data LGAs data within 10 km of the Project.

Table 23 Area Profile Data on Key Locations within 10 km of the Project

Population statistics	Household data	Top industries of employment	Workforce Participation
Hay (ABS Area code: LGA13850)			
• 2882 (50.2% male, 49.8% female) • Median Age: 48 • 8.3% (238) identify as First Nations peoples • SEIFA (Percentile in NSW): 24	• Median weekly household income: $1236 • Median monthly mortgage repayments: $894 • Median weekly rent: $170 • Private dwelling count (occupied): 1134 (82.7%)	• Sheep farming (specialised; 7.5%) • Local government administration (4.0%) • Primary education (3.8%) • Supermarket and grocery stores (3.4%) • State Government Administration (3.1%)	• In the labour force (55.3%); not in the labour force (32.2%); not stated (12.3%) • Full time worker (59.3%), part time (30.4%), Unemployed (4.0%) • Top Occupations: Managers (19.0%); Labourers (17.7%); Technicians and trade workers (14.8%); Clerical and administrative workers (10.4%); Professionals (10.3%); Machinery operators and drivers (7.5%);
Edward River (Deniliquin and surrounds; ABS Area code: LGA12730).			
• 8456 (49.3% male, 50.7% female) • Median Age: 46 • 4.8% (410) identify as First Nations peoples • SEIFA (Percentile in NSW): 37	• Median weekly household income: $1240 • Median monthly mortgage repayments: $1083 • Median weekly rent: $220 • Private dwelling count (occupied): 3331 (86.4%)	• Social Assistance Services (4.5%) • Hospitals (3.7%) • Grain-sheep / Grain-beef Cattle farming (3.3%) • Primary Education (3.2%) • Supermarket and Grocery Stores (3.2%)	• In the labour force (56.2%); not in the labour force (34.2%); not stated (9.6%) • Full time worker (59%); part time (31.5%), unemployed (3.6%) • Top Occupations: Managers (19.3%); Professionals (14.7%); Community and personal service workers (13.1%); technicians and trades workers (12.6%); Labourers (12.0%); sales workers (7.9%); Machinery operators and drivers (6.7%)
Murrumbidgee (ABS Area code: LGA15560)			
• 3353 (52.2% male, 47.8% female) • Median Age: 45 • 8.6% (290) identify as First Nations peoples	• Median weekly household income: $1401 • Median monthly mortgage repayments: $869 • Median weekly rent: $190 • Private dwelling count (occupied): 1291 (86.7%)	• Grain Growing (9.6%) • Grain-sheep / Grain-beef Cattle farming (8.2%) • Local Government Administration (4.6%) • Poultry Processing (3.3%) • Sheep farming (specialised; 2.7%)	• In the labour force (61%); not in the labour force (28.9%); not stated (10.1%) • Full time worker (64.1%); part time (26.6%), unemployed (2.9%) • Top Occupations: Managers (29.8%); Labourers (13.5%); Clerical and Administrative Workers (11.4%); Technicians and Trades Workers (10.8%); Machinery Operators and Drivers (10.6%); Professionals (9.6%); Community and Personal Service Workers (8.3%); Sales Workers (4.3%)
SA1 10902117711 (north of Project area)			
• 222 (56% male, 44% female) • Median age: 45 • 5.9% (13) identify as First Nations peoples	• Median weekly household income: $1,797 • Median monthly mortgage repayments: $1,792 • Median weekly rent: $462 • Private dwelling count (occupied): 73 (70.9%)	• Sheep Farming (Specialised) 24.1% • Beef Cattle Farming (Specialised) 13% • Sheep-Beef Cattle Farming 6.5% • Cotton Growing 5.6% • Site Preparation Services (5.6%)	• In the labour force (62.4%); not in the labour force (21.9%); not stated (18.5%) • Full time worker (71.2%); part time (17.1%), unemployed (3.6%) • Top Occupations: Managers (48.1%); Labourers (17.6%); Clerical and Administrative Workers (11.1%); Professionals (8.3%); Machinery Operators and Drivers (7.4%); Technicians and Trades Workers (4.6%); Community and Personal Service Workers (2.8%).

Population statistics	Household data	Top industries of employment	Workforce Participation
SA1 10903118311 (south of Project area)			
• 280 (56.5% male, 43.5% female) • Median age: 47 • 1.8% (5) identify as First Nations peoples	• Median weekly household income: $1,412 • Median monthly mortgage repayments: $1,590 • Median weekly rent: $120 • Private dwelling count (occupied): 97 (73.5%)	• Sheep Farming (Specialised) 24.2% • Grain-Sheep or Grain-Beef Cattle Farming (13.4%) • State Government Administration (8.7%) • Sheep-Beef Cattle Farming 8.1% • Beef Cattle Feedlots (Specialised) 3.4%	• In the labour force (66.7%); not in the labour force (23%); not stated (9.5%) • Full time worker (70.9%); part time (27%), unemployed (2%) • Top Occupations: Managers (53.7%); Labourers (20.8%); Clerical and Administrative Workers (5.4%); Community and Personal Service Workers (4.7%); Technicians and Trades Workers (3.4%); Machinery Operators and Drivers (3.4%); Professionals (2%); Sales Workers (2%).

6.12.1.3.1 Initial Insights From Desktop Analysis

The population (neighbours/ dwellings) surrounding the Project Area (red boundary) is very low, with only four identified NAD within 8 km of the Project Area. Three of these four NADs are associated with other largescale renewable energy projects. There is only one other NAD between 8-12 km of the nearest solar array, who is also associated with another large-scale renewable energy project. The next identified dwellings are between 12-21 km from the Project Area, with around 10 NADs identified.

The regional community around the Project Area appears to rely heavily on the provision of essential services from nearby regional centres, of which Hay/Deniliquin are closest. Hay (~2,400 people) is a relatively smaller regional centre compared to Deniliquin (~7,900 people), with both having (on average) relatively older population groups (averaging >45 years old).

Analysing the Statistical Area data, the agrarian nature occupations and industry around the immediate Project Area becomes even more apparent. The top industries and workforce participation data suggests most workers are in agriculture or related economic fields. This region is highly exposed to risks of climate change and natural disasters (e.g. bushfires; droughts; flooding). Further, the hardship experienced by these communities during prolonged drought and bushfire events is well documented.

Both community centres (Hay/Deniliquin) appear to have a highly engaged workforces with low unemployment (>4%). Cost of living (rent/mortgage) is considerably lower than the national average (50% less), with median weekly household income being only 10% below the national average. The top industry of employment, being agriculture, is seconded by a range of professional, trade and technical services. Going by ABS data (LGA data only), this area appears to also be a relatively lower income earning community compared to the national average.

Hay area (closest to the Project Area) has a large population of people who identify as having Aboriginal heritage in community (of around 8.3%), especially when compared to the national average (around 3.3%). The Nari-Nari people of the Lower Murrumbidgee and the Wiradjuri people who inhabit vast region in central-western island NSW are two significant recognised groups in the area.

Deniliquin appears to have the stronger business service centre, especially for civil works and construction services/suppliers, and appears to be the primary hub for technicians, construction suppliers and trades services for the surrounding area (within 35+ km). There does not appear to be an established renewable energy service sector, with most suppliers/traders/installers operating from Albury and/or Wagga Wagga centres (280 km+ away).

Housing and accommodation: Hay or Deniliquin are the most likely areas to support increased demand on local housing requirements for the project workforce (should an onsite accommodation or other project's approved temporary accommodation not be relied upon for the Project). To minimise the impact on the local surrounding communities, the SIA will seek to fully understand:

- Current housing and accommodation availability, and requirements of the workforce during construction and sustained future operations. Accommodation sharing options for workers and support staff will be explored to reduce demand impacts on local housing, including liaison with local real estate providers to seek further advice;
- Community sentiment towards a significant increase in proposed largescale renewable energy development projects; and
- Early consultation with other local industry activities and businesses in the area, especially agribusinesses, to discuss overlapping periods of peak employment will be important.

6.12.2 Preliminary Assessment

6.12.2.1 Social Infrastructure Overview

Social infrastructure typically comprises schools and other education institutions, medical services, emergency services, recreational facilities, and community organisations. Some commercial services are also listed under social infrastructure, such as childcare facilities.

The Project Area is within an important regional and national transport node, located midway between Sydney and Adelaide at the junction of the Sturt, Cobb and Mid-Western Highways. The nearby town of Hay itself is built beside the Murrumbidgee River, part of the Marray-Darling river system; Australia's largest.

The primary use of land in this area is for agriculture (broadacre farming, including cropping and livestock) and the landscape is relatively flat. The Project Area is in close proximity to the area of 'Wanganella' (a remote rural community), under the Edward River Council area along the Cobb Highway. Wanganella has a population of 86 people, it has a café and general store, Wanganella Fisherman Cottage and a Creek Camp Park. Booroorban and Pretty Pine are also nearby small communities to the Project Area, however most communities and businesses in this area rely on Deniliquin or Hay for all essential and community support services.

Within Hay, they have a small general hospital which provides 24hr Accident and Emergency support. Emergency services include NSW Police, Ambulance NSW, NSW RFS and SES. Hay has four primary schools (Booligal Public School, Hay School of the Air, Hay Public School, and Saint Mary's Primary School), one high school (Hay War Memorial High School), a pre-school (Hay Preschool) and a range of further education facilities (Hay ICPA, Hay Inc, Home-Start Riverina, and TAFE NSW – Hay). Hay essential stores for residents include: a food works, IGA, Hills Corners Store, Mackers Meat and Maude General Store, among many others.

Hay also has a private airport, providing agricultural, aircraft maintenance and firefighting services to the community. For commercial flights, Hay residents will need to travel to Melbourne, Griffith, Mildura, Albury, or Wagga Wagga.

The Cobb Highway connects Hay and Deniliquin together. The regions of Wanganella, Booroorban, and Pretty Pine are located on this Highway and have very small populations and limited accommodation and service support options. The Cobb Highway would be used throughout the Project to be the primary connection between nearby town centres and the Project Area. Secondary connection is possible from Jerilderie Rd and Willurah Rd to the east of the Project Area.

Deniliquin is the larger regional centre compared to Hay. Deniliquin has large regional hospital with over 41 beds and connections to other hospitals such as Melbourne Hospital for critical care. 24hr emergency services are offered in Deniliquin (Fire/ Ambulance/ Police/ SES).

Deniliquin has a broad range of pre-schools (Gulpa Pre School, Deniliquin Children's Care, Goodstart Early Learning), primary schools (Edward Public School, Deniliquin South Public School, St Michaels Primary School, and Mayrung Public School), high school (Deniliquin High School) and further education facilities (Riverina Community College Inc., South West Music Conservatorium, and TAFE NSW Deniliquin and Deni Driver Training). Deniliquin also has a local airport with similar rural operating conditions and service limitations to Hay.

The Project will employ 220 FTE employees throughout the construction stage. Temporary workers accommodation may be located within the Project Area or located offsite if it is determined to be required.

During operation, approximately 4 FTE permanent staff will be employed.

6.12.2.2 Potential Social Impacts

This PSIA includes identification of the Project's Social Locality (**Section 6.12.1.2**), a high-level overview of social conditions, and social impact scoping. It is intended to provide initial insight into the Project's social context and its likely social impacts. Further in-depth assessment will be undertaken as part of the SIA within the EIS phase.

The PSIA has been undertaken by Lecroma Pty Ltd on behalf of the Applicant as a desktop analysis supplemented by two in-region visits and remote engagements. The report has been further informed by Project information provided by the Applicant, engagement findings to date, internet searches of available information relating to the Project and the broader socio-economic context, comparative studies, and publicly available data obtained from government websites, e.g., the ABS. All population and demographic data presented in this section are from the ABS 2021 Census unless otherwise stated.

This analysis has been undertaken in line with the SIA. As such, potential impacts and opportunities have been evaluated across the following eight categories: way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems using the DPIE *Social Impact Scoping Worksheet* as shown in **Appendix F**.

It is likely that several key potential positive and negative impacts will primarily occur during the construction phase of the Project, including:

- Positive impacts include potential benefits for the local workforce, services, supply chains and accommodation providers through directly generating employment and an increase in economic activity. Several stakeholders, including both local councils, noted the value of exploring 'Local Content' targets (i.e. prioritising supply from local goods/services first, where appropriate) for the Project, and the value of collaborating with nearby renewable energy development projects on the design of Community Benefit Funds (CBF) and potential shared construction phase accommodation opportunities. Other potential benefits include the diversification of income streams for host and neighbouring landholders, as well as upgraded road and electricity network infrastructure.
- Potential negative impacts during the construction phase include pressures on: housing and short-term accommodation, the local workforce, and local social and community infrastructure; as well as changes to the composition of the local community from an influx of non-resident construction workers. Intensive construction activity is also likely to generate traffic, access, noise, health and wellbeing, and way of life impacts for nearby residents and local communities.

There are also potential negative impacts across the Project lifecycle and possible cumulative impacts. Potential impacts on the landscape and visual amenity were identified during consultation, though both are a minor concern to most stakeholders consulted to date. Stakeholders also reported concerns about negative impacts on project neighbour cohesion and the potential for disharmony if the large number of renewable energy development projects proposed and to be hosted by project neighbours (non-associated dwellings to this Project) do not proceed to construction.

A summary of findings from this preliminary social impact analysis is included in **Table 24**, and in the 'SIA Scoping Worksheet' include at **Appendix F**, which presents the key social impacts and benefits that will be assessed in more detail within the SIA in the EIS phase.

Table 24 Preliminary Social Impact Assessment

Description of Impact	Impact Type and Categories	Project Phase	Level of Assessment	Justification
Potential impacts in relation to change in the natural environment and visual amenity may lead to impacts on the perceived quality, use and aesthetics of the landscape in the Social Locality.	Community. Negative	Construction of solar arrays	Detailed	Negative impacts observed to date in NSW from largescale renewable energy projects, though this hasn't been raised as an issue of concern for project neighbours. Cumulative impacts may apply. This may require more specific consideration in the SIA, especially when consultation is expanded.
Potential impacts on social cohesion between community members (for/against renewable energy and/or the Project) in the Social Locality.	Community. Negative	Construction of solar arrays	Detailed	Negative impacts observed to date in NSW from largescale renewable energy projects, though this hasn't been raised as an issue of concern for stakeholders in the Social Locality. Cumulative impacts may apply. This may require more specific consideration in the SIA.
In the Social Locality: potential for increased pressure on limited local accommodation from construction and operational work force (for limited period of construction). Potential for increased pressure on local work force, negatively impacting local businesses with labour competition and wage increases. Perceived impacts on land/property values (price increases), adding further pressure on local housing/ accommodation. Topic was raised during initial consultation.	Way of Life. Negative	Construction phase	Detailed	Negative impacts observed to date in NSW from largescale renewable energy projects. Cumulative impacts may apply. This may require more specific consideration in the SIA.
Alteration of landscape: potential impact to tangible and intangible Aboriginal heritage In the Social Locality.	Way of Life. Negative	Construction phase	Detailed	Negative impacts not observed to date for this project but have been observed elsewhere in NSW.
Diversification of income streams for involved landowners and nearby neighbours, which will in turn provide flow on economic benefits for the surrounding community.	Livelihoods. Positive	Operating life of the Project	Detailed	Positive impacts have been observed to date from nearby major renewable energy projects. Cumulative impacts may apply.
Potential upgrades to local infrastructure (road network and electricity grid) to facilitate the project in the Social Locality.	Access. Positive	Construction phase and operating life of the Project.	Detailed	Positive impacts have been observed to date from nearby major renewable energy projects. Cumulative impacts may apply.

Description of Impact	Impact Type and Categories	Project Phase	Level of Assessment	Justification
Potential impacts and disruptions to host landowners, near neighbours and local traffic during construction from increased traffic, noise and dust and oversized loads during construction in the Social Locality.	Access. Negative	Construction phase of the project.	Detailed	Negative impacts observed to date from nearby major renewable energy projects. Cumulative impacts may apply. This may require more specific consideration in the SIA.
Increased demands for local goods and services in the Social Locality. Broader community – employment and contracting opportunities during the construction and operation period. Also flow on economic benefits for regional community. Topic was raised during initial consultation.	Way of Life. Positive	Construction phase of the project, and then support for operating life of the project.	Detailed	Positive impacts have been observed to date from nearby major renewable energy projects. Cumulative impacts may apply.
Perceived health impacts of solar farms (noise, dust or otherwise) in the Social Locality.	Health and Wellbeing. Negative	Construction phase of the project.	Detailed	Negative impacts not observed to date for this Project nor other renewable energy projects elsewhere in NSW. Cumulative impacts may apply.
Stakeholders in the Social Locality are unable to make informed decisions; do not have influence on project design or decisions; to not have influence on the project benefits programs (neighbour or community programs); and are unable to access enquiry and complaint processes.	Community. Negative	Majority of project activities, project delivery and operation phases.	Detailed	Negative impacts observed to date from nearby major renewable energy projects. Cumulative impacts may apply. This may require more specific consideration in the SIA.
Potential impacts during future project decommissioning (or re-energising/ replacement). Topic was raised during initial consultation.	Surroundings. Negative	Project decommissioning or replacement phase	Detailed	Negative impacts not observed to date for this project nor other renewable energy projects elsewhere in NSW. This may require more specific consideration in the SIA.

6.12.3 EIS Assessment Approach

This section outlines the plan for developing the second phase SIA alongside the EIS process, in accordance with the requirements of the SIA Guidelines.

The SIA will allow for a more comprehensive understanding of the potential social impacts and benefits of the Project. The SIA prepared to support the EIS will also examine any other social issues perceived by the community to be of concern that are raised during further Project engagement as described in **Section 5.5**.

Cumulative impacts of other proposed developments in the area will also be considered. Where significant impacts are found, mitigation and enhancement measures will be developed, and expected residual impacts post-application of these measures will be described.

An advertisement campaign and community drop-in sessions are planned to commence following the issuing of SEARs, to initiate broader community engagement and Project awareness.

Accordingly, the second phase SIA will be structured according to the following sections:

- Introduction, Project Description, Regulatory Context: more detailed overview of the information provided to date including applicable legislative and regulatory frameworks;
- Social Locality and Stakeholder Identification: more detailed analysis on the Project's Social Locality and stakeholder feedback;
- Methodology: will follow the DPE's Social Impact Significance matrix;
- Stakeholder Engagement for SIA: details of relevant stakeholder engagement to date in accordance with the Community Engagement Strategy, noting it is a live document and will be updated in accordance with stakeholder feedback and monitoring of other Project data;
- Social Baseline: more detail provided and updated in accordance with stakeholder feedback;
- Expected and Perceived Impacts: more detail on expected and perceived impacts;
- Impact Assessment and Prediction: pre and post mitigation efforts will be detailed in relation to social impacts informed by stakeholder engagement;
- Social Impact Enhancement, Mitigation, and Residual Impacts: a summary of all impacts and mitigation measures taken throughout all phases of the Project, with residual impacts noted;
- Monitoring and Management Framework: overview of monitoring and social impact management measures to be implemented covering all phases of the Project;
- References: all references will be cited in the SIA; and
- Appendices: will include all community profiles and supporting materials used.

6.13 Hazards

This section provides a preliminary assessment of hazards and risks that could arise during the construction and operation of the Project. Specifically, it considers hazards and risks associated with hazardous materials bushfire, and Electromagnetic Field (EMF).

6.13.1 Preliminary Hazard Analysis

A Preliminary Hazard Assessment (PHA) is required where potentially hazardous or offensive development under Resilience and Hazards SEPP. Clause 3.2 of the Resilience and Hazards SEPP defines a potentially hazardous industry is as:

> *"development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality—*
>
> *(a) to human health, life or property, or*
>
> *(b) to the biophysical environment, …"*

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

Batteries can be a serious safety risk for occupants and installers, potentially leading to electric shock, fire, flash burns, explosion or exposure to hazardous chemicals or gases. The installation of the BESS will be assessed as per the guidelines stated in **Appendix A**.

A PHA will be undertaken for the Project, which evaluates the likely risks to public safety, focusing on the transport, handling and use of hazardous materials. The assessment will also consider whether the Project should be considered a hazardous or potentially hazardous industry under Resilience and Hazards SEPP.

6.13.2 Bushfire

Bushfire presents a threat to human life and assets and can adversely impact ecological values. Bushfire risk can be considered in terms of environmental factors that increase the risk of fire (fuel quantity and type, topography and weather patterns), as well as specific activities (such as hot works and construction activities) or infrastructure components that exacerbate combustion or ignition risks (such as transmission lines and other electrical components).

A review of the NSW RFS Bushfire Prone Land mapping shows that the Project Area has not yet been mapped. The Bushfire Prone Land map usually contains three categories to classify the risk of developing on the land (NSW Rural Fire Service, 2015):

- Vegetation Category 1 is considered the highest risk for bushfire. It is represented as red on the bush fire prone land map and will be given a 100 m buffer. This vegetation category has the highest combustibility and likelihood of forming fully developed fires including heavy ember production;
- Vegetation Category 2 is considered to be a lower bushfire risk than Category 1 and Category 3 but higher than the excluded areas. It is represented as light orange on a Bushfire Prone Land map. This vegetation category has lower combustibility and/or limited potential fire size due to the vegetation area shape and size, land geography and management practices; and
- Vegetation Category 3 is considered to be 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 Bush Fire Prone Land map.

The EIS will include a Bushfire Risk Assessment and will aim to identify potential hazards and risks associated with bushfires / use of bushfire prone land.

The Bushfire Risk Assessment and mitigation strategies will be guided by the following factors that contribute to bushfire risk:

- Fuels, weather, topography, predicted fire behaviour and local bushfire history;
- Suppression resources, access (roads, tracks) and water supply; and
- Values and assets.

Mitigation will be a combination of complementary strategies, all of which are required to provide the best possible protection outcome for the Project and the community.

The assessment will aim to demonstrate that the Project can be designed, constructed and operated to minimise ignition risks and provide for asset protection consistent with the guidelines outlined in **Appendix A**.

6.13.3 Electromagnetic Field

EMF is potentially associated with all electrical wiring and equipment. Electrical fields are caused by the voltage of the equipment, while magnetic fields are caused by the current flowing (amperage). Electric fields and magnetic fields are independent of one another and, in combination, cause energy to be transferred along electric wires.

The Project will involve the generation of EMFs during operation from the proposed transmission lines and substations. Over the past 50 years, concerns have been expressed that the EMFs associated with electrical equipment might have adverse health effects. There are well-known health effects where there are very high levels of EMFs and health standards have been established to protect against these effects.

However, the World Health Organisation (WHO) recognises that no adverse health effects from long-term exposure to Extremely Low Frequency (ELF) and EMF have been confirmed (WHO, 2020).

A relevant EMF assessment will be prepared and will consider and document the potential impacts and risks to human health associated with the EMF generated by the substations, transmission lines and associated electrical infrastructure.

It will consider the latest advice of the National Health and Medical Research Council, and identify potential hazards and risks associated with EMF and demonstrate the application of the principles of prudent avoidance in accordance with the guidelines listed in **Appendix A**.

6.14 Air Quality and Greenhouse Gas

6.14.1 Background

Land uses in the areas surrounding the Project Area are predominantly agricultural, and this is likely to influence the local air quality. Air quality in the region is generally expected to be of good quality and typical of what is expected in a rural setting, due to factors including low population density and low traffic volumes.

Existing sources of air pollution are likely sourced from dust, vehicle, and machinery from agricultural production, and vehicle exhaust emissions from traffic along the Cobb Highway and the Sturt Highway.

Background air quality and other meteorological matters are described at **Section 2.3.1.3**.

6.14.2 Preliminary Assessment

The Project is not expected to have significant impacts on air quality in the region.

Emissions to the atmosphere from the Project are anticipated to be predominantly associated with construction phase activities which will be temporary and limited to:

- Localised dust emissions generated by land disturbance; and
- Exhaust emissions of civil construction and vehicle, plant and machinery.

During the temporary construction phase, dust particles and other air quality emissions could potentially be released from activities including:

- Construction of new / upgraded access tracks and roads;
- Vegetation clearing and creation of open exposed areas;
- Excavation works and stockpile management;
- Mobile concrete batching plants and rock crushing;
- Transport of material and equipment;
- Processing and handling of material;
- Construction activities and associated earthmoving and construction equipment;
- Transfer points;
- Loading and unloading of material; and
- Haulage activities along unsealed roads.

During operations, the Project will generate electricity without directly emitting air pollutants that are known to affect the climate and human health.

The Project will contribute to the improvement of air quality through the displacement of emissions that would otherwise be generated through the burning of fossil fuels used to generate electricity from traditional coal fired power stations.

6.14.3 EIS Assessment Approach

The EIS will quantitatively consider the potential impacts to air quality and stipulated appropriate management and mitigation measures during the construction, operations and decommissioning phases of the Project.

Beneficial GHG savings as a result of the Project will also be described.

Air quality and dust management will generally be assessed in accordance with relevant guidelines and policies as outlined in **Appendix A**.

6.15 Waste Management

The EIS will identify, quantify and classify the likely waste streams to be generated during construction, operation and decommission phases of the Project.

The EIS will consider strategies to ensure resources are used effectively, waste generation is reduced and follow the general principals of manage, reuse, recycle and safe disposal.

Relevant management and mitigation will be identified as required.

Relevant guidelines to inform the assessment are outlined in **Appendix A**.

6.16 Cumulative Impacts

'Cumulative Impact Assessment Guidelines for State Significant Projects' (DPIE, 2022b) provides a framework for assessing project-level cumulative impacts in an EIS.

Table 25 addresses the six key questions about the potential cumulative impacts of the Project with other relevant projects.

Table 25 Scoping Cumulative Impacts - Key Questions

Scoping questions	Considerations	Comment
What to assess	The government's strategic planning framework for the area, having regard to any relevant legislation, plans, policies or guidelines.	Consideration of key legislation, plans, policies or guidelines is provided in **Section 4**. The Project's setting is discussed in **Section 2.3**, which identifies: • The key land uses and economic activities within the region are agriculture and food production; • The closest population centre is Hay; • The Project will connect to Project EnergyConnect; • There are a number of proposed, approved or operational renewable energy projects located in proximity to the Project Area as detailed in **Figure 1.1** and described in **Table 1**; and • There is potential for the Project's impacts to increase noise and visual impacts when combined with the other project's impacts, however it should be noted that the majority of the non-associated receivers are associated with other projects (due to high to very high impacts from those projects being predicted).
	The project and other potentially relevant future projects that may be developed over the same time period or similar timeframes as the project.	The EIS will address the cumulative impacts of the Project with the other projects identified in **Table 1**.
	Potential material impacts on features including National Parks and other protected areas, environmentally sensitive areas, threatened species and ecological communities, important natural resources, culturally significant resources, key infrastructure and industries, sensitive land use zones, population centres, settlements and residential areas.	The preliminary visual assessment as discussed in **Section 6.2** includes a preliminary review of all these parameters. The EIS will address the cumulative impacts of the Project with the other projects identified in **Table 1**.
	The likely scale and nature of the cumulative impacts of these projects.	The preliminary visual assessment as discussed in **Section 6.2** includes a preliminary review of all these parameters. The EIS will address the cumulative impacts of the Project with the other projects identified in **Table 1**.
What study area	The study area selected for the cumulative impact assessment of each matter will vary depending on the specific characteristics of the assessment matter and the scale and nature of the potential impacts on the matter resulting from the project with other relevant future projects.	The preliminary visual assessment as discussed in **Section 6.2** includes a preliminary review of all these parameters. The EIS will address the cumulative impacts of the Project with the other projects identified in **Table 1**.

Scoping questions	Considerations	Comment
Over what time period	Like the study area, the time period selected for the cumulative impact assessment on each matter will vary depending on the characteristics of the matter and the scale and nature of the potential impacts on the matter. In most cases, the period selected is likely to match the life of the project (e.g. 25 years). However, in some cases the period selected may be much shorter than this and cover a single phase of the project, or much longer periods.	The proposed timeframe for the development of the Project is stated in **Table 6.** Various levels of cumulative impacts may occur during the various Project phases and will relevantly be identified and assessed in the EIS.
What other projects to include	Build on these assessments by considering the cumulative impacts of the proposed project on key matters when other future proposed projects are included in the assessment.	The EIS will address the cumulative impacts of the Project with the other projects identified in **Table 1**.
	The following types of development need to be identified for inclusion as 'relevant' future projects: • other SSD projects; • projects that are classified as designated development and require an EIS; • projects that require assessment under division 5.1 of the EP&A Act that are likely to significantly affect the environment and require an EIS; • projects that have been declared to be controlled actions under the EPBC Act; • any major greenfield and urban renewal developments that are scheduled for the area	The EIS will address the cumulative impacts of the Project with the other projects identified in **Table 1.**

7 ACRONYMS AND ABBREVIATIONS

Term	Definition
KEY TERMINOLOGIES	
Project	A solar farm as described in **Section 3** of this report to which this Application applies
Project Area	Red boundary shown on key figures to which the Application applies (unless otherwise stipulated)
The Applicant	Someva Pty Ltd
Application	Application for Development Consent under Part 4.7 of the EP&A Act; and Determination under Part 9 of the EPBC Act
Associated dwelling	Habitable dwelling which does have any agreement with the Project
Non-associated dwelling	Habitable dwelling which does not have an Agreement with the Project
Non-associated dwelling (associated other Project)	Habitable dwelling which does not have an Agreement with the Project, however does have an Agreement with another Project
Pottinger Energy Park	Combination of the Solar Farm and Wind Farm projects for which separate Applications will be made
Receiver	Assessment location
Preliminary Disturbance Footprint	Preliminary area of Project-related disturbance determined for use in Scoping Report phase, which will be refined for the EIS
OTHER TERMINOLOGIES	
ABN	Australian Business Number
ABS	Australian Bureau of Statistics
ACCU	Australian Carbon Credit Unit
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACMA	Australian Communication and Media Authority
AD	Associated dwelling
AEMO	Australian Energy Market Operator
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AIA	Aviation Impact Assessment
AL Act	*Aboriginal Land Rights Act 1983*
ALA	Aircraft Landing Areas
APZ	Asset Protection Zone
AQC	Air Quality Category
ARENA	Australian Renewable Energy Agency
ASC	Australian Soil Classification
ASL	Above Sea Level
BBUS	Bird and Bat Utilisation Surveys
BC Act	*Biodiversity Conservation Act 2016*
BESS	Battery and Energy Storage System
BOM	Bureau of Meteorology
BSAL	Biophysical Strategic Agricultural Land
CASA	Civil Aviation Safety Authority
CBF	Community Benefit Funds
CHMP	Cultural Heritage Management Plan
CIV	Capital Investment Value
CL Act	*Crown Land Management Act 2016*

Term	Definition
Climate Change Act	*Climate Change Act 2022*
CMS Act	*Coal Mine Subsidence Compensation Act 2017*
Conargo LEP	Conargo Local Environmental Plan 2013
Conveyancing Act	*Conveyancing Act 1919*
COP	Conference of the Parties
CSP	Community Strategic Plan
Cwlth	Commonwealth
DA	Development Application
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCP	Development Control Plans
Deniliquin LEP	Deniliquin Local Environment Plan 2013
DP	Deposited plan
DPE	NSW Department of Planning and Environment
EIS	Environmental Impact Statement
ELF	Extremely Low Frequency
EMF	Electromagnetic Field
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
FM Act	*Fisheries Management Act 1994*
FTE	Full Time Equivalent
GDE	Groundwater dependent ecosystem
GWh	Giga Watt Hour
Ha	Hectares
Hay LEP	Hay Local Environmental Plan 2011
Hazards SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021
Heritage Act	*Heritage Act 1977*
kV	Kilovolt
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
LGCs	Large-scale generation certificates
LLS Act	*Local Land Services Act 2013*
LRET	Large-scale Renewable Energy Target
LSC	Land and Soil Capability
LSPS	Local Strategic Planning Statements
LSS	Large-Scale Solar
MLA	Moir Landscape Architecture Pty Ltd
MNES	Matters of National Environmental Significance
MP	Member of Parliament
Mtpa	Metric tonnes per annum
MW	Megawatt
MWn	Net Megawatt
MVA	Mega Volt Amp
NAD	Non-associated dwelling

Term	Definition
NEM	National Energy Market
Net Zero Plan	Net Zero Plan Stage 1: 2020-2030
NIA	Noise Impact Assessment
NPW Act	*National Parks and Wildlife Act 1974*
NSW RFS	NSW Rural Fire Service
NSW Strategy	NSW Electricity Strategy
NT Act	*Native Title Act 1993*
O&M	Operations and Maintenance
OSOM	Oversize and Overmass
PBDAR	Preliminary Biodiversity Development Assessment Report
Planning Systems SEPP	State Environmental Planning Policy (Planning Systems) 2021
PLVIA	Preliminary Landscape and Visual Impact Assessment
PM	Particulate Matter
POEO Act	*Protection of the Environment Operations Act 1997*
QLD	Queensland
RAPs	Registered Aboriginal Parties
Regional Plan	Riverina Murray Regional Plan 2041
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RF Act	*Rural Fires Act 1997*
RIS	Renewable Integration Study
Roadmap	NSW Electricity Roadmap
Roads Act	*Roads Act 1993*
RPS	RPS Group AAP Consulting Pty Ltd
SDGs	Sustainable Development Goals
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SGRE	Siemens Gamesa Renewable Energy
SHR	State Heritage Register
SIA	Social Impact Assessment
South West REZ	South West Renewable Energy Zone
SSD	State Significant Development
TAFE	Technical and Further Education
TEC	Threatened Ecological Communities
Transmission Strategy	NSW Transmission Infrastructure Strategy
TSR	Travelling Stock Reserves
TTIA	Traffic and Transport Impact Assessment
UN	United Nations
VE	Vertosols
VIC	Victoria
VPA	Voluntary Planning Agreement
VRE	Variable Renewable Energy
WHO	World Health Organization
WM Act	*Water Management Act 2000*
ZVI	Zone of Visual Influence

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Appendix A Scoping Summary Table

Level of Assessment	Aspect	Scale of impact	Nature of impact	Cumulative Impact	Engagement*	Relevant government plans, policies and guidelines	Section where Addressed
Detailed Technical	Visual and Lighting	Moderate	Direct Cumulative Perceived	Yes	Specific	• 'Large Scale Solar Energy Guideline' (DPE, 2022) • 'Technical Supplement - Landscape and Visual Impact Assessment, Large-Scale Solar Energy Guideline' (DPE, 2022)	6.2
Detailed Technical	Noise and Vibration	Moderate	Direct Cumulative Perceived	Yes	Specific	• 'NSW Noise Policy for Industry' (EPA, 2017)	6.3
Detailed Technical	Biodiversity	Moderate-High	Direct Indirect Cumulative	Yes	Specific	• 'Biodiversity Assessment Method (BAM)' (DPIE, 2020b) •	6.4
Detailed Technical	Aboriginal Heritage	Moderate	Direct Indirect Cumulative	Yes	Specific	• '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 2010' (DECCW, 2010b)	6.5
Standard Technical	Historic Heritage	Low	Direct Indirect	No	General	• 'NSW Skeletal Remains: Guidelines for Management of Human Remains' (Heritage Office, 1998) • Criteria for the Assessment of Excavation Directors' (NSW Heritage Council, 2011) • 'Assessing heritage significance – a NSW Heritage Manual update' (NSW Heritage Manual – Assessing Heritage Significance' (DPIE, 2022d) • 'Historical Archaeology Code of Practice' (Heritage Council, 2006)	6.6
Detailed Technical	Traffic and Transport	Moderate	Direct Indirect Cumulative	Yes	Specific	• 'Guide to Traffic Generating Developments' (RTA, 2002) • 'Guide to Traffic Management' (Austroads, 2020) • 'Guide to Road Design' (Austroads, 2021)	6.7

Level of Assessment	Aspect	Scale of impact	Nature of impact	Cumulative Impact	Engagement*	Relevant government plans, policies and guidelines	Section where Addressed
Standard Technical	Water Resources (flooding and hydrology)	Low	Direct Indirect	No	General	• 'Managing Urban Stormwater; Soils & Construction' (Landcom, 2004) • 'Controlled Activities on Waterfront Land - Guidelines for riparian corridors on waterfront land' (DPI, 2018) • 'Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings' (DPI 2003) • 'Policy & Guidelines for Fish Habitat Conservation & Management' (DPI, 2013) • 'Relevant Water Sharing Plans' (DPI, various) • 'Guidelines for Watercourse Crossings on Waterfront Land' (DPI Water, 2012) • 'Floodplain Risk Management Guidelines' (DECC, 2016) • 'Floodplain Development Manual: The management of flood liable land' (NSW Government, 2005)	6.8
Detailed Technical	Agriculture and Land Resources	Low-Moderate	Direct Indirect	No	General	• 'Large Scale Solar Energy Guideline' (DPE, 2022) • 'Soil and Landscape Issues in Environmental Impact Assessment' (OEH, 2000) • 'Land Use Conflict Risk Assessment Guide' (DPI, 2011) • 'Landslide Risk Management Guidelines' (AGS, undated) • 'Site Investigations for Urban Salinity' (OEH, 2002) • 'Guidelines for surveying Soil and Land Resources' (NJ McKenzie, 2008) • 'The Australian Soil Classification' (Isbell N. C., 2016) • 'Australian Soil and Land Survey Field Handbook' (NCST, 2009) • 'The land and soil capability assessment scheme' (Office of Environment and Heritage, 2012) • 'Interpreting Soil Test Results – What do all the numbers mean?' (Hazelton, 2007) • 'Managing Urban Stormwater: Soils and Construction' (Landcom, 2004)	6.9

Level of Assessment	Aspect	Scale of impact	Nature of impact	Cumulative Impact	Engagement*	Relevant government plans, policies and guidelines	Section where Addressed
Standard Technical	Economic	Moderate	Direct Indirect Cumulative	Yes	General	None	6.10
Standard Technical	Social	Moderate	Direct Indirect Cumulative Perceived	Yes	Specific	• 'Social Impact Assessment Guideline for State Significant Projects' (DPIE, 2023a) • 'Technical Supplement' (DPIE, 2023b) • 'Undertaking Engagement Guidelines for State Significant Projects' (DPIE, 2022c)	6.12
Standard Technical	Hazards and Risks – Preliminary Hazard Assessment	Moderate	Direct Indirect Perceived	No	Specific	• SEPP. 33 – Hazardous and Offensive Development and Applying SEPP 33 (DoP, 2011) • 'Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis' (DoP, 2011) and Multi-Level Risk Assessment (DoP, 2011). • Hazardous Industry Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning (DoP, 2011)	6.13.1
Standard Technical	Hazards and Risks – Bushfire	Moderate	Direct Indirect	No	Specific	• 'Planning for Bushfire Protection' (RFS, 2019)	6.13.2
Standard	Hazards and Risks – Electromagnetic Field	Low	Direct Perceived	No	General	• 'Guidelines - for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields' (ICNIRP, 1998)	6.13.3
Standard	Air Quality and Greenhouse Gases	Low	Direct Indirect	No	General	• 'National Greenhouse Accounts Factors' (Australian Government, 2022) • 'NSW Climate Change Policy Framework' (OEH, 2016) • 'Approved Methods and Guidelines for the Modelling and Assessment of Air Pollutants in New South Wales' (NSW EPA, 2022)	6.14
Standard	Waste Management	Low	Direct Indirect	No	General	• 'Waste Classification Guidelines – Part 1: classifying waste' (NSW EPA, 2014) and Addendum (NSW EPA, 2016) • 'Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities' (NSW EPA, 2012)	6.15

** "community " in the guidelines is taken to also include regulatory.*

Appendix B Scoping Report Guidelines and Where Addressed

Requirement	Section Where Addressed
Structure and length	
• Main report: Introduction, Strategic context, Project, Statutory context, Engagement, Proposed assessment of impacts, References • Appendices: A: Scoping summary table, and B: Supporting information, including any detailed engagement or technical reports	Whole report
General map and GIS data specifications	
Maintain appropriate geo-referenced file formats.	Whole report
The applicant must supply the relevant GIS data to the Department as polygon datasets in one of the following file formats: shapefile, file geodatabase or MapInfo TAB	Whole report
Use the following coordinate system details: Datum: GDA 1994, Projection: GCS GDA 1994	Whole report
Maps must build on a standard base-map for the project and include: north arrow, a scale (or where a cross section is not to scale, an indication of the elevation of key features and vertical exaggeration), a legend, the source data.	Whole report
Accessibility and navigation	
Use plain English to explain complex information and avoid using jargon.	Whole report
Conform with the Web Content Accessibility Guidelines (WCAG) 2.0 Level AA and material relevant to creating accessible documents.	Whole report
• be provided as accessible PDF files (commonly referred to as “tagged” PDF files) • have a navigable table of contents • present information in a linear and easy to follow format • use headings (in Microsoft Word this means using heading styles, e.g. Heading 1, Heading 2, Normal) • use captions for tables, pictures and figures • include a header row in any tables • provide alternate text descriptions for all images preferably under 100 characters, except for images that are decorative • use text to convey information rather than, or in addition to, images where possible • use a contrast ratio of 3:1 for large text (18+ points or 14+ points bold) and at least 4.5:1 for text and images of text • not rely on colour to convey information and instead use text labels, patterns and symbols to supplement colour • use hyperlinks to assist with navigation through the document	Whole report
1. Introduction	
Include the applicant’s details, including ABN and address.	1.2
Include: a statement of the project objectives, site information including address and lot details, how the site was selected, and a map of the site in its regional setting.	1.4 1.6
Include the background to the project, including: any relevant history, key strategies that will be adopted to avoid, minimise or offset the impacts of the project to the extent known at the scoping stage.	1.4
Include a description of any related development, including any: • existing or approved development (including any existing use rights or continuing use rights) • development that is required for the project but would be subject to a separate assessment (e.g. upgrades to ancillary infrastructure, approvals for subsequent stages of the project).	1.5
2. Strategic context	
Identify at a high level the key strategic issues that are likely to be relevant to the project and will be investigated in more detail in the EIS.	2
Level of detail should be proportionate to the importance of the strategic context to the project and tailored towards informing the setting of the SEARs.	2

Requirement	Section Where Addressed
Key strategic issues may include: the justification of the project, relevant plans that establish a regional or local land use planning context for the project, key features of the site or surrounds that could affect or be affected, whether the project is likely to generate cumulative impacts with other relevant future projects in the area, and identifying whether the applicant has entered into any agreements with other parties to mitigate or offset the impacts of the project	2.1 2.2 2.3
3. Project	
Overview of the project including: • the project area, including the area likely to be physically disturbed by the project • the conceptual physical layout and design of the project • the main uses and activities that would be carried out on site as well as the materials and products that would be transported to and from the site • the likely timing of the delivery of the project, including staging, phases (e.g. construction, operations, decommissioning) or sequencing of staging	 3.1 3.2 3.2 3.5
Identify aspects of the projects where some flexibility may need to be incorporated into the design to allow the final design to be refined or changed over time without further approval.	3
Identify any restrictions or covenants that apply to the land.	4
Include a high-level analysis of feasible alternatives considered and rejected, including the consequences of not carrying out the development.	3.5
4. Statutory context	
This section should provide an overview of the key statutory requirements for the project, having regard to: • the EP&A Act and EP&A Regulation. • other relevant legislation • relevant environmental planning instruments • relevant approvals (e.g. concept plan approvals, staged DA consents).	4.1 4.2 4.3 4.4
The statutory requirements should be summarised in a table under the following headings: Power to grant consent, Permissibility, Other approvals, Pre-conditions to exercising the power to grant consent, and Mandatory matters for consideration.	4.1 4.2 4.3 4.4
5. Community Engagement	
Identify what engagement has already been carried out that is relevant to setting the SEARs, this may include: • community engagement that has been carried out by other parties that is relevant to the project • any actions taken by the applicant to identify and engage with key groups or individuals within the community that may have an interest in the project • any actions taken by the applicant to inform, consult or engage with the community during the development of the project or preparation of the scoping report Engagement should also be undertaken having regard to the community participation objectives in the Department's Undertaking Engagement Guidelines for State Significant Projects.	5.4
Summarise the key findings of any community engagement carried out and give an early indication of community views on the project using suitable maps, graphics and tables.	5.5
Identify the likely level of community interest in the project and the geographic extent of this interest (e.g. local: < 5 km from the site; regional: 5-100 km from the site or state: > 100 km from the site).	5.5
Group the community views on the project into one of the following categories: • Strategic context (e.g. key natural/built features that could be impacted, and the potential cumulative impacts) • Alternatives that may be considered	5.5

Requirement	Section Where Addressed
• Statutory issues • Community engagement during the preparation of the EIS • Key matters to be assessed during the EIS • Issues beyond the scope of the project or not relevant	
Summarise the community engagement that will be carried out during the preparation of the EIS, having regard to the findings of any community engagement carried out during scoping and the community participation objectives in the Department's Undertaking Engagement Guidelines for State Significant Projects including: • identify the key stakeholders (councils, government agencies, special interest groups, people living close to the site) for further engagement, to the extent that this will be known at the scoping stage • describe what actions will be taken to identify and engage with other interested stakeholders during the preparation of the EIS • describe the key actions that will be carried out to: ○ keep the community informed about the project ○ obtain feedback from the community on the project ○ engage with certain stakeholders on the detailed assessment of key matters • demonstrate that these actions are consistent with the community participation objectives in the Undertaking Engagement Guidelines for State Significant Projects • describe how the effectiveness of this engagement will be monitored, reviewed and adapted over time to encourage community participation in the project.	5.6
6. Proposed assessment of impacts	
Matters that should be considered by the project: access (e.g. traffic and transport), air quality, amenity (e.g. noise, visual), biodiversity, built environment, economic, hazards and risk (e.g. bushfire, flooding, waste), heritage (Aboriginal and non-Aboriginal), land, social, water. These specific matters can be divided further into different components of the specific matter, where relevant.	6
Key factors that should be considered for each matter: • the scale and nature of the likely impacts of the project and the sensitivity of the receiving environment • whether the project is likely to generate cumulative impacts with other relevant future projects in the area • the ability to avoid, minimise and/or offset the impacts of the project, to the extent known at the scoping stage • the complexity of the technical assessment of the project It is important to note that the applicant is not required to carry out a detailed assessment of each factor and document this assessment in the scoping report. This should be done in the detailed assessment of the project in the EIS.	6
Appendix A	
Include a scoping summary table which groups the matters requiring further assessment in the EIS by the level of assessment required, and identify: • whether any cumulative impact assessment is required, and the likely level of this assessment (e.g. standard or detailed) • whether any specific community engagement will be carried out on the matter during the preparation of the EIS • the relevant government plans, policies and guidelines that will be considered during the assessment of the impacts of the project on the matter • the relevant section of the scoping report where the assessment of the impacts on the matter are discussed in more detail.	Appendix A
Document the matters requiring no further assessment in the EIS in a table in the scoping report. This table should identify each matter and explain why no further assessment is necessary.	Appendix A

Appendix C Preliminary Landscape and Visual Impact Assessment

Pottinger Energy Park Solar Farm

Preliminary Visual Impact Assessment

moir
landscape architecture

Pottinger Energy Park Solar Farm

Preliminary Visual Impact Assessment

Prepared for
Someva Pty Ltd

Issue
C

Date
18.05.2023

Project Number
2284

Revision	Date	Author	Checked	Comment
A	24.02.2022	SW	MED	Draft For Review
B	16.05.2023	AL	MED	Draft For Review
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Contents

1.0 Introduction

1.1 Introduction

Someva Renewables (the applicant) proposes to develop the Pottinger Energy Park comprised of a hybrid Wind and Solar Farm and Battery Energy Storage System (BESS). Moir Landscape Architecture (Moir LA) has been commissioned by the applicant to prepare a Preliminary Visual Impact Assessment (PVIA) for the Pottinger Energy Park. The purpose of this PVIA is to provide a preliminary assessment of the potential visual impacts associated with the Pottinger Energy Park Solar Farm which is referred to hereafter as 'the Project'.

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

- *Large-Scale Solar Energy Guideline August 2022* (referred to hereafter as 'the Guideline') developed by the Department of Planning and Environment (DPE).

- *Technical Supplement - Landscape and Visual Impact Assessment, Large-Scale Solar Energy Guideline August 2022* (referred to hereafter as 'the Technical Supplement') developed by the DPE.

- *State Significant Development Guidelines - Preparing a Scoping Report (Appendix A)* (referred to hereafter as 'the SSD Guidelines')

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

1.2 Relevant Experience

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

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

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

- *Blind Creek Solar Farm LVIA (Bungendore, NSW)*
- *Glenellen Solar Farm LVIA (Glenellen, NSW)*
- *Oxley Solar Farm LVIA (Castledoyle, NSW)*
- *Stubbo Solar Farm LVIA (Stubbo, NSW)*
- *Tilbuster Solar Farm LVIA (Tamworth, NSW)*
- *Dunedoo Solar Farm LVIA (Dunedoo, NSW)*
- *The Plains Energy Hub PVIA (Hay, NSW)*
- *Dinawan Energy Hub PVIA (Jerilderie, NSW)*

1.3 Overview of Preliminary Visual Impact Assessment for Solar Farms

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

- **Stage 1** - Preliminary Assessment
- **Stage 2** - Detailed Assessment

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

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

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

2.0 Study Method

2.1 Study Method

The Guideline and Technical Supplement states that assessments for large-scale Solar Farms should include a Landscape Character Assessment and visual impact assessment. It defines these two components as the following:

- Landscape Character Assessment: *"This is the process for determining the overall impact of a project on an area's character and sense of place including what people think and feel about it and how society values it*." (DPE, 2022b).

- Visual Impact Assessment: *"This is the process for determining the day-to-day visual effects of a project on people's views (what people see at a place, when they are there) from the private and public domain."* (DPE, 2022b).

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

Community Consultation:

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

Preliminary Landscape Character Assessment:

This PVIA includes a Preliminary Landscape Character Assessment in order to assist with the determination of preliminary Landscape Character Zones (LCZ) and the level of detail that may be required to develop a baseline analysis in the EIS phase. The findings of this assessment will help in understanding sensitivities associated with the current landscape.

Preliminary Visual Impact Assessment:

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

2.2 Report Structure

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

Preliminary Visual Impact Assessment Report Structure:	
PVIA Report:	**Guideline and Technical Supplement Requirements:**
Refer to Section 3.0: Project Overview	*The assessment must include a full description of the proposed solar energy project design and use maps to show the location of the project in relation to viewpoints and surrounding landscapes identified for analysis.*
Refer to Section 4.0: Community Consultation	*The community should be engaged as early as possible to identify potential opportunities and constraints associated with the proposed development. The applicant should identify the elements of the project and the environmental assessment that can be influenced or shaped by the community.*
Refer to Section 5.0: Preliminary Landscape Character Assessment	*The applicant is encouraged to consult with the department in scoping its project to determine the level of detail that may be required in the Landscape Character Assessment.*
Section 6.0: Preliminary Visual Impact Assessment and Viewshed Mapping	*A preliminary visual assessment must be included in an applicant's scoping report as part of their request for the Secretary's environmental assessment requirements (SEARs). The applicant can use viewshed mapping to further eliminate the need to assess viewpoints that fall below the lines in the Preliminary Assessment Tool if the analysis shows there is intervening terrain that would block line of sight to a particular viewpoint. The applicant should also consider undertaking a reverse viewshed analysis.*
Section 7.0: Cumulative Visual Impacts	*The baseline analysis should identify and describe (...) the location of any existing operational or approved large-scale energy developments within a regional and local context, including projects which may have the potential to create direct or indirect cumulative impacts with the project.*
Section 8.0: Summary and Next Steps	

Table 1 Overview of Report Structure

2.3 Steps Undertaken for PVIA

The following process has been undertaken to develop this PVIA:

3.0 Project Overview

3.1 The Project

The Project comprises a large-scale solar photovoltaic (PV) generation facility with a generation capacity of approximately 300 megawatts (MW). The Project also comprises of a BESS and is supported by associated infrastructure. The Project forms part of the Pottinger Energy Park which is a hybrid wind and solar development.

The Project Area is approximately 500 hectares (ha) within the Subject land. **Figure 1** shows the existing site context and **Figure 2** provides an indicative layout of the Project. The final layout and capacity of the Project will be investigated during the preparation of the EIS and will be selected on the basis of environmental constraints identification, outcomes of stakeholder engagement, engineering assessments and design of project infrastructure.

Estimated height of the PV modules will be up to 2.4 metres (m) above ground level when in horizontal position and the lower edge of each PV module will not be less than 0.58 m above ground level at the maximum tilt angle. As a worst case assumption for visual impact assessment, the maximum height of the PV modules at maximum tilt angle is expected to be 4.22 m above ground level. The solar arrays will be mounted to steel structures and utilise single axis tracking systems.

3.2 Key Project Components

It is anticipated that the physical layout and design of the Project will comprise of the following key infrastructure elements:

- Client to provide data

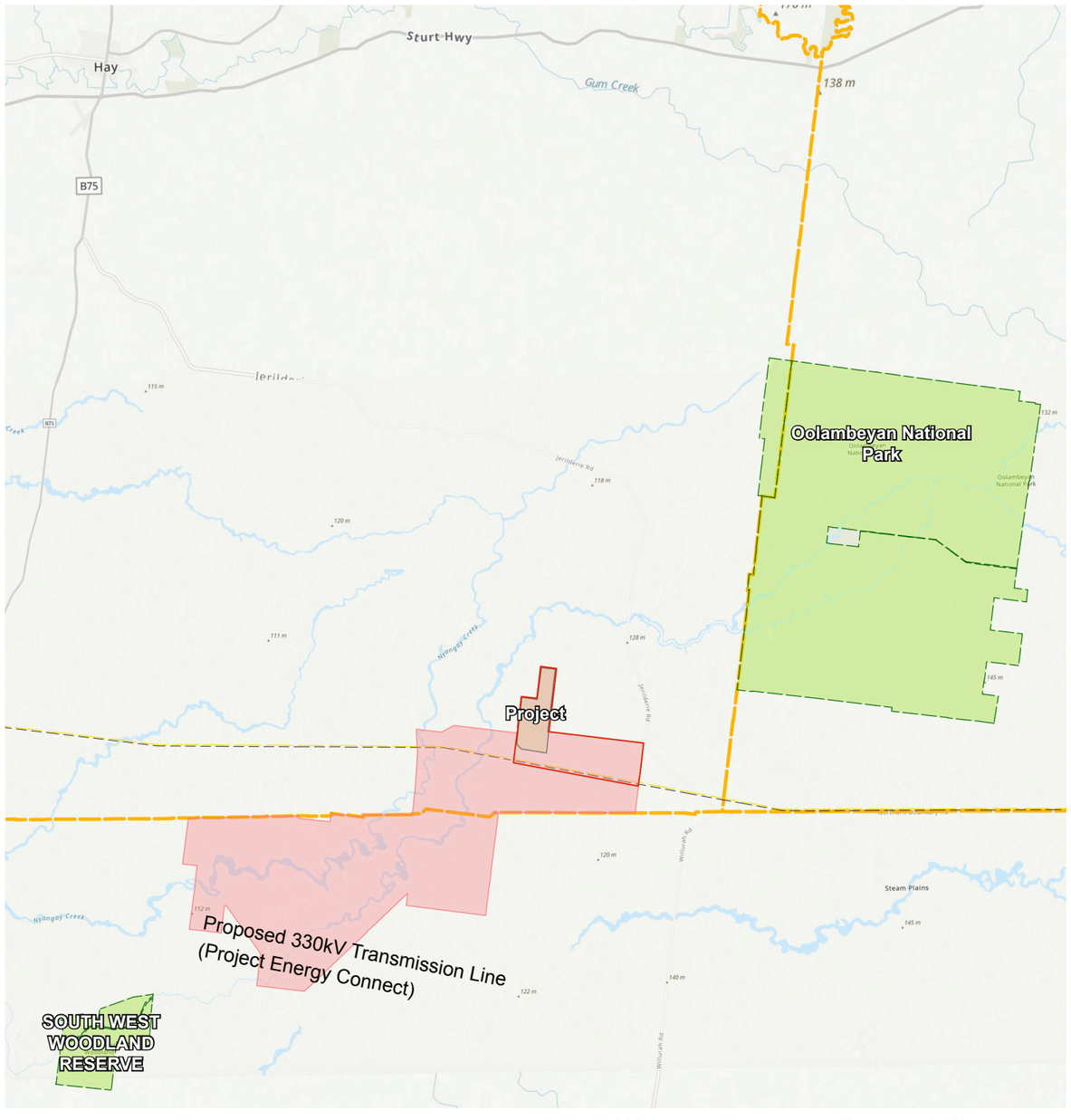
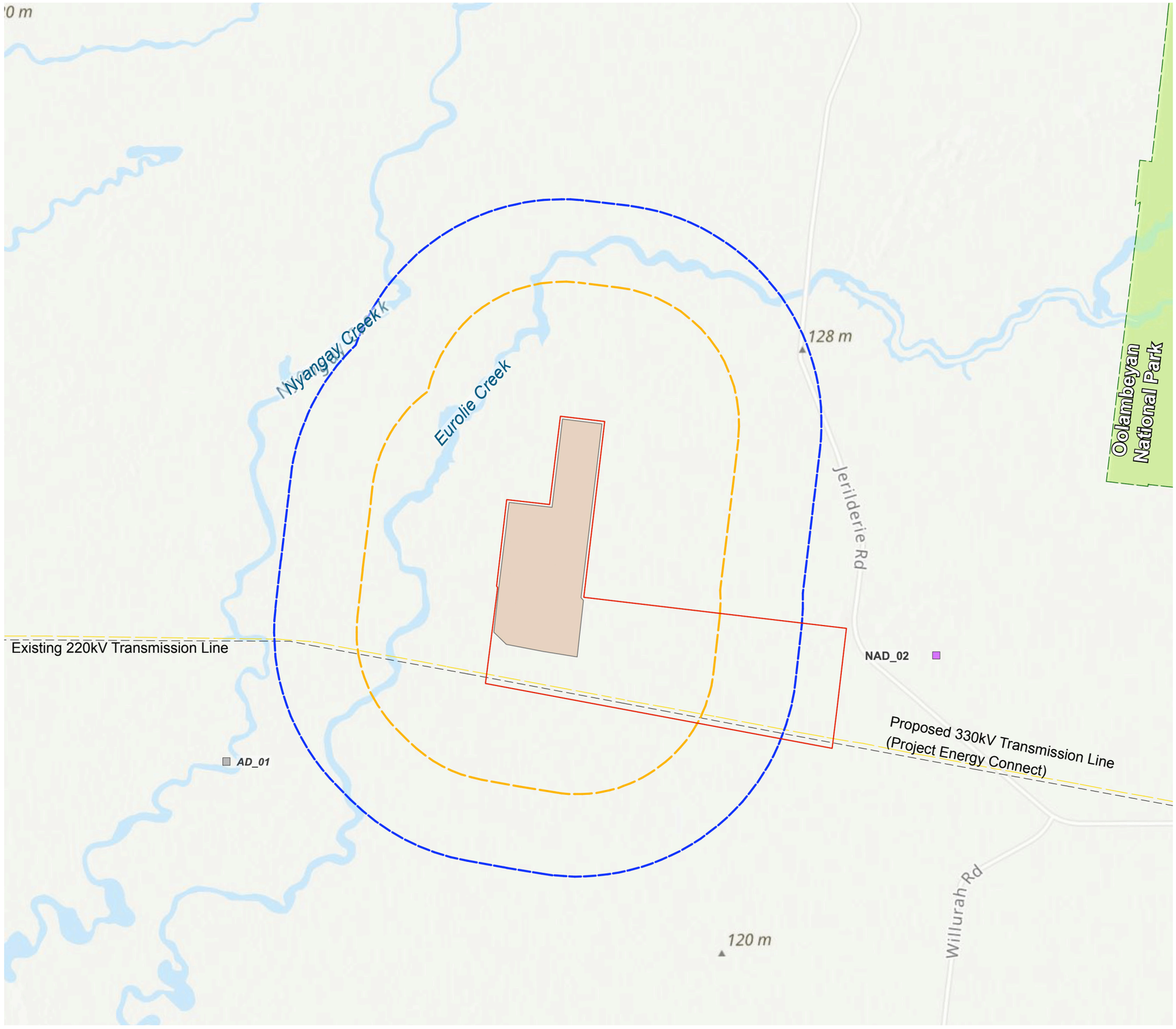


Figure 1 Site Context (Map Source: *ArcGis Maps 2023*)



Preliminary Project Layout

Pottinger Energy Park Solar Farm

LEGEND

- Project Area
- Development Footprint
- NAD_02 — Non-Associated Receivers
- AD_01 — Associated Receivers
- 2.5 km from the nearest Solar Array Panel
- 4 km from the nearest Solar Array Panel
- Local Road
- Creeks and Gully Channels
- Proposed 330kV Transmission Line (Project Energy Connect)
- Existing 220kV Transmission Line

0 1 2 3 4km

Figure 2 Preliminary Project Layout *(Map Source: ArcGis Maps 2023)*

4.0 Community Consultation

4.1 Overview of Community Consultation Process

The Guidelines and the Technical Supplement State that *the community should be engaged as early as possible to identify potential opportunities and constraints associated with the proposed development. The applicant should identify the elements of the project and the environmental assessment that can be influenced or shaped by the community.*

The purpose early Community Consultation was to identify key features valued in the area by that community. The Community will be engaged through the EIS phase to provide inputs into the Visual Baseline Study of the LVIA.

4.2 Results of Preliminary Community Consultation

In accordance with the Guidelines and the Technical Supplement, Community Consultation was undertaken by the Client. A CSIRO study published in 2012: *Exploring community acceptance of rural wind farms in Australia* provides a snapshot of community acceptance levels regarding Australian wind farms from a variety of stakeholder perspectives. It found levels of acceptance among the public are highly subjective and can differ depending on location, local context and place attachment.

The question ***'what do you value most about your local area?'*** was asked to gain the Community's perspective on key features of value within the local area. Below provides a summary of responses received through the preliminary Community Consultation.

No views of significant value identified outside of a general value for the expansive flat Hay plains (noting this was not mentioned frequently at all). Most of the landscape has been heavily altered through multi-generational broad acre farming operations. The area is highly exposed to the effects of climate (especially droughts) which we were cited as severely impacting farming operations during extended drought periods, creating economic and mental health hardship.

Most of the project neighbours have already signed on with competing renewable energy project developers, and noted their general support for renewable energy project developments in their area (i.e. no objecting neighbour groups to renewable energy projects have been identified at this stage).

In general, it is the protection of local endangered species (plains wanderer) that appears to be of most concern to project neighbours when asked about what they value most and might be impacted on by renewable energy development projects.

Local employment opportunities were another frequently mentioned value to project neighbours, as there are sparse opportunities for employment outside of large broad acre farming operations (and ancillary support services).

Engagement with the nearby private receivers indicated concerns were raised in relation to protection of local endangered species, '*unappealing fields of glass-looking panels',* protection of local Heritage and Aboriginal Artefacts and regarding local employment opportunities. Community's perspective towards the Project is generally positive. It is important to note that many of the surrounding landholdings have been engaged with other Renewable Energy Project Developers.

5.0 Preliminary Landscape Character Assessment

5.1 Existing Visual and Landscape Character

The Project is proposed to the west of Jerilderie Road approximately 60 kilometres (km) southeast of Hay within the Hay Local Government Area (LGA). An assessment of existing land use and landscape features suggests that the Project Area and its surrounds exhibit a strong agricultural history of grazing and cropping along with ecological associations of Nyangay Creek and Eurolie Creek. Topography within this area is generally flat with minor undulations along creek corridors.

Land within the Study Area is defined by paddocks generally used for agriculture. Vegetation is in the form of isolated groups and spread across the paddocks. The landscape is characterised by flat land parcels with native vegetation used for livestock grazing.

Nyangay Creek and Eurolie Creek flow through the Study Area approximately 4 km and 1.5 km west of the Project. No non-associated dwellings were identified within 5 km of the Project. In accordance with the Technical Supplement a 'Study Area' of 5 km did not reveal any non-associated dwellings. Thus, due to the flat topography the Study Area has been extended to 7 km from the Project. Preliminary assessment of all private and public receivers has been undertaken in **Section 6** of this report.

Figure 3 illustrates a 'Study Area' of 7 km from the Project.

5.2 Existing Landscape Character Zones

The Technical Supplement states: "*If the landscape includes distinct areas that have different qualities, the study area should be broken down into different character zones. Landscape character zones (LCZs) should divide the landscape based on common distinguishing visual characteristics. These patterns are formed by combinations of vegetation, water bodies, landforms and land use, from which key landscape features can also be identified."* Further, the Technical Supplement states: *"The study area for the Landscape Character Assessment should generally be approximately 5 km from the proposed development"* (DPE, 2022b).

Due to a relatively flat topographical character of the surrounding area, the Study Area has been defined as 7 km from the Project.

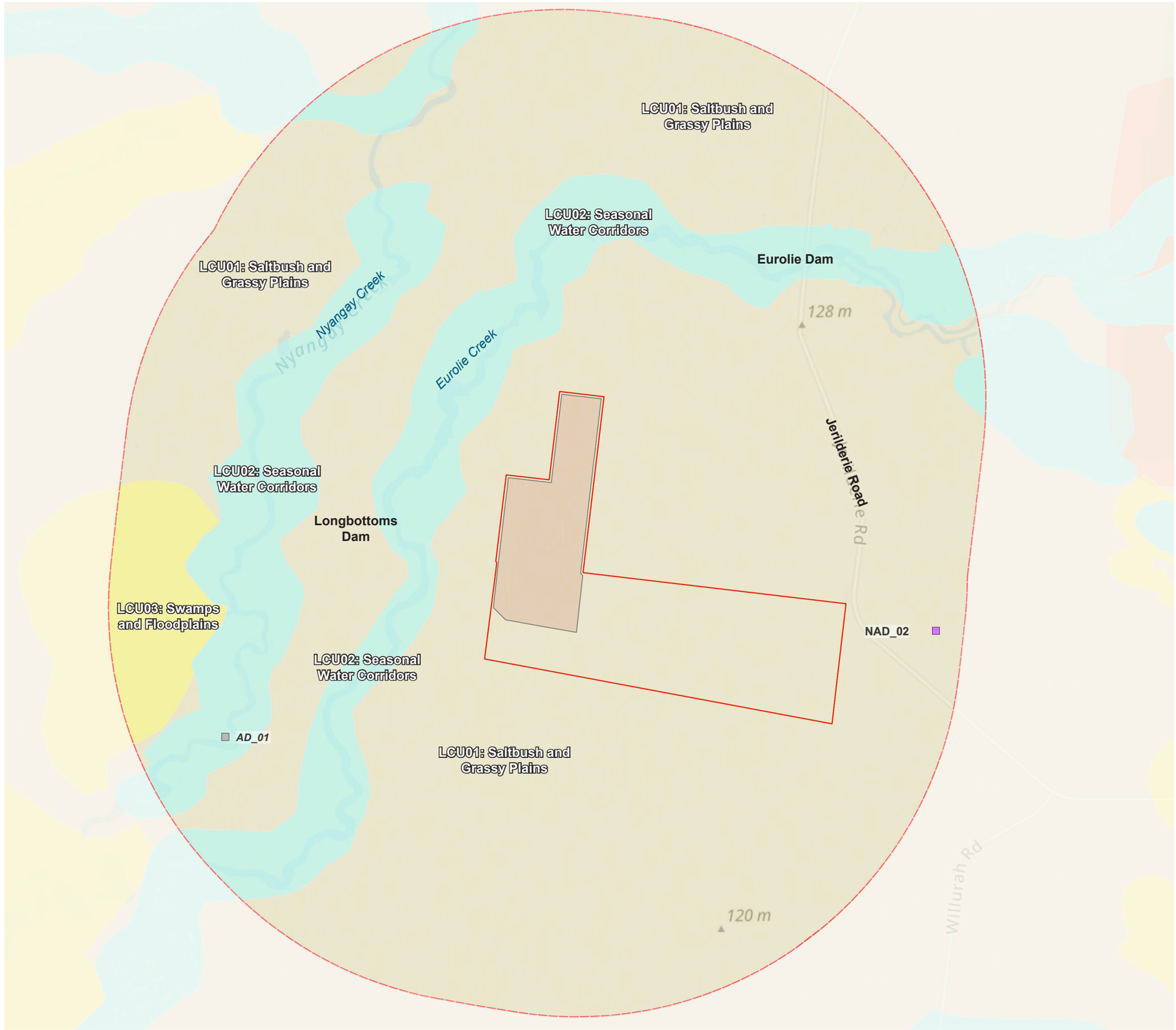
A Preliminary Desktop Assessment indicates typical existing LCZ identified within the Study Area from a precursory baseline for character assessment which will be assessed in detail in the EIS.

Figure 3 indicates the preliminary LCZ's identified through field work and desktop assessment.

A summary of the preliminary LCZ's identified is provided in **Table 2** below.

Preliminary Landscape Character Zones	
Code	**Name**
LCZ01	**Saltbush and Grassy Plains**
LCZ02	**Seasonal Water Corridors**
LCZ03	**Swamps and Floodplains**

Table 2. Overview of Preliminary Landscape Character Zones



Preliminary Landscape Character Zones

Pottinger Energy Park Solar Farm

LEGEND

- Project Area
- Development Footprint
- Local Road
- 7 km Study Area
- LCZ01: Saltbush and Grassy Plains
- LCZ02: Seasonal Water Corridors
- LCZ03: Swamps and Floodplains
- NAD_02 — Non-Associated Receivers
- AD_01 — Associated Receivers
- Dams

0 1 2 3 4km

Figure 3 Landscape Character Zones *(Map Source: Six Maps 2021)*

LCZ01: Seasonal Water Corridors

The Seasonal Water Corridors LCZ is defined by flat to gently undulating vegetation corridors. They are characterised by shallow depressions or elevation changes that are covered with speargrass, forbs and saltbush, and dense clumps of black box, nitre goosefoot and lignum. The density of vegetation varies in different locations. These also act as important wildlife refuges and distribute water across the region to support agricultural activity.

Scenic quality rating: Moderate

See Images 1 and 2.

Image 1

View of vegetation corridor associated with the Nyangay Creek as seen in close proximity to the Project Area.

Image 2

View of Eurolie Creek characterised by dense clumps of black box, boree, lignum, saltbush, grasses and forbs in gently undulating to flat tracts of lands.

LCZ02: Swamps and Floodplains

The LCZ is defined by flat, shallow sub-circular depressions that accommodate water flows. Edges of the LCZ are utilised for dam construction due to topographical changes that favour water collection. Characterised by dry, grey cracking clays with water-loving grasses, groundcovers and forbs. Prominent vegetation includes stands of nitre goosefoot and lignum shrubs, saltbush, canegrass and dillonbush.

Scenic quality rating: Low

See Images 3 and 4.

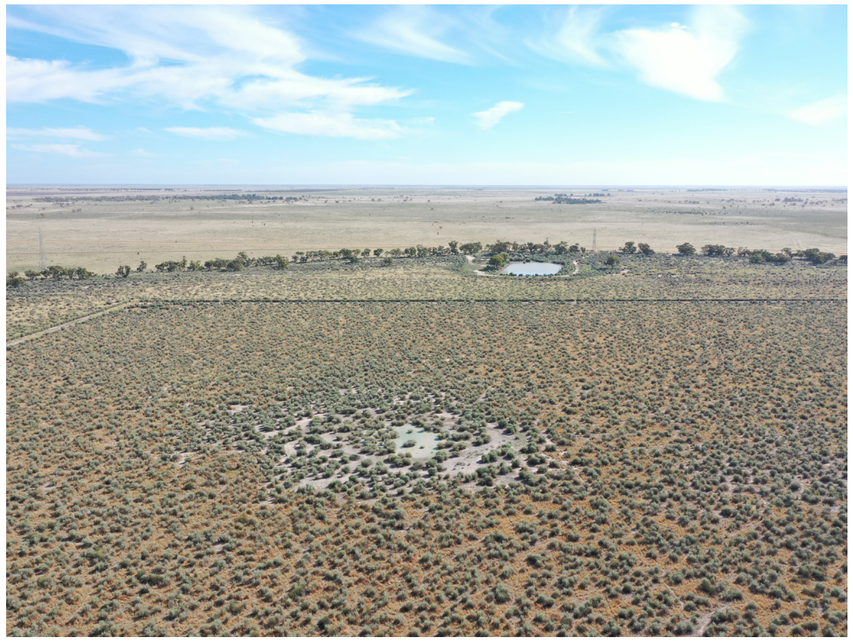


Image 3

Open, generally flat land parcels with saltbush and water-loving grasses and forbs typical of the LCZ.

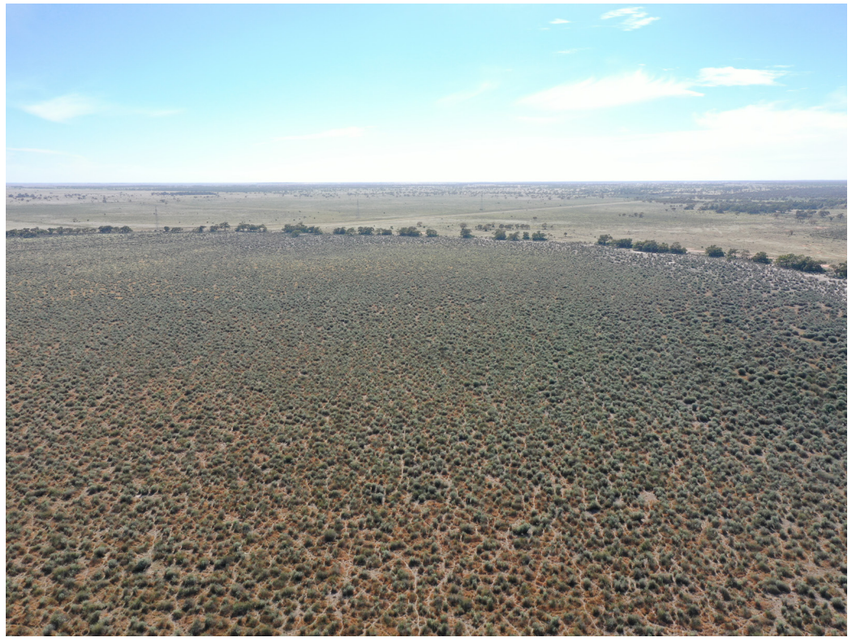


Image 4

Typical character visible within the Swamps and Floodplains LCZ.

LCZ03: Saltbush and Grassy Plains

The Saltbush and Grassy Plains LCZ is defined by vast, open land parcels that are utilised for sheep, cattle, emu and kangaroo grazing. The LCZ forms the most dominant character in the region. It comprises of open plains with scattered or no tree cover and vast extents of saltbushes, speargrass, and forbs. Common land uses include grazing on modified and irrigated land and dryland and irrigated cropping.

Scenic quality rating: Low

See Images 5 and 6.

Image 5

Large, open expanses of saltbush and grassy communities with isolated stands of vegetation over flat land parcels define the LCZ*'s typical character.*

Image 6

View of land parcels within and around the Project Area typically represent grazing pastures with saltbush varieties.

6.0 Preliminary Visual Impact Assessment

6.1 Preliminary Visual Impact Assessment

The Technical Supplement states: "*A preliminary visual assessment must be included in an applicant's scoping report as part of their request for the Secretary's environmental assessment requirements (SEARs)"* (DPE, 2022b). Further, it states: *"To use the Preliminary Assessment Tools; identify all viewpoints from public roads and rail lines within 2.5 km of the proposed development; identify other public and private viewpoints within 4 km of the proposed development."* (DPE, 2022b).

The Preliminary Assessment Tools must be used to identify viewpoints that require detailed assessment in the EIS. The tools can be used to eliminate the need to assess viewpoints that are likely to experience very low impacts. This is based on the vertical and horizontal field of view that a development is likely to occupy when viewed from each viewpoint and is influenced by distance, height elevation changes, and width of a project (DPE, 2022). **Table 3** provides an overview of the requirements of the Preliminary Assessment (in accordance with the Technical Supplement) and where these have been addressed in this report.

VIEWSHED MAPPING & REVERSE VIEWSHED MAPPING Refer to Section 6.2 & 6.3 Data provided in **Figure 4 & 5**	*'The applicant can use viewshed mapping to further eliminate the need to assess viewpoints that fall below the lines in the Preliminary Assessment Tool if the analysis shows there is intervening terrain that would block line of sight to a particular viewpoint.'*
PUBLIC & PRIVATE VIEWPOINT LOCATIONS Refer to Section 6.4 Data provided in **Figure 6**	*'Identify all viewpoints from public roads and rail lines within 2.5 km of the proposed development.'* *'Identify other public and private viewpoints within 4 km of the proposed development.'*
RECEIVER DISTANCE Data provided in **Table 5**	*'Calculate the distance of each of these viewpoints from the nearest point of the proposed development.'*
VERTICAL FIELD OF VIEW Refer to Section 6.5 Data provided in **Figure 10** & **Table 5**	*'Determine the **'relative height difference'** between the proposed development and each viewpoint.'* Note: this value is based on the terrain elevation of each receiver within the Study Area. Lowest Point = **92m** Highest Point = **98m** *'Plot each viewpoint on the Preliminary Assessment Tool – Vertical Field of View to determine the indicative vertical field of view (as either 1, 2, 3 or 4+ degrees)'*
RECEIVER DISTANCE **+** RELATIVE HEIGHT DIFFERENCE **=** **VERTICAL FIELD OF VIEW** Data provided in **Figure 9**	
HORIZONTAL FIELD OF VIEW Refer to Section 6.6 Data provided in **Table 5**	*'Measure the worst-case horizontal field of view of the project from each viewpoint (not considering topography or vegetation)'*
DETERMINE RECEIVERS REQUIRING DETAILED ASSESSMENT Refer to Section 6.8 Data provided in **Table 5**	*'Compare the vertical and horizontal fields of view using the matrix to determine whether detailed visual assessment of each viewpoint is required'*

Table 3 Overview of Preliminary Assessment Tools (Source: Technical Supplement, DPE, August 2022)

6.2 Viewshed Mapping

A viewshed map identifies all areas from which a project may be viewed. Viewshed mapping can be achieved by using Geographic Information Systems (GIS) that account for topography and line of sight between viewpoints and the project.

The purpose of the viewshed map is to eliminate the need to assess viewpoints that fall below the lines in the Preliminary Assessment Tool if the analysis shows there is intervening terrain that would block line of sight to a particular viewpoint.

Viewshed mapping was undertaken for the Project to eliminate viewpoint locations that will not have a line of sight to the Project (refer to **Figure 4**). It is important to note that these preliminary assessments are based on theoretical worst-case scenario that do not consider the impact of vegetation or structures. Ground-truthing during field work will ascertain potential visibility by taking into account structures and vegetation.

Viewshed mapping has been undertaken based on the maximum panel height of 4.22m.

Summary of Viewshed Map:

The following provides a summary of the viewshed map prepared for the Study Area:

- Due to the flat terrain within and the surrounding Study Area, the viewshed map indicates that majority of the Project will be visible from all public locations within 4 km of the Project Area. Jerilderie Road is the closest publicly road east of the Project.
- No non-associated dwellings were identified within 4km of the Project. However, due to the flat terrain and lack of intervening vegetation, a non-associated dwelling (NAD_02) was identified within the 7 km of the Project Area. NAD_02 is located east of the Project and will have views toward up to half of the Project. NAD_02 is associated with another project.
- Areas associated with the floodplains of Nyangay Creek and Eurolie Creek will have views of the Project. Areas outside 4 km from the Project will have limited visibility due to minor undulations in the topography.

6.3 Reverse Viewshed Mapping

The Technical Supplement states: "*The applicant should also consider undertaking a reverse viewshed analysis. This can be a useful tool to refine the project design process to reduce any significant impacts. It can also be used to communicate the visibility of certain parts of the project and aid consultation with the community. This analysis should be used to highlight parts of the project that can be seen from the greatest number of viewpoints"* (DPE, 2022b).

Figure 5 represents a reverse viewshed map that takes into account a total of **one (1) non-associated dwelling** up to **7 km** of the Project Area due to the flat topographic character. The map shows parts of the Project Area that are likely to be visible from these private viewing locations. This assessment also represents a bare ground scenario, i.e., a landscape without intervening elements such as vegetation and structures.

Summary of Reverse Viewshed Map:

The following provides a summary of the reverse viewshed map prepared for the Study Area:

- Approximately **one (1) dwelling** (NAD_02) was identified within 7 km Study Area (located approx. 1.8 km from the project boundary and approx. 6.5km from the development footprint) will likely view the northern tip and the majority of the southern portions of the Project. Refer to **Table 6** for results.

6.4 Viewpoint Selection and Preliminary Assessment Tool

The following provides an overview of the viewpoint selection process. Viewpoints have been illustrated in **Figure 6**. Further refinement of the viewpoints will be undertaken in the preparation of the LVIA.

Public Roads and Rail Lines:

In accordance with the Technical Supplement, all viewpoints from public roads and rail lines within 2.5 km of the nearest solar array panel must be assessed. No road or rail receiver viewpoints have been identified to represent views along the roads within 2.5 km of the nearest solar array panel. Jerilderie Road is the closest public road to the Project located 4 km east of the nearest solar array panel. Three (3) viewpoints have been identified to represent views from Jerilderie Road as shown in **Figure 6**.

Other public and private viewpoints:

In accordance with the Technical Supplement, other public and private viewpoints within 4 km of the nearest solar array panel must be identified and assessed. No non-associated dwellings or Private Receivers were identified within 4 km of the nearest solar array panel.

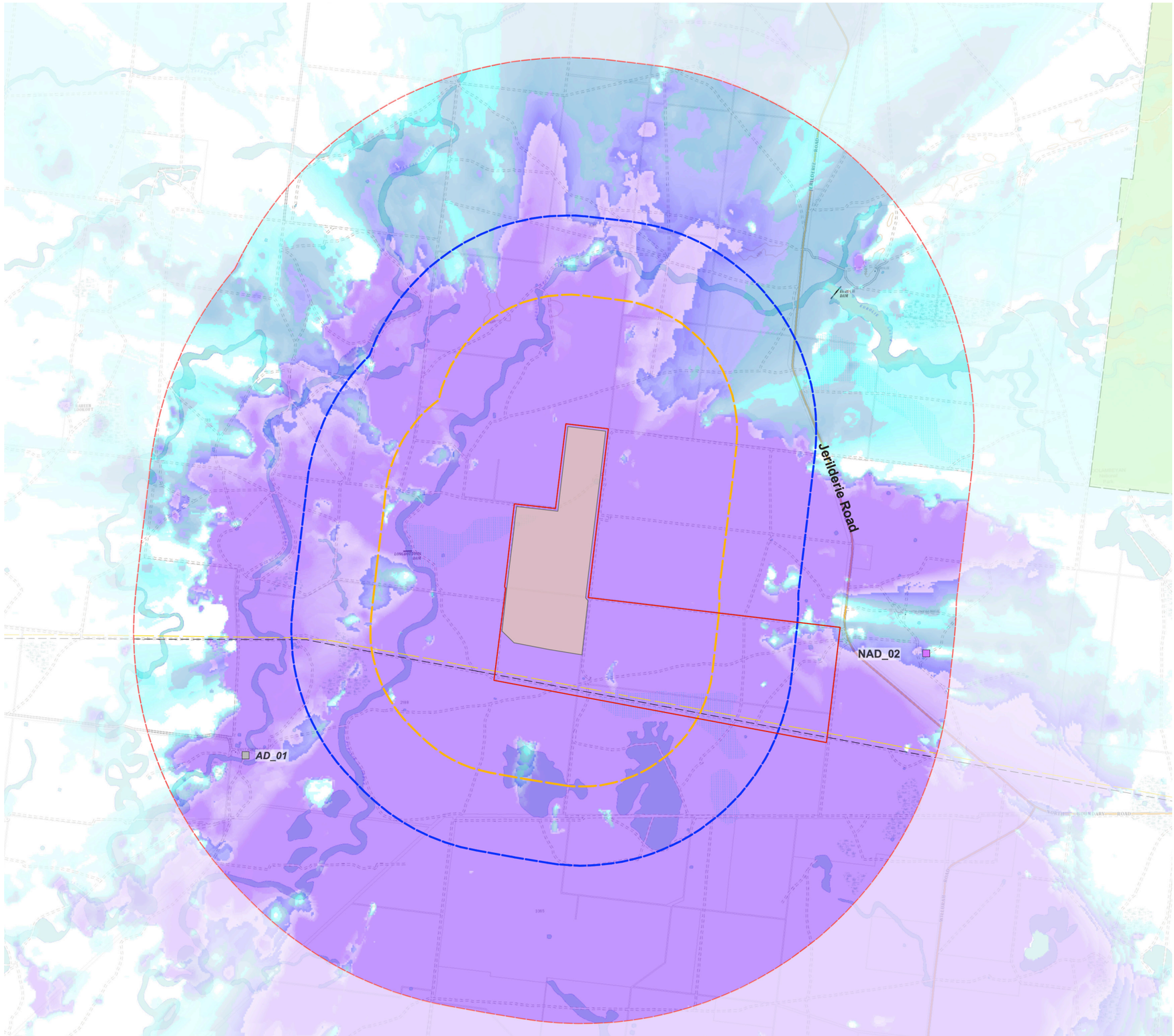
Additional viewpoints:

The Technical Supplement states: "*Additional viewpoints should be considered if ancillary infrastructure, such as substations, have the potential to cause impacts beyond the distances prescribed in the tool.*" (DPE, 2022b). One (1) non-involved dwelling (NAD_02, associated with another project) was identified within 7 km of the Project.

Assessment Parameters:

The Technical Supplement states: "*The calculations can be based on either the project area, or the development footprint depending on the level of information available at the time. A more refined approach that uses the development footprint, may result in less viewpoints requiring assessment.*" (DPE, 2022b).

Moir LA have considered 2.5 km, 4 km buffers and 7 km buffer from the nearest solar array panel to identify preliminary visual impacts in a worst case scenario. Assessment will be refined in the LVIA and will account for any further revisions to the development footprint.



Viewshed Map

Pottinger Energy Park Solar Farm

LEGEND

- Project Area
- NAD_02 — Non-Associated Receivers
- AD_01 — Associated Receivers
- 2.5 km from the nearest Solar Array Panel
- 4 km from the nearest Solar Array Panel
- 7 km Study Area
- Local Road

ZVI (Based on 4.22 m Panel Height)

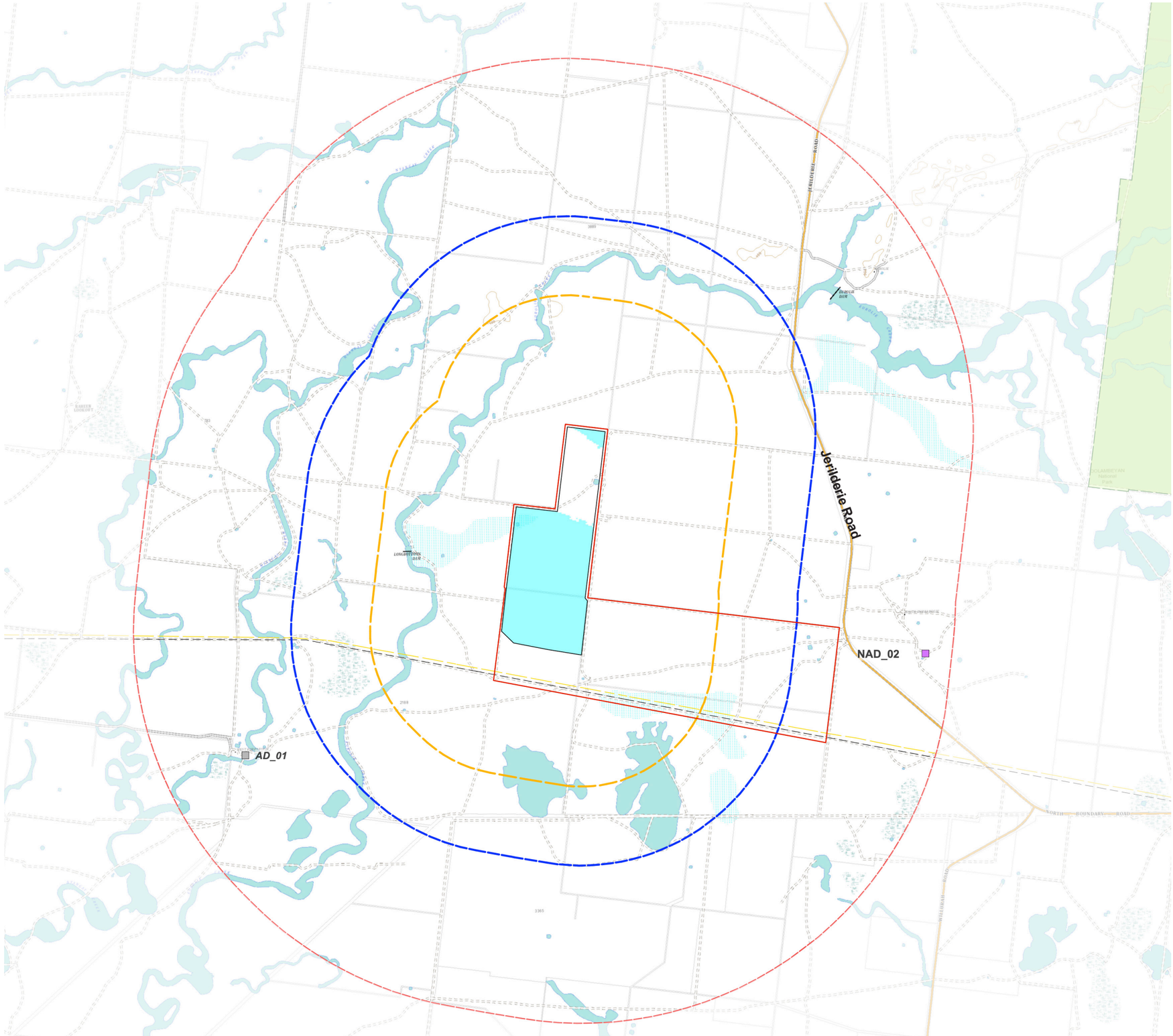
- No Visibility
- 1 - 25% Visibility
- 25 - 50% Visibility
- 50 - 75% Visibility
- 75 - 100% Visibility

NOTE

Viewshed Map is a Preliminary Assessment Tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the map is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

0 1 2 3 4km

Figure 4. Viewshed Map (Map Source: Six Maps 2011)



Reverse Viewshed Map

Pottinger Energy Park Solar Farm

LEGEND

- Project Area
- NAD_02 — Non-Associated Receivers
- AD_01 — Associated Receivers
- 2.5 km from the nearest Solar Array Panel
- 4 km from the nearest Solar Array Panel
- 7 km Study Area
- Main Road
- Local Road

Reverse ZVI (Based on 4.22 m Panel Height)

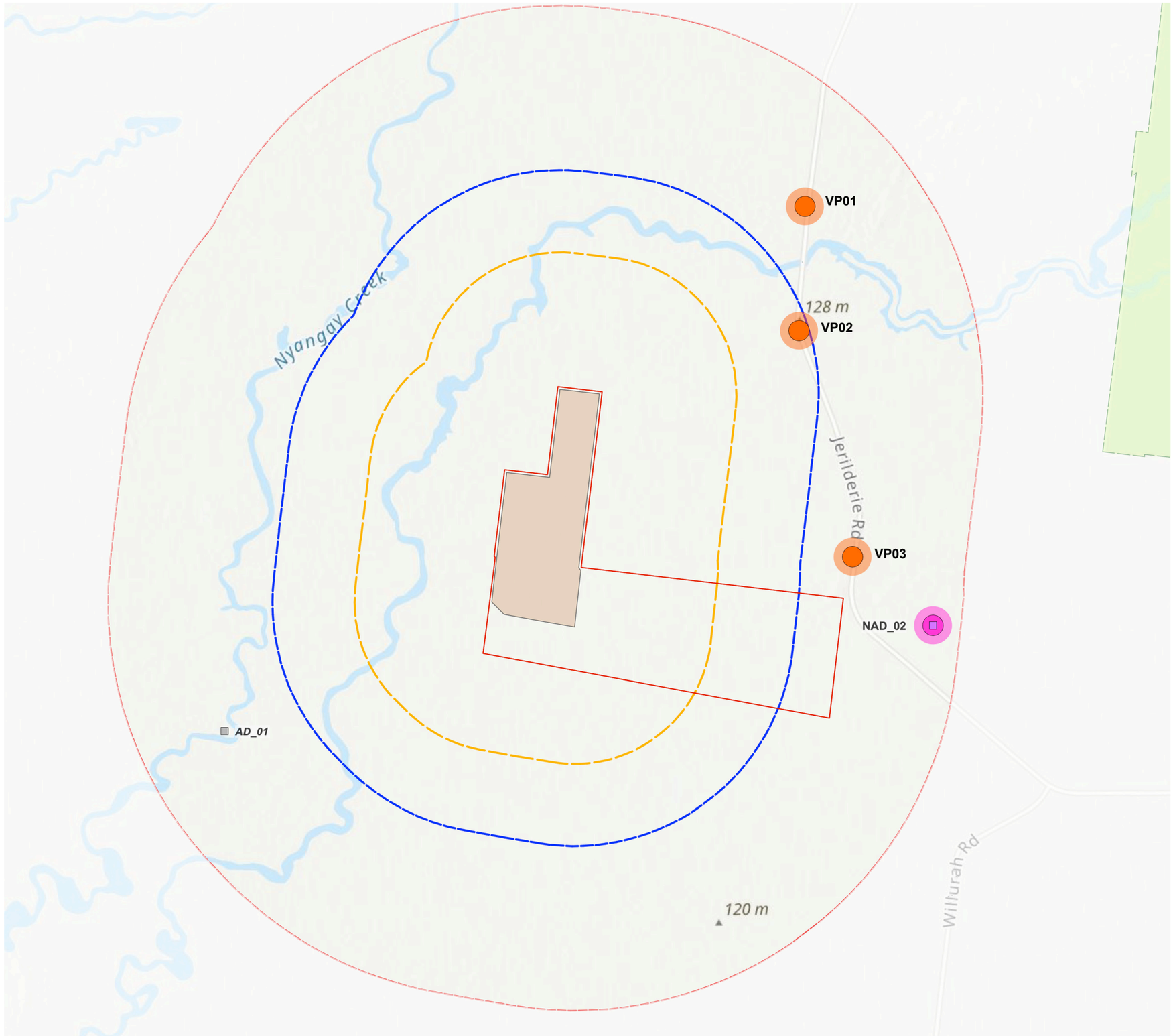
- No Visibility from Surrounding Dwellings
- 0 - < 2 Dwellings
- 33 - < 62 Dwellings
- 63 - < 92 Dwellings
- 93 - </= 125 Dwellings

NOTE

This reverse viewshed map is a Preliminary Assessment Tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the viewshed map is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

0 1 2 3 4km

Figure 5 Reverse Viewshed Map *(Map Source: Six Maps 2011)*



Viewpoint Locations

Pottinger Energy Park Solar Farm

LEGEND

- Project Area
- Development Footprint
- NAD_02 — Non-Associated Receivers
- *AD_01* — Associated Receivers
- 2.5 km from the nearest Solar Array Panel
- 4 km from the nearest Solar Array Panel
- 7 km Study Area
- Main Road
- Local Road
- Private Non-Associated Receiver
- Public Viewpoint within the 2.5km of the Project

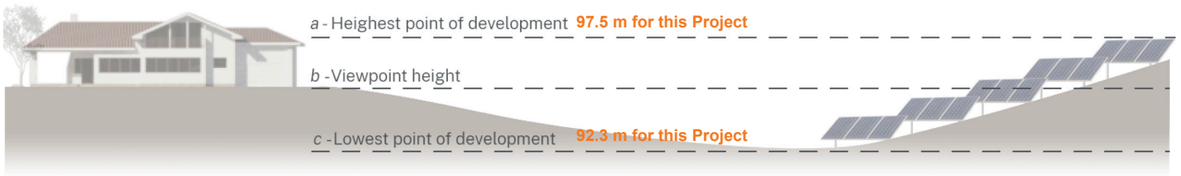
0 1 2 3 4km

Figure 6 Viewpoint Locations *(Map Source: Six Maps 2011)*

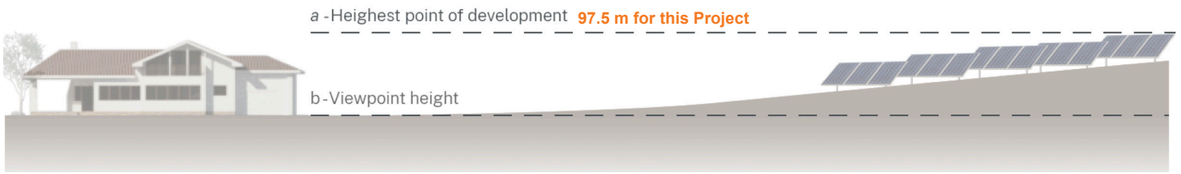
6.5 Vertical Field of View Calculation

Figure 7 below illustrates the method of calculation for the relative height difference for each viewpoint location. Plotting viewpoints on **Figure 9**, however, provides the actual value of the vertical field of view combining the receptor distance and relative height difference.

Project located above and below viewpoint (a - c)



Project located above viewpoint (a - b)



Project located below viewpoint (b - c)

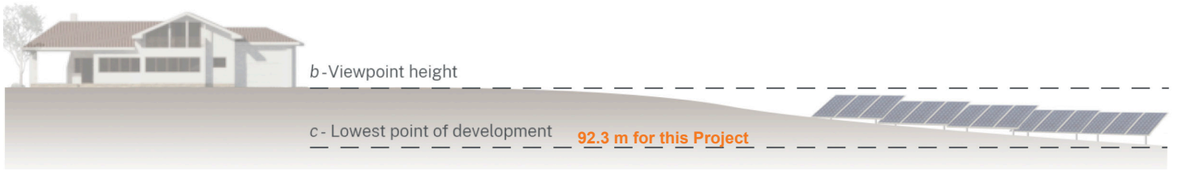


Figure 7 Vertical field of view calculation (Source: DPE, 2022)

6.6 Horizontal Field of View Calculation

Figure 8 below illustrates the method of calculation for the horizontal field of view for each viewpoint location. For the purpose of this report, the horizontal field of view has been calculated based on the Study Area to provide a worst-case scenario assessment. This will be refined in the EIS phase. The findings of the these calculations can be found in **Table 4**.

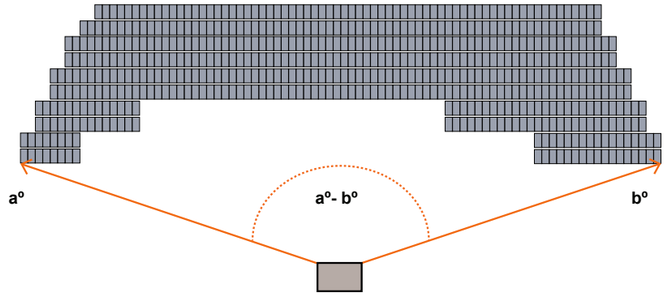


Figure 8 Horizontal Field of View

6.7 Assessment Requirements

Horizontal field of view of project	1º vertical field of view	2º vertical field of view	3º vertical field of view	4º + vertical field of view
1 - 10º	No assessment required	No assessment required	No assessment required	No assessment required
11 - 20º	No assessment required	No assessment required	No assessment required	Assessment required
21 - 30º	No assessment required	No assessment required	Assessment required for all viewpoints except road / rail	Assessment required
31 - 40º	No assessment required	Assessment required for all viewpoints except road / rail	Assessment required for all viewpoints except road / rail	Assessment required
41 - 50º	No assessment required	Assessment required for all viewpoints except road / rail	Assessment required	Assessment required
51 - 60º	No assessment required	Assessment required for all viewpoints except road / rail	Assessment required	Assessment required
61 - 70º	No assessment required	Assessment required	Assessment required	Assessment required
71 - 130º	Assessment required for all viewpoints except road / rail	Assessment required	Assessment required	Assessment required
130º+	Assessment required	Assessment required	Assessment required	Assessment required

Table 4 Preliminary Assessment Tool - Assessment Requirements (Source: Technical Supplement, DPE, 2022)

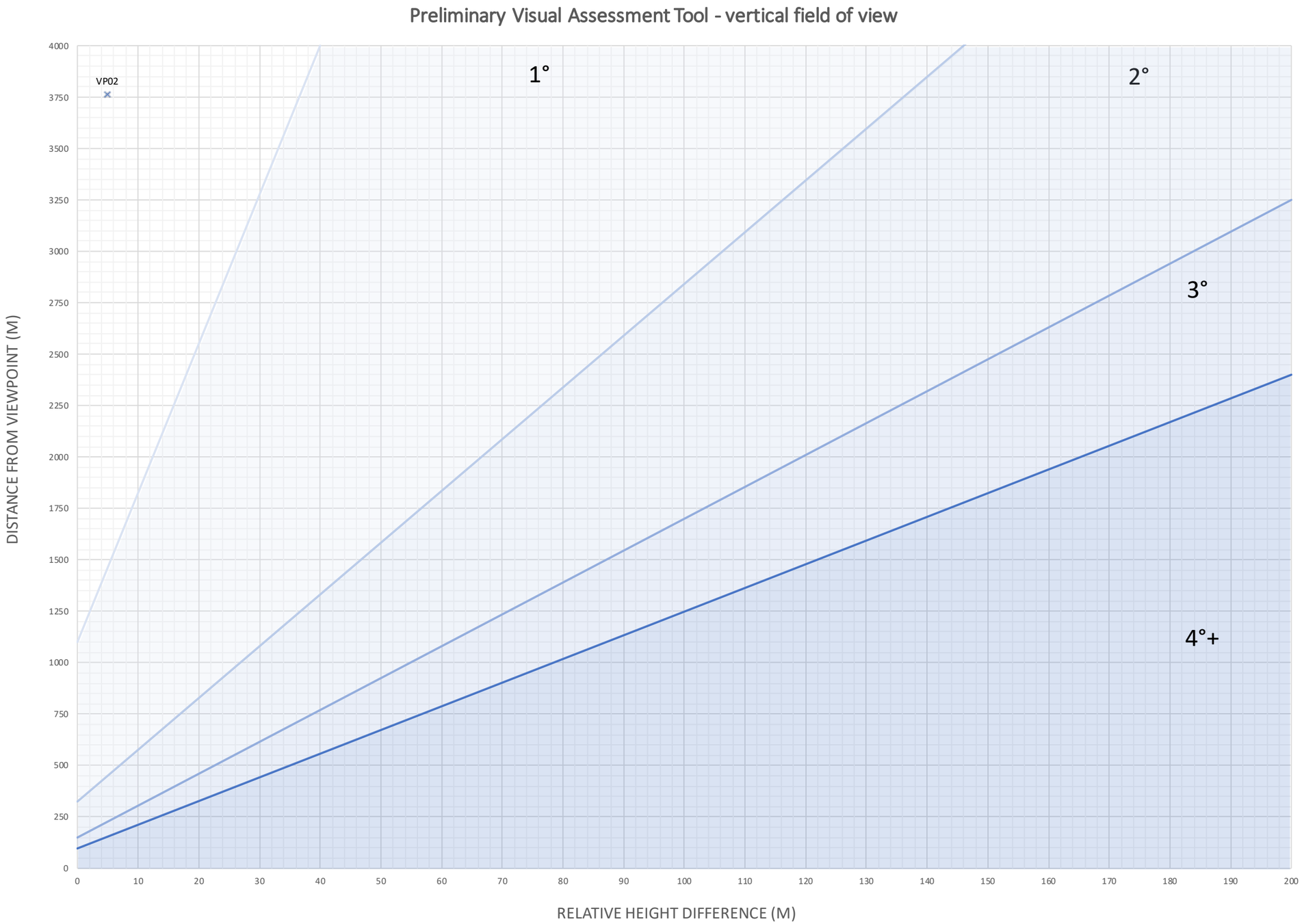


Figure 9 Preliminary Assessment Tool – Vertical Field of View (Source: DPE, 2022)

NOTE: Viewpoints plotted on figure 9 up to 4km

6.8 Results of Preliminary Assessment Tool

The Preliminary Assessment Tool is used to identify viewpoints (public and private) within the Study Area. Application of the Preliminary Assessment Tool identified **one (1)** non-associated dwelling. Due to the distance of the dwelling from the Project, no detailed assessment was required from this dwelling. There are no publicly accessible locations within 2.5 km of the Project. Additionally, all three (3) road receivers identified within the Study Area along Jerilderie Road required no additional assessment due to the distance between the Project and these locations. **Table 5** and **Table 6** provide a summary of these results.

Public Viewpoints:								
Receiver ID:	**Distance to nearest: panel:**	**Elevation of receiver (m):**	**Relative Height Difference (m):**	**Vertical field of view:**	**Horizontal extent of view:**	**Horizontal field of view:**	**Visible based on viewshed mapping:**	**Detailed Assessment Required?:**
VP01	5,084 m	97 m	1m	**0º**	234º- 209º	**35º**	YES	**NO**
VP02	3,763 m	97 m	1m	**0º**	257º - 217º	**40º**	YES	**NO**
VP03	4,937 m	98 m	0m	**0º**	304º - 257º	**47º**	YES	**NO**

Table 5 Results of Preliminary Viewpoint Assessment

Residential Viewpoints:								
Receiver ID:	**Distance to nearest: panel (m):**	**Elevation of receiver (m):**	**Relative Height Difference (m):**	**Vertical field of view:**	**Horizontal extent of view:**	**Horizontal field of view:**	**Visible based on viewshed mapping:**	**Detailed Assessment Required?:**
NAD_02	6,498m	101 m	8 m	**0º**	271º - 306º	**35º**	YES	**NO**

Table 6 Results of Preliminary Viewpoint Assessment

7.0 Cumulative Visual Impact

7.1 Overview of Cumulative Visual Impacts

The Project is part of the proposed Pottinger Energy Park project, located within the central region of the South West Renewable Energy Zone (REZ). The REZ has been identified by the NSW Governments Electricity Strategy and is expected to play a vital role in delivery of affordable energy to the community across NSW (Energy NSW, 2021).

The existing landscape character of the region allows for optimum harvest of wind and solar energy and as such, it is highly likely that over time this will be utilised for the development of renewable energy projects.

7.2 Nearby Renewable Energy Projects

Currently, seven (7) other renewable energy projects have been identified in the REZ (refer **Figure 10**):

Name of Project	*Distance to Project Area*	*Current Status*
The Plains Wind Farm	Approx. 5 km west	SEARs issued in December 2022
Yanco Delta Wind Farm	Approx. 39 km east	SEARs issued in May 2022
Dinawan Wind Farm	Approx. 32 km east	SEARs issued in December 2022
Dinawan Solar Farm	Approx. 32 km east	SEARs issued in December 2022
Bullawah Wind Farm	Adjacent	SEARs issued in December 2022
Wilan Wind Farm	Approx. 80 km west	SEARs issued in December 2022
Pottinger Energy Park Wind Farm	Adjacent, part of overall Pottinger Energy Park project	Preliminary Planning Phase

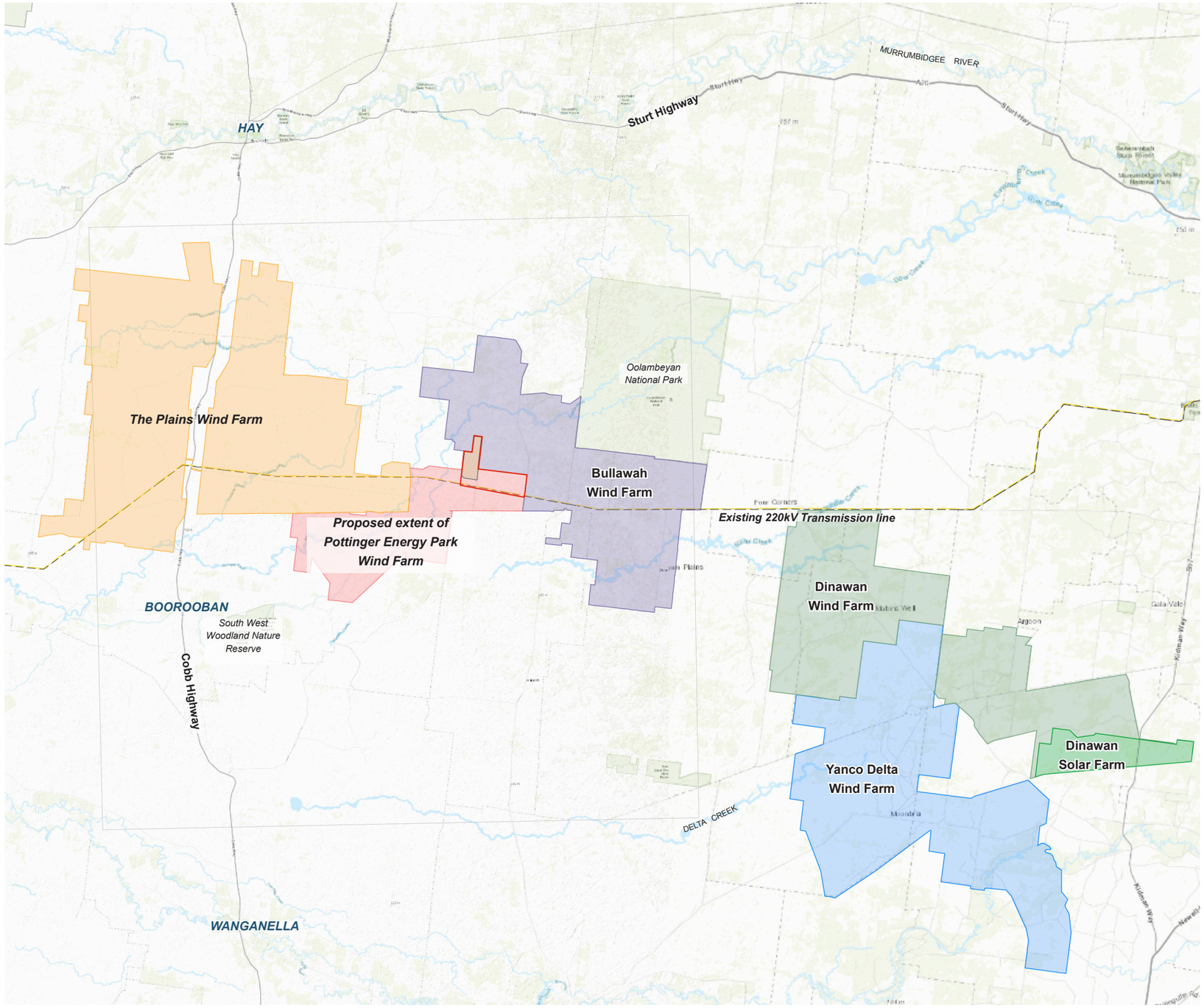
Table 6 Nearby Renewable Energy Projects

Of these, two (2) proposed wind farm projects are located west and one (1) proposed wind farm is located to the east of the Project (refer ***Figure 10***). Consideration of cumulative impacts of Pottinger Energy Park Wind Farm, The Plains Wind Farm (TPWF) and Bullawah Wind Farm (BWF) is therefore, critical for the Project and will be assessed in detail during the EIS Phase. One (1) non-associated dwelling NAD_02 is associated with another project.

7.3 Cumulative Impact on Broader Landscape Character

Re-occurrence of Renewable Energy Projects has the potential to alter the perception of the overall landscape character irrespective of being viewed in a single viewshed. It is important to determine whether the effect of major infrastructure projects within the region would combine to become the dominant visual element, altering the perception of the general landscape character.

The Project is located on flat terrain and is surrounded by isolated rural dwellings. Due to the flat topography of the region and lack of obtrusive elements, it is likely that there will be areas from which multiple Projects will be visible simultaneously. Further assessment of the cumulative visual impact will be detailed in the EIS, along with a description of the mitigation and management measures being employed to reduce impacts.



Nearby Wind Farm Projects

Pottinger Energy Park Solar Farm

LEGEND

- Development Footprint (Pottinger Energy Park Solar Farm)
- Project Area (Pottinger Energy Park Wind Farm)
- Indicative Project Area of Proposed The Plains Wind Farm (TPWF)
- Indicative Project Area of Proposed Bullawah Wind Farm (BWF)
- Indicative Project Area of Proposed Dinawan Wind Farm (DWF)
- Indicative Project Area of Proposed Dinawan Solar Farm (DSF)
- Indicative Project Area of Proposed Yanco Delta Wind Farm (YDWF)
- Roads
- Existing 220kV electrical transmission line
- Proposed 330kV transmission line (Project Energy-Connect)
- National Parks / Nature Reserves / SCA

0 4 8 12 16 20km

Figure 10 Nearby Wind Farm Projects (Map Source: ESRI Topographic Map, 2023)

8.0 Summary & Next Steps

8.1 Summary of Findings

Due to the relatively flat topography that is typical of the existing landscape, the majority of the Project is likely to be visible from surrounding areas. Minor undulations and vegetation associated with landscape features including Nyangay Creek and Eurolie Creek may assist in reducing visibility from areas located at a distance from the Project.

No non-associated dwellings have been identified within 4 km of the Project. One (1) non-associated dwelling (NAD_02, associated with other project) was identified within 7km of the Project. Due to the distance of this receiver to the Project, no additional assessment is required (refer to **Table 6**). In addition, three (3) public viewpoints (VP01, VP02 and VP03) require no additional assessment in the EIS phase due to the distance between these receivers and the Project (refer to **Table 5**).

8.2 Next Steps

A Landscape and Visual Impact Assessment (LVIA) will be prepared in accordance with the Guideline and the Technical Supplement. During the preparation of the LVIA, detailed site investigations will be undertaken from areas within the Study Area to confirm the results of the preliminary assessments. This process will be undertaken using the procedures outlined in the following Guidelines:

- Large-Scale Solar Energy Guideline (August 2022)
- Technical Supplement Landscape and Visual Impact Assessment - Large-Scale Solar Energy Guideline (August, 2022)
- Environmental Planning and Assessment Regulation 2021
- Hay Local Environmental Plan (LEP) 2011
- State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP).

Specialised modelling tools and visualisations (including photomontages) will be developed to illustrate potential views of the Project from key public viewpoints identified through this report. In addition site inspections will be undertaken from key receivers locations identified within the Study Area to confirm the results identified within this report.

The LVIA will include an assessment of the landscape and visual impact resulting from all associated infrastructure and ancillary structures, and consideration of cumulative impacts of nearby infrastructure. Further assessment will be undertaken to assess potential impacts of glint and glare using industry standard methodology.

Ongoing community consultation will be undertaken to ensure and develop an understanding of the community's landscape values.

Cumulative impacts of surrounding renewable energy projects will also be assessed in the LVIA in order to identify impacts on the broader landscape character of the region. Currently, three (3) proposed renewable energy projects (Bullawah Wind Farm, The Plains Wind Farm and Pottinger Energy Park) were identified in proximity to the Project Area. Detailed assessment of the impacts of these projects will be undertaken in the EIS phase.

On-site and off-site visual landscape mitigation strategies will be developed in response to the assessment and community consultation. The purpose of the mitigation strategies will be to ensure the Project is integrated into the existing landscape.

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Appendix D Noise Impact Assessment

Pottinger Energy Park

Solar and BESS Preliminary Noise Impact Assessment

S7618C2C

May 2023

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Document Title	: Pottinger Energy Park Solar and BESS Preliminary Noise Impact Assessment
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GLOSSARY

A-weighting	Frequency adjustment applied to measured noise levels to approximate the frequency response of the human ear.
Ambient noise level	The noise level of the existing noise sources in the environment (in the absence of the development).
Annoying noise characteristics	Characteristics of noise that can be considered annoying, including tonality, intermittency, irregularity, or dominant low-frequency content.
Associated Residence	A residence, where the landowner has a commercial agreement with the development.
Background noise level	The ambient noise level which excludes intermittent noise sources.
BESS	Battery Energy Storage System
dB(A)	A-weighted noise or sound power level in decibels.
EIS	Environmental Impact Statement
Non-associated Residence	A residence, where the landowner does not have a commercial agreement with the development.
Non-associated (Associated with another project)	A residence, where the landowner does not have a commercial agreement with the development, but does have a commercial agreement with another nearby development to the Project
SEARs	Secretary's Environmental Assessment Requirements
Sound power level	A measure of the sound energy emitted from a source of noise.
The Noise Sources	All equipment associated with the Solar Farm, BESS and associated ancillary equipment.
The Policy	NSW Noise Policy for Industry 2017
The Project	Pottinger Energy Park
Worst-case	Conditions resulting in the highest noise level at residences.

1 INTRODUCTION

The Pottinger Energy Park (the **Project**) is proposed to be constructed approximately 60km south of Hay, New South Wales.

The Applicant seeks in-perpetuity approval for the construction, operation and decommissioning of a 300 MW solar farm, electrical infrastructure, other infrastructure, and ancillary activities generally including the following components:

- Energy Generation:
  - Approximately 850,000 panels and 170 ha of solar arrays;
- Solar Power Conversion Unit (PCU):
  - Solar PCUs including a power station, inverter, transformer and associated equipment;
- Electrical reticulation network:
  - Up to five main transformers and an optional second satellite substation and associated transformers, switchroom, and reactive plant;
  - On-site connection to Project EnergyConnect, associated switch and other equipment at the main substation;
  - Internal electrical reticulation (both underground and overhead);
  - Approximately 500 MW / 2 gigawatt hours (GWh) Battery Energy Storage (BESS);
- Other temporary and permanent infrastructure including:
  - Operations and Maintenance (O&M) facility and infrastructure including site office, storage facilities, car parking and fencing;
  - Accommodation facilities;
  - Construction and operational compounds;
  - Internal access tracks and road turning head connecting Project infrastructure;
  - Meteorological masts;
  - Concrete batching plants, crushing facilities, gravel / borrow pits, construction laydown areas, and stockpile areas;
- Ancillary activities including sourcing of materials for construction; sourcing of water for construction; subdivision and boundary adjustments, visual screening and associated ancillary works;
- Access road use and Project-required upgrades:
  - Project Area access: via the Cobb Highway from Jerilderie Road in the north east

  - Solar farm components access: via a major Port in either NSW, VIC, SA, via the Sturt Highway and/or Cobb Highway, then Jerilderie Road and/or West Burrabogie Road;
- Operational and construction workforces;
- Construction generally within standard construction hours and operations 24 hours per day 7 days per week; and
- Preliminary disturbance footprint of up to 630 ha.

No external transmission lines or associated easements are required for the Project.

Some of the Project-associated infrastructure will be shared with the Pottinger Wind Farm (the subject of a separate application).

This preliminary noise impact assessment supports the Scoping Report which has been prepared to assist in the application for the Secretary's Environmental Assessment Requirements (SEARs) which shall guide the preparation of the Environmental Impact Statement (EIS) for the Project.

The assessment includes predictions of the noise from the solar farm, BESS and associated ancillary equipment, and has been conducted against the *NSW Noise Policy for Industry 2017* (the **Policy**). The Preliminary Noise Impact Assessment of the noise from wind turbines is available in Sonus Report S7618C1A.

2 PRELIMINARY NOISE IMPACT ASSESSMENT

The preliminary noise impact assessment is based on the following information:

- The designated zone for the locations of the Noise Sources associated with the assessment. The Noise Sources have been contained within this area and centred around the coordinates shown in Appendix A;
- Noise level data for 60 indicative 5 MW power conversion units for a 300 MW solar farm, each with a sound power level of 95 dB(A);
- Noise level data for an indicative 500MW, 2GWh BESS system, with an overall sound power level of 120 dB(A), which is a conservative assumption;
- Noise level data for 5 indicative 250MVA transformers, each with a sound power level of 100 dB(A);
- Receiver locations summarised in Appendix B, including the classification of the receiver, the distance to the designated zone and the predicted noise level; and,
- Local topographical contours[1].

Note that the ancillary infrastructure described above is common to both the wind and solar components of the proposal, and therefore the assessment of the noise emissions from this equipment has also been considered for the (separate) wind farm noise assessment.

[1] 2020. SRTMGL1v003-DSM. Geoscience Australia, Canberra. http://pid.geoscience.gov.au/dataset/ga/135165

2.1 Methodology

The predictions have been based on the CONCAWE noise propagation model as implemented in SoundPLAN noise modelling software. The noise propagation model considers the following:

- sound power levels of noise sources and locations;
- separation distances between noise sources and residences;
- topography of the area;
- influence of the ground;
- air absorption; and,
- meteorological conditions.

The CONCAWE noise propagation model accounts for meteorological conditions based on six separate "weather categories", dependant on wind speed, wind direction, time of day and level of cloud cover. Weather Category 1 provides the weather conditions associated with the "lowest" propagation of noise, while Weather Category 6 provides "worst-case" (i.e. highest noise level) conditions. Weather Category 4 provides "neutral" weather conditions for noise propagation (that is, conditions in which the effects of temperature inversion or wind on propagation of noise are neutral).

Fact Sheet D of the Policy describes how to account for noise enhancing weather conditions. The conditions described as "Noise-enhancing" meteorological conditions align with the CONCAWE Weather Category 6 conditions used in this assessment.

The assessment has been based on the following input conditions:

- CONCAWE Weather Category 6 (representing meteorological conditions that enhance the propagation of noise);
- atmospheric conditions at 10°C and 70% relative humidity (representing conditions that result in low levels of noise absorption from the atmosphere);
- wind directions representing the absolute worst-case noise propagation from the wind from all noise sources to the receiver; and,
- acoustically soft ground (representing the pastoral nature of the land).

2.2 Criteria

The Policy provides the Project Noise Trigger Level based on the most onerous requirement of:

1. The intrusiveness noise level, which limits the noise level to 5 dB above the background level, so long as it is above a minimum threshold; and
2. The project amenity noise level, which provides an overall noise level limit for different land uses.

As background noise monitoring has not been conducted, the intrusiveness noise level has been taken as the minimum threshold. These are as follows:

Table 1: Minimum assumed project intrusiveness noise levels

Time of day	Minimum project intrusiveness noise levels ($L_{Aeq,\ 15\ min}$ dB[A])
Day (7am to 6pm Monday to Saturday, or 8am to 6pm on Sundays and public holidays)	40
Evening (6pm to 10pm)	35
Night (all remaining periods)	35

The project amenity noise levels are based upon the receiver noise amenity area, which in this case is RU1 – primary production. For residential receivers, the following project amenity noise levels apply.

Table 2: Recommended amenity noise levels

Time of day	Project amenity noise levels (L_{Aeq} dB[A])
Day (7am to 6pm Monday to Saturday, or 8am to 6pm on Sundays and public holidays)	48
Evening (6pm to 10pm)	43
Night (all remaining periods)	38

This preliminary assessment is based on setting the Project Noise Trigger Level as the minimum project intrusiveness noise levels. Background noise monitoring conducted as part of the Project process may result in an increase in the Project Noise Trigger Levels above these levels.

In accordance with the Policy, where a noise source contains certain characteristics, such as tonality, intermittency, irregularity or dominant low-frequency content, there is evidence to suggest that it can cause greater annoyance than other noise at the same noise level. The Policy applies the correction factors to be applied to the source noise level at the receiver before comparison with the project noise trigger levels specified to account for the additional annoyance caused by these modifying factors. The modifying factor corrections should be applied having regard to:

- the contribution noise level from the premises when assessed/measured at a receiver location, and
- the nature of the noise source and its characteristics (as set out in the Policy).

The corrections specified for tonal, intermittent and low-frequency noise are to be added to the measured or predicted noise levels at the receiver before comparison with the project noise trigger levels. The adjustments for duration are to be applied to the criterion.

As the equipment for the Project are yet to be selected, a conservative assumption has been made that the equipment will result in a tonal correction being applicable at the residences.

2.3 Results

The predicted noise levels from the assessment are shown graphically in Figure 1 below. Figure 1 shows the predicted 35 dB(A), 40 dB(A) and 45 dB(A) noise contours, which are inclusive of a 5 dB(A) correction for tonality. The preliminary prediction indicates that the noise at receivers shown outside of the 35 dB(A) contour achieves the Project Noise Trigger Levels.

Based on the preliminary modelling, there are no residences that have a predicted noise level greater than or equal to 35 dB(A), and as such, the Project Noise Trigger Levels are achieved at all sensitive receivers.

The Project will be refined as part of the ongoing design process to seek to minimise noise impacts at all residences. Potential modifications to the solar farm and BESS layout or agreements with landowners are options that will be further considered in the EIA process to ensure that compliance with the relevant criteria at all receivers is maintained.

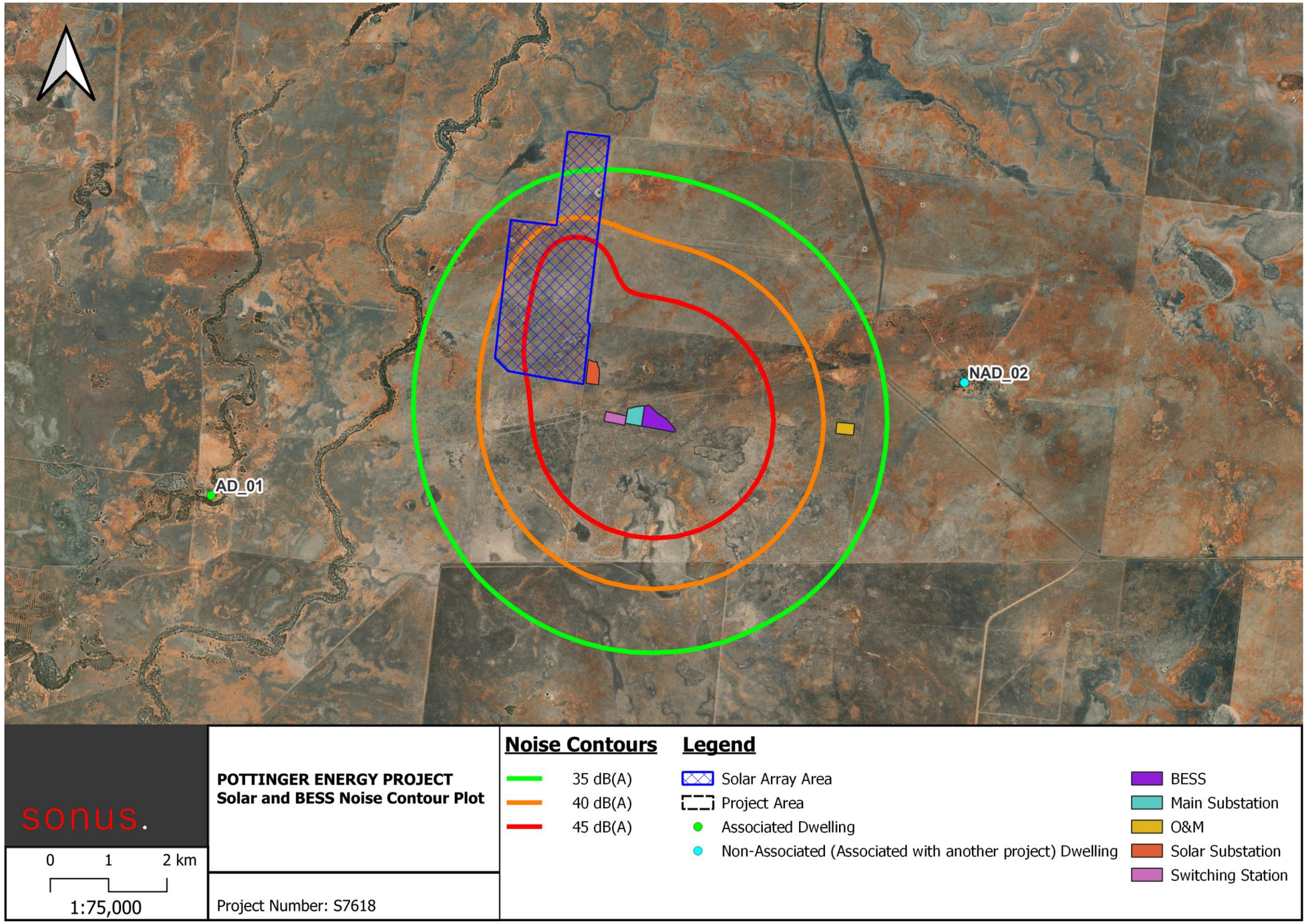

Figure 1: Result Contours

3 ACOUSTIC IMPACT ASSESSMENT

A detailed acoustic assessment will be prepared for inclusion in the EIS, addressing the following components:

- Solar farm, BESS and other ancillary infrastructure noise in accordance with the *Noise Policy for Industry, 2017;*
- Construction noise in accordance with the *Interim Construction Noise Guideline, 2009;*
- Traffic noise in accordance with the *NSW Road Noise Policy, 2011*; and,
- Vibration in accordance with *Assessing vibration: A Technical Guideline, 2006*.

The EIS will incorporate the following information to assist in considering the detailed assessment:

1. Consideration of the background noise environment;
2. Establishment of criteria in accordance with the Policy;
3. Predictions which account for the sound power levels and locations of the solar farm, BESS units and ancillary infrastructure;
4. A construction noise assessment;
5. A traffic noise assessment;
6. Commentary on vibration impacts; and,
7. Noise reduction measures where the relevant operational or construction assessment criteria are not achieved.

APPENDIX A: NOISE SOURCE LOCATION

Sources	Noise Source Coordinates (WGS84 / UTM zone 55S)	
	Easting	Northing
Project Area – Solar Noise Sources	324270	6145980
BESS	324690	6144720
Main Substation	328500	6143890

APPENDIX B: RECEIVER LOCATIONS AND PREDICTIONS

Residence ID	Residence Coordinates (GDA94 / MGA zone 55)		Category	Distance to Closest Source (m)	Predicted Level (dB(A))
	Easting	Northing			
AD_01	318157	6142983	Associated	7300	24
NAD_02	331081	6144915	Non-Associated (Associated with another project)	5335	29

Appendix E Preliminary Biodiversity Development Assessment Report

Pottinger Solar Farm

Preliminary Biodiversity Assessment

FINAL REPORT

Prepared for Someva Renewables

17 May 2023

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Document information

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- Someva renewables – Tim Mead and Tom Stokes
- RPS – Dianne Munro

Biosis staff involved in this project were:

- Callan Wharfe, Nick Lloyd (fieldwork and report preparation)
- Sarah Tobin (zoological technical input)
- Matt Looby, Mitch Palmer (oversight and technical input)
- James Shepherd and Astrid Mackegard (GIS and mapping).

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Glossary

BAM	*Biodiversity Assessment Method*
BC Act	*NSW Biodiversity Conservation Act 2016*
Biosecurity Act	*Biosecurity Act 2015*
BOS	Biodiversity Offsets Scheme
CEEC	Critically Endangered Ecological Community
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DPE	NSW Department of Planning and Environment
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FM Act	*Fisheries Management Act 1994*
GIS	Geographic Information System
IBRA	Interim Biogeographic Regionalisation for Australia
LGA	Local Government Area
LLS Act	*Local Land Services Act 2013*
Locality	A 20 km radius of the subject land
Matters of NES	Matters of National Environmental Significance
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
PCT	Plant Community Type
Pottinger Solar Farm	Solar Farm project for which Application will be made
Project	The proposed Pottinger Solar Farm
Project area	The area upon which the Project (including ancillary infrastructure) is located and will be subject to the state and Commonwealth applications
SEPP	NSW State Environmental Planning Policy
Subject land	The land subject to the proposed Pottinger Solar Farm project, and to where the BAM will be applied. Commensurate with the 'Project area'
TEC	Threatened Ecological Community
WM Act	*Water Management Act 2000*

1 Introduction

1.1 Project background

Biosis Pty Ltd was commissioned by Someva Renewables Pty Ltd (Someva) to undertake a preliminary biodiversity assessment for the proposed Pottinger Solar Farm (the Project).

The Project is proposed within an Energy Park comprised of wind and solar renewable energy infrastructure and associated structures including a 300 Megawatt solar farm, wind farm and Battery Energy Storage System (BESS). For the purpose of this report only, the solar farm, BESS and associated infrastructure have been assessed, with the wind farm being the subject of separate report.

The Project is located on a large rural agricultural property, comprising a total area of approximately 14,000 hectares across 108 lot/DPs, east of the Cobb Highway, approximately 60 kilometres south of Hay, New South Wales (NSW). The solar farm is situated in the north-eastern portion of this larger property over a total area of approximately 1,700 hectares (the subject land).

This preliminary biodiversity assessment report describes the biodiversity values and constraints associated with the Project, within the subject land and project area as shown on Figure 1. The report will facilitate the preparation of the Project's Scoping Report to obtain Secretary's Environmental Assessment Requirements (SEARs) and support an application under Part 9 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The objective of this preliminary biodiversity assessment report is to determine the potential presence of any threatened flora, fauna, populations or ecological communities (entities) listed under the EPBC Act, NSW *Biodiversity Conservation Act 2016* (BC Act) and *Fisheries Management Act 1994* (FM Act) within the subject land and project area, and provide guidance on means of avoiding and minimising potential impacts to those entities.

This report supports the Scoping Report and has informed early project design to avoid, minimise and mitigate biodiversity impacts likely to arise from the project.

1.2 Scope of assessment

The scope of this preliminary biodiversity assessment is to identify high level constraints and describe biodiversity values within the subject land. This preliminary assessment allows for recommendations to be provided in terms of avoidance, mitigation and/or further detailed assessment of biodiversity. Following a thorough review of publicly available information, previous environmental reports for the subject land, a rapid field investigation in February 2023, the primary objectives are:

- Describe the biodiversity values present within the subject land based on best available desktop and ground validated data.
- Identify potential biodiversity constraints for a solar farm development.
- Identify potential constraints for the Project with respect to remnant vegetation, threatened ecological communities (TECs), threatened species habitat and flow on effects on approvability and potential/likely impacts with respect to the NSW Biodiversity Offset Scheme (BOS).
- Provide details of any other high-risk issues that may be likely to arise in the EPBC Act referral / approvals process and the state-based planning regime more broadly.

- Provide recommendations on activities and an associated scope of work to support a future state significant development (SSD) application and EPBC referral process with respect to biodiversity values.

1.3 Relevant terminology

The following terms are used throughout this assessment, within the scoping report and across other relevant specialist studies (Figure 1).

- Subject land: The land subject to the proposed Pottinger Solar Farm project, and to where the BAM will be applied. This includes the photovoltaic arrays, BESS, substation, switching station, operations and management facility, and temporary compounds, access tracks and laydowns etc, as well as areas potentially subject to indirect impacts.
- Project area: Synonymous with the subject land, and includes the portion of the property that relates to the Project and will be subject to the application for SEARs and under Part 9 of the EPBC Act.
- Indicative development footprint: Equivalent to the approximate development footprint to be assessed in the future Biodiversity Development Assessment Report (BDAR). This area is currently indicative due to the Project being in the early stages of design. The indicative development footprint sits within the project area and the subject land.
    - It should be noted that a number of ancillary infrastructure project components are being assessed as part of both the current soar farm project, and the associated wind farm component, to ensure each project could be developed independently from the other.

1.4 Location of the subject land

The subject land is located east of the Cobb Highway between Hay and Deniliquin, 60 kilometres south-east of Hay and approximately 220 kilometres west of Wagga Wagga (Figure 1). It encompasses approximately 1,700 hectares of private land, with internal and adjacent public road reserves. It is zoned RU1 primary production.

The subject land is within the:

- Riverina Interim Biogeographic Regionalisation for Australia (IBRA) and Murrumbidgee subregion.
- Murrumbidgee channels and floodplains Mitchell landscape.
- Murrumbidgee catchment.
- Riverina Local Land Services (LLS) Management Areas.
- Hay Local Government Areas (LGA).

Figure 1 Subject land - Pottinger Solar Farm

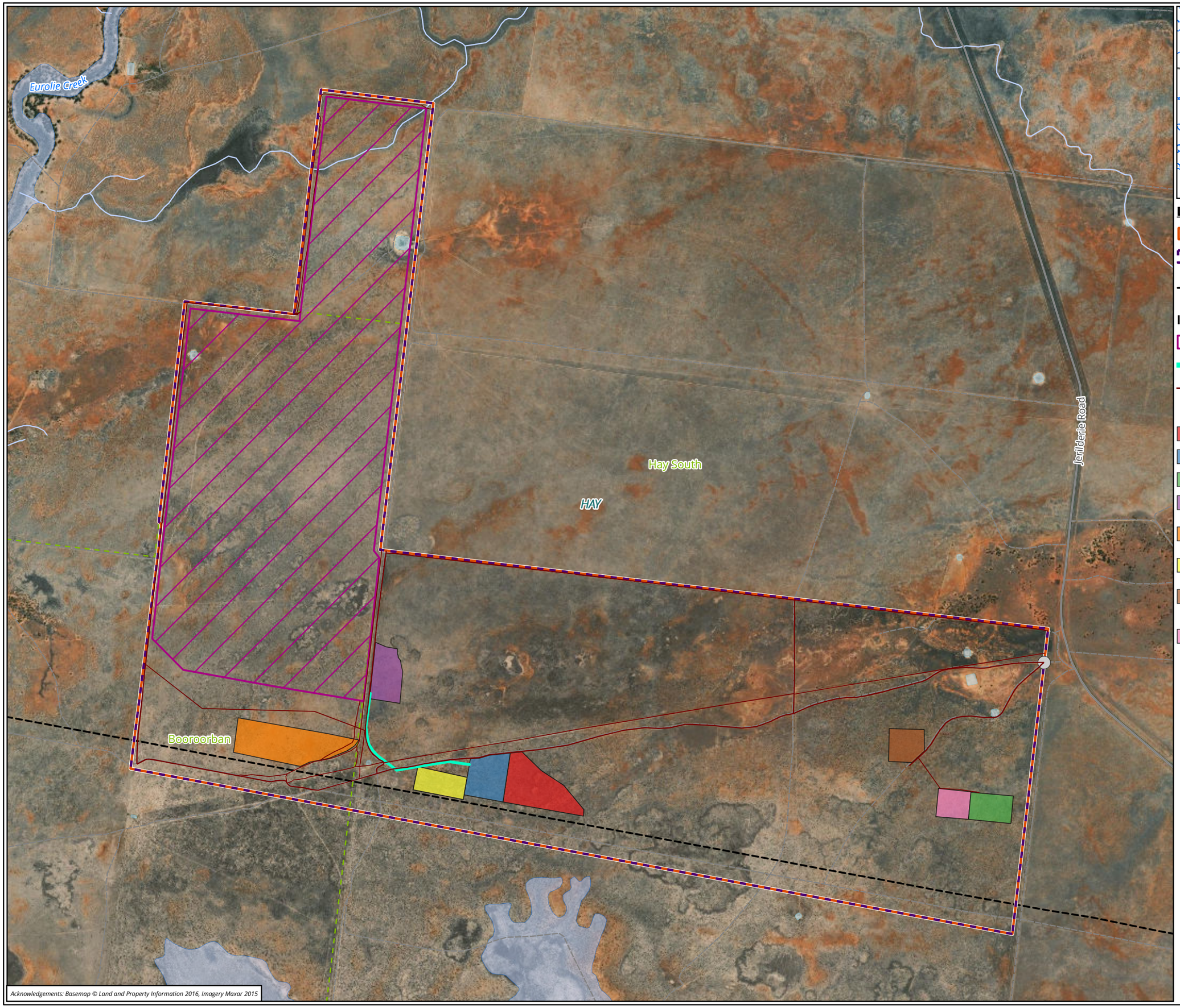


Figure 1 Subject land - Pottinger Solar Farm

0 0.25 0.5 0.75 1
Kilometers
Scale: 1:25,000 @ A3
Coordinate System: GDA2020 MGA Zone 55

N

biosis

Matter: 38557,
Date: 10 May 2023 ,
Prepared for: CW, Prepared by: AM, Last edited by: amackegard
Layout: Solar_F1_Subjectland
Project: P:\38500s\38557\Mapping\
38557_PottingerEnergyPark_figures_v2.aprx

Acknowledgements: Basemap © Land and Property Information 2016, Imagery Maxar 2015

2 Legislative Context

2.1 Environmental Planning and Assessment Act 1979 and Biodiversity Conservation Act 2016

The Project will be assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and has a capital investment cost estimated at more than $30 million. Therefore, the Project is "State Significant Development (SSD)" under Part 4 of the EP&A Act.

The BC Act relates to the conservation of biodiversity. The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community consistent with the principles of ecological sustainable development. The BC Act brings in changes to biodiversity survey, assessment and offset methodologies. It also requires specific consideration of irreversible impacts. The Project will impact on native vegetation and biodiversity values. SSD projects must enter the BOS and a BDAR will be required to assess biodiversity impacts following the Biodiversity Assessment Method (BAM 2020). This is likely to trigger biodiversity offset liabilities for the Project in accordance with the BC Act (and potentially EPBC Act), with any offset obligations achieved by:

- Acquiring or retiring credits that are publicly available or setting up an onsite or offsite Stewardship Site under the BOS.
- Making payments into the Biodiversity Conservation Fund using the offsets payment calculator (generally only suitable for small credit liabilities to risk and premium associated costs), or
- Funding a biodiversity action that benefits the threatened entity(ies) impacted by the development.

2.2 Local Land Services Act Amendment Act 2016

A review of land categorisation under the *Local Land Services Act Amendment Act 2016* (LLS Act) to clarify the native vegetation management regime was undertaken. Where applicable to do so (land applicable to the LLS act i.e. rural), the potential for land to be mapped as Category 1 exempt land was evaluated, as land mapped or determined as Cat 1 land can be excluded from the BAM and are not required to be assessed, with exception to prescribed impacts in reference to relevant legislation is provided below:

- **BC Act s6.8(3):** The BAM is to exclude the assessment of the impacts of any clearing of native vegetation and loss of habitat on Category 1 exempt land (within the meaning of Part 5A of the LLS Act 2013), other than any impacts prescribed by the regulations under section 6.3.
- **BAM cl1.5:** Biodiversity values not assessed under the BAM include: (d) biodiversity values associated with the assessment of the impacts of any clearing of native vegetation and loss of habitat on Category 1 exempt land (within the meaning of Part 5A of the LLS Act), other than the additional biodiversity impacts in accordance with clause 6.1 of the BC regulation; (that being prescribed impacts).

Where development consent is required under the EP&A Act, to meet the Category 1 exempt land requirement, land must be;

- Legally cleared at or since 1st Jan 1990 (Woody vegetation only); and/or
- Significantly disturbed or modified since 1990 (Non-woody vegetation).

As the Native Vegetation Regulatory maps (NVR) are not publicly available, during the transitional period (until the entire Native Vegetation Regulatory map is released), accredited assessors may establish the categorisation of land for the consent authority to consider by approximating the method used to make the NVR map under the provisions of the BC Act and the LLS Act. This is done via:

- Historical aerial imagery.
- Landuse mapping:
  - The land use layer contributes to identifying land for inclusion in category 1 in the NVR map. Chapter 4 of the NVR map method statement describes the process for identifying and mapping existing and historical agricultural land use since 1 January 1990. Mapping existing and historical land use focuses on identifying patterns or evidence of agricultural land uses according to high resolution aerial or satellite imagery and classifying land under a national land use classification system.
- Woody extent layer:
  - Contributes to identifying areas for inclusion in category 2 in the NVR map (including individual trees).
  - Latest publicly available is NSW Woody Vegetation Extent, and FPC 2011 and 2017 update.
- Boundaries of sensitive regulated and vulnerable regulated land available on the NVR map portal.

Confirmation of the relevant land categories relevant to the Project will be included within any BDAR prepared to support the EIS, with a preliminary land categorisation assessment completed as part of this preliminary biodiversity assessment, with further information provided in Section 3.3 and Section 4.1 below.

2.3 Fisheries Management Act 1994

Key fish habitat is defined under the FM Act as aquatic habitat important to the maintenance of fish populations generally and the survival and recovery of threatened aquatic species. Assessment of the Hay LGA (DPI, 2017) identified streams of Strahler order 3 and above adjacent to the subject land including Eurolie Creek and Nyangay Creek.

Waterway crossings as well as clearing and excavation near key fish habitat must consider impacts on aquatic habitat, have pollution risks mitigated and be designed in accordance with the Policy and Guidelines for Fish Habitat Conservation and Management and the Policy and Guidelines for Fish Friendly Waterway Crossings.

2.4 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) establishes the fundamental functions of the NSW National Parks and Wildlife Service. These include the conservation of nature, objects, features, places and management of land reserved under the Act. Specifically, the conservation of nature includes:

- Landforms of significance, including geological features and processes.
- Landscapes and natural features of significance including wilderness and wild rivers.

Animal and plant provisions of the NPW Act have been repealed and replaced by the BC Act. *Guidelines for developments adjacent to National Parks and Wildlife Service lands* (DPIE 2020) are also relevant to the Project

and will be considered; namely in relation to erosion control, storm and wastewater, pest and weed management, fire and access requirements including aerial and ground measures, visual, noise and other amenity impacts, connectivity impacts, impacts to groundwater dependant ecosystems and cultural heritage.

2.5 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW). Under the EPBC Act, if the Minister determines that an action is a 'controlled action' which would have 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 EPBC Act identifies the following nine MNES:

- World Heritage properties.
- National heritage places.
- Ramsar wetlands of international significance.
- Threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).
- Water resources (in relation to coal seam gas development and large coal mining development)

Further flora and fauna studies will confirm biodiversity impacts, during the preparation of an EIS. At this stage however, given the potential nature and scale of the Project, an EPBC Act referral on the basis of potential to significantly impact specific threatened species and ecological communities is considered likely.

3 Methods

3.1 Database Searches

Information provided by Someva as well as other key information was reviewed, including:

- DCCEEW Protected Matters Search Tool (PMST) for MNES protected by the EPBC Act.
- NSW BioNet Atlas of NSW Wildlife, for items listed under the BC Act within 20 kilometres (study locality) of the subject land.
- The NSW Department of Primary Industries (DPI) Spatial Data Portal for FM Act listed threatened species, populations and communities
- NSW DPI *Biosecurity Act 2015* for Priority listed weeds for the Murray LLS area.
- Review of the NSW Biodiversity Values Map and Threshold Tool.
- Establishment of a BAM Calculator project(s) for the assessment to determine the requirements for threatened species survey.
- Review BAM Important Areas mapping for areas of habitat mapped for threatened entities considered potentially be subject to Serious and Irreversible Impacts (SAIIs).
- Vegetation Information System (VIS) mapping, including.
  - NSW Government's modelled State Vegetation Type Mapping (SVTM) Riverina (RiverinaSVM_v1p2_PCT_E_4469, OEH 2016)
- Review Birdata and Birdlife Australia databases.
- EnergyConnect (NSW – Eastern Section) Technical Paper 1 – Revised Biodiversity Development Assessment Report (WSP 2022) relative to overlapping project areas.
- Cotemporary Scoping Reports and EISs for other renewable energy projects in the South-West Renewable Energy Zone (SW REZ).

The implications for the Project will be assessed in the BDAR in relation to key biodiversity legislation and policy including:

- EPBC Act.
- EP&A Act.
- BC Act.
- NPW Act.
- LLS Act.

3.2 Literature review and regulator consultation

A review of relevant literature was undertaken to provide local context for threatened species occurrence and contemporary information relating to relevant threatened species, and where possible their interaction with relevant renewable energy projects. A review of the following key documents was undertaken:

- EnergyConnect (NSW – Eastern Section) Technical Paper 1 – Revised Biodiversity Development Assessment Report (Project Energy Connect BDAR) (WSP 2022).
- The Plains Solar Farm Scoping Report (ERM 2022).
- Dinawan Solar Farm Scoping Report (EMM 2022).
- Keri Keri Solar Farm Preliminary Biodiversity Assessment (ERM 2022).
- Scoping Report: Wilan Wind Farm (Biosis and Kilara Energy 2022)
- Yanko Delta Wind Farm Biodiversity Development Assessment Report (Jacobs 2022).

Key issues have been discussed with regulators with regards to solar farm development in the SW REZ, and these issues have been considered as part of this preliminary biodiversity assessment however, it should be noted that regulator consultation in relation to biodiversity, specific to this Project is yet to commence.

3.3 Land category and desktop vegetation mapping assessment

A detailed land category assessment (LCA) and review desktop vegetation mapping to PCT was undertaken to inform the extent of the area subject to assessment under the BAM and BC Act, as well as preliminary PCT mapping and field validation described below (Figure 2 and Figure 3).

In order to pre-emptively exclude highly utilised and/or modified areas from assessment under the BC Act, a desktop review of land categorisation under the LLS Act was undertaken. This assessment clarifies the native vegetation management and land use regime of the subject land and where applicable to do so, the potential for land to be mapped as 'Category 1 exempt land'. Land mapped or determined as Category 1 exempt can be excluded from the BAM and is not required to be assessed, with the exception of prescribed impacts. Note, the LCA does not remove the requirement to address matters under the EPBC Act.

The results of Biosis' LCA are provided in Figure 2. Note that the results of Biosis LCA is yet to be compared to Native Vegetation Regulatory (NVR) mapping from DPE for the subject land, however historically Biosis' LCA results have proven well aligned with the NVR mapping.

3.4 Field investigation and SVTM validation

Biosis undertook a rapid field validation survey of the subject land (and broader Pottinger Energy Park property) between 15-17 February 2023, with staff involved including Callan Wharfe (BAM Accredited Assessor, Senior Associate Botanist – Technical Lead Major Projects and Offsets) and Nick Lloyd (Graduate Botanist). Early mapping and validation of PCTs and TECs will ensure informed ongoing design decisions and biodiversity risks assessment can be considered from the outset of the Project, with biodiversity impacts avoided and minimised from the outset. The field investigations included:

- Preliminary vegetation mapping of PCTs across the subject land, including validation of the Riverina SVTM (OEH 2016) vegetation modelling.
- Mapping of any TECs listed under the BC Act and/or EPBC Act.
- Consideration of broad vegetation condition states to determine vegetation zones.
- Verification of previously recorded locations of threatened species and undertaking opportunistic surveys for threatened species considered to have the potential to occur within the subject land.

- Preliminary habitat assessment in accordance with the BAM to determine the potential for threatened species identified under the BAM as 'ecosystem credit species' and 'species credit species' to occur.
- Indicative mapping ecological constraints such as habitat trees, wetlands, waterways and nearby areas supporting potential habitat for threatened species.
- Flora and fauna species inventory.

3.5 Biodiversity constraints mapping

Table 1 below provides an overview and explanation of the biodiversity constraints parameters used to develop a site specific biodiversity constraints GIS model and GIS outputs. This constraints model has been used to undertake initial avoidance and minimisation of impacts (see Section 5.2 for more detail), and will continue to form the basis for impact minimisation thought the design and assessment phases of the Project. GIS outputs layers include specific 'WTG and powerline constraints' and 'Civil constraints', based on the various parameters and specific project constraints and opportunities each presents to the different components.

It should be noted that WTG and powerline constraints have been primarily developed for the associated Pottinger Wind Farm, however overhead powerlines associated with the solar development project present potential indirect impacts to bird and bat species and remain subject to the biodiversity constraints detailed in Table 1.

Key biodiversity constraints of the subject land, which will require consideration throughout the Project, include but not limited to:

- DPE mapped Important Areas of Plains Wanderer *Pedionomus torquatus* habitat in the proximity of the subject land. This species is considered to be potentially subject to serious and irreversible impacts (SAIIs) under the NSW *Biodiversity Assessment Method* (BAM), and is listed as Critically Endangered under the Commonwealth EPBC Act.
- The occurrence, or potential occurrence, of the following BC Act and/or EPBC Act TECs:
  - *Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions* (EEC, BC Act and EPBC Act).
  - *Natural Grasslands of the Murray Valley Plains* (Critically Endangered Ecological Community [CEEC], EPBC Act).
  - *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions* (EEC, BC Act).
- The presence of potential habitat for threatened flora and fauna species listed under the BC Act and/or EPBC Act (as provided in Table 3).
- The occurrence of ephemeral wetlands within the subject land, which during high rainfall (flood) years are likely to attract migrating waterbirds to the Riverina region, and subject land specifically.

In order to assess the constraints of vegetation and habitat present within the subject land, areas were identified and mapped into the four categories outlined in Table 1 below. Landscape features and mapped biodiversity values present outside the subject land were considered to ensure the influence of any values beyond the site were captured. Various landscape habitat features and mapped biodiversity values are considered to result in different levels of consistent for overhead powerlines as opposed to civil works

associated with both solar development projects. As such, details of the constraints values relevant to each constraint category for different project components are provided separately below.

The data input into the constraints model is based on best available desktop GIS data, combined with ground validated PCTs determined during the February 2023 field survey, as described above.

Table 1 Biodiversity constraint model outputs definitions, justifications and management / mitigation approach

Constraint category	Definition	Powerline constraint value *(predominantly in regards to indirect impacts to birds and bats)*	Civil constraint value *(includes solar arrays, ancillary infrastructure, site reticulation and access etc.)*	Suggested management / mitigation approach
No Go areas (Constraint score – 4)	These are areas that should be avoided and if not, may impact regulatory approval of the project (i.e. regulators may require significant redesign to reduce impacts, or impose further impact minimisation/mitigation measures at approval).	• DPE mapped Important Areas of Plains Wanderer habitat, with an additional 100 m buffer to reduce potential for direct impacts to areas of highest potential habitat. Plains Wanderer is a species potentially subject to Serious and Irreversible Impacts (SAIIs) under the BAM, and is listed as Critically Endangered under the EPBC Act.	• DPE mapped Important Areas of Plains Wanderer habitat, with an additional 100 m buffer to reduce potential for direct impacts to areas of highest potential habitat.	• No areas of DPE mapped Important Areas of Plains Wanderer habitat, or additional 100m buffer area, are expected to be impacted by the Project. • Any future changes to project infrastructure are to avoid these No Go areas.
High Constraint (Constraint score – 3)	These are areas where impacts should be avoided wherever possible, with any unavoidable residual impacts likely to be subject to impact minimisation/mitigation measures. Justification for unavoidable impacts will be required in the BDAR. Include areas that are likely to generate high biodiversity credit per hectare requirements at offsetting.	• Additional 200 m buffer on No-Go areas associated with mapped Plains Wanderer habitat to reduce the potential for indirect impacts, generally during the operational phase of the project.	• Additional 200 m buffer on No-Go areas associated with mapped Plains Wanderer habitat to reduce the potential for indirect impacts, during the construction and operational phases of the project. • Mapped potential threatened ecological communities (TECs) listed under the BC Act or EPBC Act. This includes Sand Hill Pine Woodland, Weeping Myall Woodland, as well as the EPBC Act Critically Endangered Natural Grasslands of the Murray Valley Plains, which is associated with PCTs 44, 45 and 46. • Threatened species populations and habitat (*note this potential constraint has not been included in the current GIS model due to difficulties relating to scale, and*	• Minimise project infrastructure in High Constraint areas to reduce direct and indirect impacts. • Impacts minimisation strategies including maintenance of infrastructure-free zones (flyways) between wetlands (stepping-stones) and other habitat feature should be employed during project design. • Implement measures in designing solar arrays to dissuade perching and attracting aerial fauna. • Direct and indirect impact to TECs should be avoided and minimised and all impacts will require justification for state and Commonwealth approvals.

Constraint category	Definition	Powerline constraint value *(predominantly in regards to indirect impacts to birds and bats)*	Civil constraint value *(includes solar arrays, ancillary infrastructure, site reticulation and access etc.)*	Suggested management / mitigation approach
			constraints generally being associated with PCTs and landscape features. Threatened species are to be considered further during future design stages, and when further surveys have been completed).	
Moderate Constraint (Constraint score – 2)	Suitable for development, however being predominantly native vegetation (and associated habitats) will be subject to legislative requirements to demonstrate avoid and minimise principles. Areas likely to generate a moderate biodiversity credit per hectare that require offsetting.	• Mapped wetlands, woodland/wetlands and riparian vegetation, including a 200 m exclusion buffer on mapped polygons to reduce the potential for powerline collisions and indirect impacts to bird and bat breeding habitats.	• All native vegetation (not subject to the above constraints) remains a moderate constraint due to the legislative requirements to avoid and minimise impacts, and the potential for threatened species to occur.	• Consider the overall design requirements of the project and how that relates to impact minimisation from the outset. • Avoidance of threatened species populations and habitat (or minimisation of impacts) can be undertaken during future design stages.
Low Constraint (Constraint score – 1)	Best suited for development. These areas are unlikely to generate biodiversity credits (exotic/cultivated areas) or may have low biodiversity credit requirements per hectare.	• n/a	• Non-native vegetation or areas likely to meet the definition of Category 1 exempt land and where prescribed impacts are considered negligible	• Preferentially locate project infrastructure in areas of non-native vegetation and/or Category 1 exempt land (if determined present).
Items considered but not subject to specific constraints	• National Parks estate and setbacks are not directly applicable as the project areas is >5 km from the nearest park. • Mapped watercourses are not subject to specific constraints as mapped vegetation provides and prescribes suitable constraints levels and setbacks. • Threatened species habitat and/or presence cannot be incorporated into the constraints model (at this scale), and relevant constraints/recommendations and captured by those relating to native vegetation.			

3.6 Limitations and assumptions

Biodiversity constraints outlined above are based on desktop assessment of best available spatial mapping data, with refinement during ground validation surveys in February 2023 only. It should be noted that the wetter period over early summer 2022, has resulted in a number of wetlands within the subject land still being inundated in February 2023, this allowed for direct observation of the habitat value of these areas for waterbirds (in particular) during wet years.

The constraints mapping contained herein is based on modelled interpretation of this data using the rulesets outlined Table 1 above using a GIS processing model, and no substantial interpretation of aerial imagery has been undertaken to determine any inconsistencies between the existing datasets and observable on-ground conditions. The above presented constraints relate to biodiversity values and related approvals only, and does not consider other environmental assessment requirements such as cultural heritage values, flooding or geotechnical constraints.

4 Results

The principal land uses in the subject land have included modified and native pasture grazing. The contemporary landscape in the broader locality is dominated by the physical structures associated with irrigated agriculture such as irrigation bays and banks, channels, roads, fences, farm infrastructure and regulators. Grazing with sheep (predominantly) and cattle has also had a significant negative effect on the structure and diversity of floodplain and chenopod shrubland vegetation communities in some instances.

The subject land contains areas conducive to semi-arid chenopod dominated landscapes with grasslands areas supporting various densities of woody shrubs interspersed with open Pine and Myall woodlands, with Lignum / Nitre Goosefoot wetlands present in areas more frequently inundated. The subject land predominantly supports native vegetation, with only highly disturbed areas, a result of ongoing agricultural uses, devoid of native species. Native vegetation and habitat occur in a range of condition states, however the majority would be considered to be on moderate ecological condition, with some areas occurring in a more natural state and others being more degraded by historical land management practices.

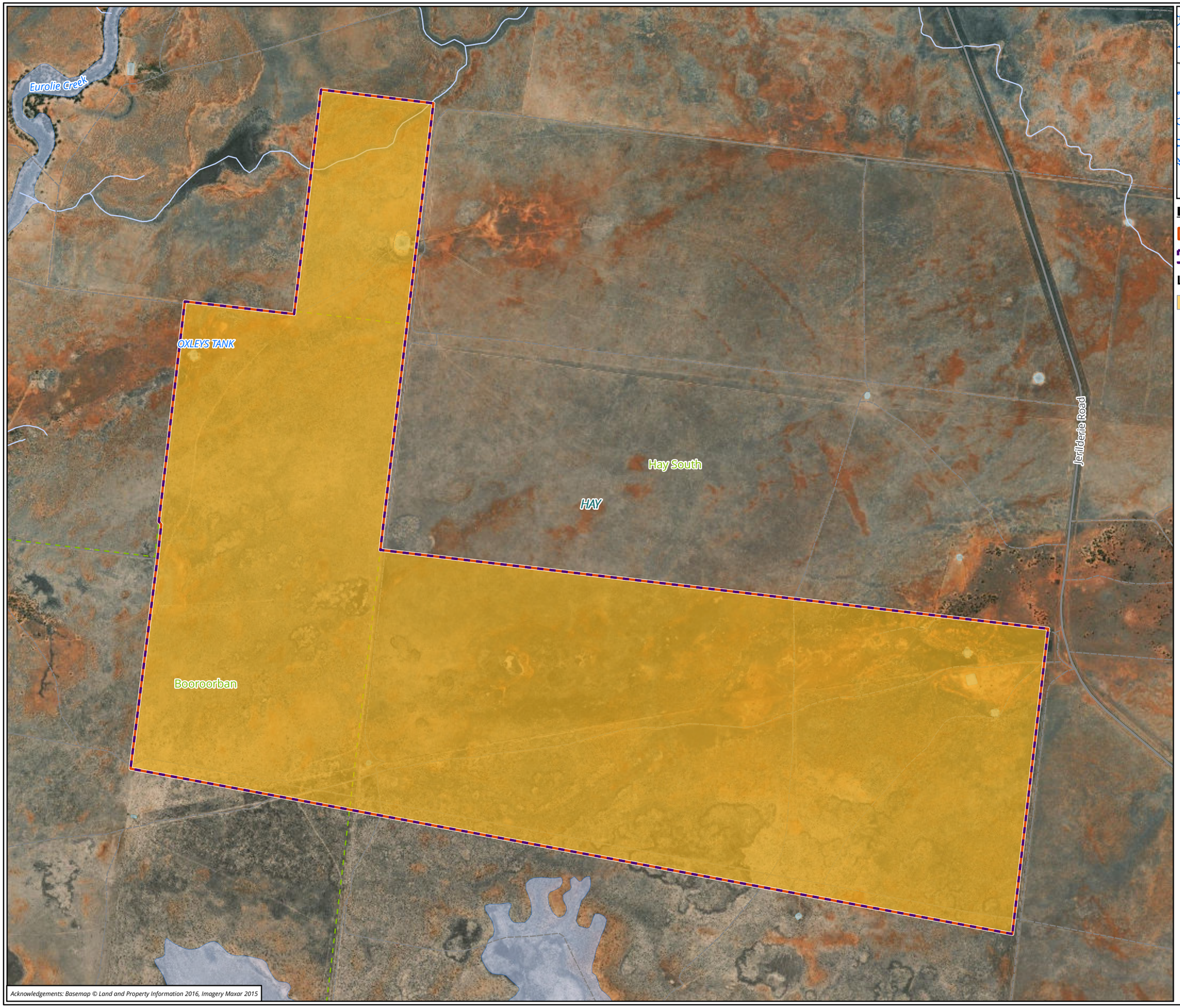
Three main watercourses exist adjacent to the subject land; Nyangay Creek, Eurolie Creek and Coleambally Outfall Drain (a concrete-lined irrigation channel), and a number of large areas of natural wetlands occur associated with Eurolie Creek, and to the north-east of the subject land.

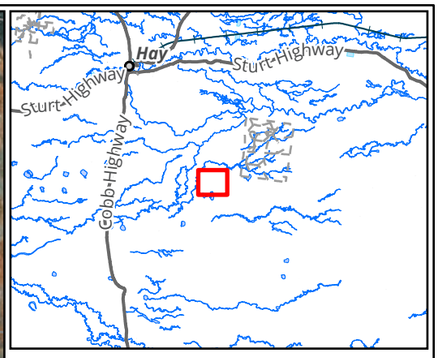
4.1 Land category assessment

The BC Act determines that the BAM is to exclude the assessment of the impacts of clearing native vegetation on Category 1 - exempt land. As the Category 1 Land regulatory maps are not yet publicly available, a preliminary assessment of whether cleared areas within the subject land meet the definition of the Category 1 exempt land was undertaken. Based on 2013 (OEH, 2014) and 2017 Landuse Datasets (OEH, 2017), NSW Woody Vegetation extent and foliage projection cover datasets (OEH, 2015), Native Vegetation Regulatory Mapping (NVRM) and historical aerial imagery, none of the approximately 1,700 hectare subject land is considered to be classed as Category 1 exempt land (Figure 2).

Areas of Category 1 exempt land occur within the broader Pottinger Energy Park boundary, mainly associated with cropping land and an area which has recently been subject to large scale replanting of eucalypts in windrows over an area of approximately 250 hectares. A number of other smaller patches of Category 1 exempt land exist in the locality, however none are currently proposed for development as a result of the Project.

Figure 2 Land category assessment





Legend

- Subject land
- Project area

Land category

- Cat 2 - Regulated

Figure 2 Land category assessment (Biosis)

0 0.25 0.5 0.75 1

Kilometers

Scale: 1:25,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

biosis

Matter: 38557,
Date: 10 May 2023 ,
Prepared for: CW, Prepared by: AM, Last edited by: amackegard
Layout: Solar_F2_LandCat
Project: P:\38500s\38557\Mapping\
38557_PottingerEnergyPark_figures_v2.aprx

Acknowledgements: Basemap © Land and Property Information 2016, Imagery Maxar 2015

4.2 Vegetation communities

Desktop mapping and analysis confirmed 20 potential Plant Community Types (PCT) had been modelled as occurring within 5 kilometres of the broader Pottinger Energy Park boundary (Riverina SVTM, OEH 2016), and the primary aim of the preliminary field investigation was to validate the PCTs (and TECs) present within the subject land and immediate surrounds.

A total of 16 PCTs were confirmed as present across the Pottinger Energy Park during the field investigation, ranging from wetlands and woodland / wetlands, to drier sandplain / sand hill woodlands, chenopod shrubland and grasslands, of these seven were found to be present within the subject land (Figure 3). Vegetation condition ranged from high condition in areas less subject to historical pressures such as clearing and grazing, to low condition in areas of ongoing disturbance from agricultural activities. The majority of the subject land's vegetation is considered to be in moderate ecological condition, subject to some level of historical/ongoing disturbance but a generally lower level of current negative pressures such as exotic species infestations, erosion, overgrazing, trampling etc. However, this will be confirmed in the BDAR.

Up to three TECs have been assessed as likely to be present within the subject land, two confirmed TECs being Myall Woodland and Sandhill Pine Woodland, and one potential TEC, Natural Grasslands of the Murray Valley Plains, which require further assessment to confirm presence. Acacia melvillei Shrubland TEC was also found to be potentially present within the broader Pottinger Energy Park boundary, approximately 11 kilometres south-west of the subject land. Further information is provided in Table 2 and Section 4.3 below.

A summary of ground validated PCTs and TEC within the subject land is provided in Table 2. A number of 'modelled only' PCTs remain included in Table 2 as their presence (or potential presence) throughout the broader landscape provides background habitats and to the potential original PCTs in areas of derived grasslands/shrublands.

Table 2 Summary of modelled and ground validated PCTs within the subject land

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
10: River Red Gum - Black Box woodland wetland of the semi-arid (warm) climatic zone	**Structure:** tall to mid-high woodland **Height:** to 18 m **Upper stratum:** River Red Gum *Eucalyptus* camaldulensis, Black Box *Eucalyptus largiflorens*. **Mid stratum:** may contain dense to very sparse stands of Lignum *Duma* (*Muehlenbeckia*) *florulenta,* River Cooba *Acacia stenophylla* with Pale-fruit Ballart *Exocarpos strictus* in lower numbers. **Ground stratum:** Warrego Grass *Paspalidium jubiflorum,* Spider-grass *Enteropogon acicularis,* Couch *Cynodon dactylon,* Ringed Wallaby Grass *Rytidosperma caespitosum,* Corkscrew Grass *Austrostipa nodosa*, Corrugated Sida *Sida corrugata, Oxalis perennans,* River Bluebell *Wahlenbergia fluminalis, Cyperus exaltatus*.	No	Ground validated. Recorded as a single patch outside the subject land	Riparian woodland / wetland	N/a	N/a	N/a
13: Black box-lignum woodland of the inner floodplains in the semi-arid zone	**Structure:** open woodland **Height:** to 15 m **Upper stratum:** Black Box *Eucalyptus largiflorens* **Mid stratum:** scattered to dense cover of Lignum *Duma* (*Muehlenbeckia*) *florulenta,* Cooba *Acacia salicina*, Thorny Saltbush *Rhagodia spinescens,* Dillon Bush *Nitraria billardierei.* **Ground stratum:** Warrego Grass *Paspalidium jubiflorum*, Creeping Saltbush *Atriplex semibaccata*, Dense Stonecrop *Crassula colorata*, Ruby Saltbush *Enchylaena tomentosa*, Short-wing saltbush *Sclerolaena brachyptera*, Climbing Saltbush *Einadia nutans* subsp. *nutans*.	No	Ground validated. Recorded along the major watercourses.	Riparian woodland / wetland	N/a	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
15: Black box open woodland with chenopod understorey	**Structure:** very open woodland **Height:** to 10 m **Upper stratum:** Black Box *Eucalyptus largiflorens* **Mid stratum:** scattered to dense cover of Thorny Saltbush *Rhagodia spinescens,* Dillon Bush *Nitraria billardierei.* **Ground stratum:** Ruby Saltbush *Enchylaena tomentosa*, Short-wing saltbush *Sclerolaena brachyptera*, Climbing Saltbush *Einadia nutans* subsp. *nutans*, Slender-fruit Saltbush *Atriplex leptocarpa*, Spider-grass *Enteropogon acicularis*, Fairy Grass *Sporobolus caroli*, Knottybutt Grass *Paspalidium constrictum*, *Marsilea costulifera,* Mousetail *Myosurus australis.*	No	Ground validated. Recorded adjacent to the major watercourses.	Riparian woodland / wetland	N/a	N/a	N/a
16: Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW	**Structure:** open woodland **Height:** to 10 m **Upper stratum:** Black Box *Eucalyptus largiflorens* **Mid stratum:** Thorny Saltbush R*hagodia spinescens* **Ground stratum:** Ruby Saltbush *Enchylaena tomentosa,* Creeping Saltbush *Atriplex semibaccata, Salsola tragus* subsp. *tragus, Atriplex eardleyae,* Black Rolypoly *Sclerolaena muricata* var. *muricata,* Cannonball Burr *Dissocarpus paradoxus, Oxalis perennans,* Quena *Solanum esuriale,* Wallaby Grasses *Rytidosperma* spp.	No	Ground validated. Recorded further from the major watercourses.	Woodland / wetland	N/a	N/a	N/a
17: Lignum shrubland of the semi-arid (warm) plains	**Structure:** dense to open shrubland with aquatic and terrestrial components **Height:** to 4 m **Upper stratum:** occasional emergent River Red Gum *Eucalyptus camaldulensis,* Black Box *Eucalyptus largiflorens* or River Cooba *Acacia stenophylla*. **Mid stratum:** Lignum *Duma* (*Muehlenbeckia*) *florulenta* with scattered Nitre Goosefoot *Chenopodium nitrariaceum.*	Yes	Ground validated. Single modified patch recorded along the western boundary of the subject land.	Ephemeral wetland (wetter sub-type)	N/a	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
	Ground stratum: Spike Sedges *Eleocharis* spp., Rushes *Juncus* spp., Twin-leaved Bedstraw *Asperula gemella,* Black Rolypoly *Sclerolaena muricata* var. *villosa,* Pacific Azolla *Azolla filiculoides, Myriophyllum papillosum,* Australian Mudwort *Limosella australis,* Cat-tail *Myriophyllum caput-medusae,* Red Water-milfoil *Myriophyllum verrucosum,* Water Primrose *Ludwigia peploides* subsp. *montevidensis, Callitriche umbonata, Haloragis glauca* f. *glauca,* Tall Groundsel *Senecio runcinifolius,* Slender Monkey-flower *Mimulus gracilis.*						
19: Cypress Pine woodland of source-bordering dunes mainly on the Murray and Murrumbidgee River floodplains	**Structure:** medium to high woodland **Height:** to 13 m **Upper stratum:** White Cypress Pine *Callitris glaucophylla* occasionally with Slender Cypress Pine *Callitris gracilis* subsp. *Murrayensis*. **Mid stratum:** often absent, if present Common Fringe-myrtle *Calytrix tetragona*, Silver Banksia *Banksia marginata*. **Ground stratum:** Ringed Wallaby Grass *Rytidosperma caespitosum, Oxalis perennans,* Flannel Cudweed *Actinobole uliginosum*.	No	Modelled only. Cypress Pine PCTs found only to represent PCT 28.	Riverine sandhill woodlands	EEC - Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	N/a	N/a
23: Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	**Structure:** tall open shrubland **Height:** to 6 m **Upper stratum:** N/A **Mid stratum:** Yarran *Acacia melvillei*, Black Oak *Casuarina pauper*, Spiny Saltbush *Rhagodia spinescens,* Turpentine Bush *Eremophila sturtii,* Black Cotton-bush *Maireana decalvans*, Small-leaf Bluebush *Maireana microphylla,* Dillon Bush *Nitraria billardierei,* Old Man Saltbush *Atriplex nummularia, Sclerolaena diacantha*	No	Ground validated (potential). A single stand of potential *Acacia melvillei* was recorded outside the subject land. No reproductive material was present in February 2023 to	Riverine sandhill woodlands	EEC - Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
	Ground stratum: Corkscrew Grass *Austrostipa nodosa,* Ringed Wallaby Grass *Rytidosperma caespitosum,* Soft Billy-buttons *Pycnosorus pleiocephalus*, *Leiocarpa brevicompta,* Wooly Plover-daisy *Leiocarpa tomentosa*, Corrugated Sida *Sida corrugata, Goodenia fascicularis*, *Tetragonia eremaea,* Hard-headed Daisy *Brachyscome lineariloba,* Plover Daisy *Leiocarpa leptolepis*, Fuzzweed *Vittadinia cuneata*, Twiggy Sida *Sida intricata*, Small White Sunray *Rhodanthe corymbiflora*, Bitter Saltbush *Atriplex stipitata*		confirm the species identification.				
24: Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains	**Structure:** tall tussock grassland **Height:** 2 m **Upper stratum:** N/A **Mid stratum:** Copperburrs *Sclerolaena* spp., Saltbushes *Atriplex* spp., Forest Germander *Teucrium racemosum*. **Ground stratum:** Canegrass *Eragrostis australasica*, Windmill Grass *Chloris truncata*, Blown Grass *Lachnagrostis filiformis*, Plains Grass *Austrostipa aristiglumis*, Neverfail *Eragrostis setifolia,* Weeping Lovegrass *Eragrostis parviflora*, *Eleocharis acuta, Eleocharis* pusilla, Pale Spike-sedge *Eleocharis pallens,* Rushes *Juncus* spp., Common Nardoo *Marsilea drummondii*, Narrow-leaf Nardoo *Marselia costulifera*, *Azolla filiculoides,* Water Milfoils *Myriophyllum* spp.	No	Ground validated. Single occurrence recorded in unnamed watercourse outside the subject land.	Ephemeral wetland (wetter sub-type)	N/a	N/a	N/a
26: Weeping Myall open woodland of the Riverina Bioregion and NSW South Western	**Structure:** mid-high open woodland **Height:** to 8 m **Upper stratum:** Weeping Myall *Acacia pendula*, Belah *Casuarina cristata* with Black Box *Eucalyptus largiflorens*, River Red Gum *Eucalyptus camaldulensis* occurring in depressions. **Mid stratum:** Spiny Saltbush *Rhagodia spinescens,* Black Cotton bush *Maireana decalvans,* Old Man Saltbush *Atriplex*	Yes	Ground validated. Single small patch in the northern portion of the subject land, with scattered trees along the western boundary of the subject land	Riverine plain woodlands	EEC - Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain,	EEC - Weeping Myall Woodlands	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
Slopes Bioregion	*nummularia,* Nitre Goosefoot *Chenopodium nitrariaceum,* Needlewood *Hakea leucoptera,* Northern Sandalwood *Santalum lanceolatum,* Leafless Ballart *Exocarpos aphyllus,* Cotton Bush *Maireana aphylla*. **Ground stratum:** Ringed Wallaby Grass *Rytidosperma caespitosum,* Smallflower Wallaby Grass *Rytidosperma setaceum,* Plains Grass *Austrostipa aristiglumis,* Speargrass *Austrostipa scabra,* Corkscrew Grass *Austrostipa nodosa,* fairy Grass *Sporobolus caroli,* Spiny-fruit Saltbush *Atriplex spinibractea,* Slender-fruit Saltbush *Atriplex leptocarpa,* Creeping Saltbush *Atriplex semibaccata,* Lesser Joyweed *Alternanthera denticulata,* Wooly-heads *Myriocephalus rhizocephalus,* Common Sneezeweed *Centipeda cunninghamii,* Small White Sunray *Rhodanthe corymbiflora,* Fuzzweed *Vittadinia cuneata* var. *cuneata.*		forming the edge of a larger contiguous patch of the PCT that occurs to the east.		Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions		
28: White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone	**Structure:** open woodland to derived grassland **Height:** to 15 m **Upper stratum:** White Cypress Pine *Callitris glaucophylla* **Mid stratum:** Buloke *Allocasuarina luehmannii*, Needlewood *Hakea leucoptera,* Hooked Needlewood *Hakea tephrosperma* **Ground stratum:** Black Bluebush *Maireana pyramidata*, *Maireana enchylaenoides,* Thorny Saltbush *Rhagodia spinescens*, *Tetragonia tetragonioides*, *Sclerolaena diacantha, Sclerolaena obliquicuspis.*	Yes	Ground validated. Commonly recorded on sand hills and over sand lenses associated with a prior streams outside the subject land, and present in low condition as scattered trees in the eastern portion of the subject land.	Riverine sandhill woodlands	EEC - Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
44: Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	**Structure:** diverse open natural grassland or derived grassland from intergraded woodland communities **Height:** 0.5 m **Upper stratum:** N/A **Mid stratum:** N/A **Ground stratum:** Corkscrew Grass *Austrostipa nodosa*, Windmill Grass *Chloris truncata*, Ringed Wallaby Grass *Rytidosperma caespitosum, Calotis scabiosifolia, Sida corrugata,* Hairy Bluebush *Maireana pentagona and Maireana excavate.*	Yes	Ground validated. Recorded in the eastern portion of the subject land where grasslands occur with a lower (sparse to very sparse) cover of chenopod shrubs such as Cotton Bush, Dillon Bush and Nitre Goosefoot	Riverine plain grassland	N/a	CEEC - Natural Grasslands of the Murray Valley Plains (potential)	N/a
45: Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion	**Structure:** tussock grassland **Height:** to 2 m **Upper stratum:** N/A **Mid stratum:** Tangled Lignum *Duma (Muehlenbeckia) florulenta* **Ground stratum:** Plains Grass *Austrostipa aristiglumis*, *Walwhalleya proluta,* Wallaby Grass *Rytidosperma duttonianum*, Curly Windmill Grass *Enteropogon ramosus,* Fairy Grass *Sporobolus caroli,* Windmill Grass *Chloris truncata,* Nardoo *Marsilea drummondii,* Early Nancy *Wurmbea dioica* subsp. *dioica,* Wiry Dock *Rumex dumosus*, Small Vanilla Lily *Arthropodium minus,* Scaly Buttons *Leptorhynchos squamatus* subsp. A, Spreading Crassula *Crassula decumbens* var. *decumbens*, Silky Goodenia *Goodenia fascicularis,* Small White Sunray *Rhodanthe corymbiflora*, *Swainsona* spp., Pale Spike-sedge *Eleocharis pallens.*	Yes	Ground validated. Recorded as a smaller patch of grassland dominated by Plains Grass in the east of the subject land.	Riverine plain grassland	N/a	CEEC - Natural Grasslands of the Murray Valley Plains (potential)	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
46: Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain, Riverina Bioregion	**Structure:** open to closed tussock grassland **Height:** to 0.3 m **Upper stratum:** N/A **Mid stratum:** *Sclerolaena stelligera,* Bottle Bluebush *Maireana excavate,* Cottonbush *Maireana aphylla*. **Ground stratum:** Curly Windmill Grass *Enteropogon ramosus*, Corkscrew Grass *Austrostipa nodosa*, Speargrass *Austrostipa scabra,* Wallaby Grasses *rytidosperma* spp., Small White Sunray *Rhodanthe corymbiflora, Crassula colorata* var. *acuminata,* Blue Storksbill *Erodium crinitum, Oxalis perennans,* Hairy Sida *Sida trichopoda,* Corrugated Sida *Sida corrugata, Goodenia pusilliflora, Goodenia fascicularis,* Rough burr-daisy *Calotis scabiosifolia* var. *scabiosifolia,* Pale Beauty-heads *Calocephalus sonderi,* Native Leek *Bulbine semibarbata, Daucus glochidiatus* form G.	No	Ground validated. Recorded outside the subject land where grasslands occur with a lower (sparse to very sparse) cover of chenopod shrubs such as Cotton Bush, Dillon Bush and Nitre Goosefoot	Riverine plain grassland	N/a	CEEC - Natural Grasslands of the Murray Valley Plains (potential)	N/a
58: Black oak-western rosewood open woodland on deep sandy loams	**Structure:** low open woodland or isolated clumps **Height:** to 7 m **Upper stratum:** Black Oak *Casuarina pauper* **Mid stratum:** Western Rosewood *Alectryon oleifolius* subsp. *canescens*, Sugarwood *Myoporum platycarpum* subsp. *platycarpum*, *Acacia oswaldii*, *Pittosporum angustifolium*. **Ground stratum:** Thorny Saltbush *Rhagodia spinescens*, Black Bluebush *Maireana pyramidata, Sclerolaena patenticuspis, Sclerolaena obliquicuspis, Salsola tragus* subsp. *tragus, Atriplex stipitate,* Spear Grasses *Austrostipa nitida, Austrostipa scabra, Austrostipa elegantissima.*	No	Modelled only	Riverine sandhill woodlands	N/a	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
153: Black bluebush low open shrubland of the alluvial plains and sand plains	**Structure:** variable shrubland **Height:** to 1.3 m **Upper stratum:** N/A **Mid stratum:** Black Bluebush *Maireana pyramidata*, Bladder Saltbush *Atriplex vesicaria*, Dillon Bush *Nitraria billardierei*, Old Man Saltbush *Atriplex nummularia*, Thorny Saltbush *Rhagodia spinescens*. **Ground stratum:** *Disphyma crassifolium* subsp. *clavellatum*, *Hyalosperma semisterile*, Eastern Flat-top Saltbush *Atriplex lindleyi*, Grey Copperburr *Sclerolaena diacantha*, Pigmy Sunray *Rhodanthe pygmaea*, Spear-grass *Austrostipa scabra*, Water Weed *Osteocarpum acropterum.*	No	Modelled only. The modelled presence of this PCT in the broader landscape suggests areas currently occurring as grassland PCTs (44, 45, 46) may have once compromised areas of saltbush shrublands prior to historical grazing.	Aeolian chenopod shrublands	N/a	N/a	N/a
157: Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion	**Structure:** variable shrubland **Height:** to 0.9 m **Upper stratum:** Mostly not present except for occasional Weeping Myall *Acacia pendula* or Black Oak *Casuarina pauper* isolated trees. **Mid stratum:** Bladder Saltbush *Atriplex vesicaria,* Desert Glasswort *Pachycornia triandra*, Three-spined Copperburr *Sclerolaena tricuspis*, Poverty Bush *Sclerolaena intricate,* Pigface *Disphyma crassifolium* subsp. *Clavellatum,* Slender Glasswort *Sclerostegia tenuis, Sclerolaena brachyptera, Sclerolaena tenuis*, Black Cotton Bush *Maireana decalvans*, Cotton Bush *Maireana aphylla,* Soft Horns *Malacocera tricornis, Dissocarpus biflorus* var. *biflorus*, *Atriplex lindleyi, Atriplex pseudocampanulata,* Dillon Bush *Nitraria billardierei*, Desert Glasswort *Pachycornia triandra.* **Ground stratum:** Windmill Grass *Chloris truncata,* Smallflower Wallaby Grass *Rytidosperma setaceum,* Fairy	No	Modelled only. The modelled presence of this PCT in the broader landscape suggests areas currently occurring as grassland PCTs (44, 45, 46) may have once compromised areas of saltbush shrublands prior to historical grazing.	Riverine chenopod shrublands	N/a	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
	Grass *Sporobolus caroli, Minuria cunninghamii, Brachyscome smithwhitei,* Small White Sunray *Rhodanthe corymbiflora, Calandrinia volubilis.*						
159: Old Man Saltbush shrubland mainly of the semi-arid (warm) climate zone (south western NSW)	**Structure:** tall shrubland **Height:** to 2.5 m **Upper stratum:** Dominated by Old Man Saltbush *Atriplex nummularia.* **Mid stratum:** Chenopod shrub layer dominated by bluebushes such as *Maireana microcarpa*, *Maireana appressa, Maireana pyramidata* and *Maireana brevifolia*, Thorny Rhagodia *Rhagodia spinescens*, Bladder Saltbush *Atriplex vesicaria* and Nitre Goosefoot *Chenopodium nitrariaceum*. **Ground stratum:** Low ground shrubs include *Dissocarpus biflorus, Atriplex lindleyi* and a number of copperburr species (*Sclerolaena* spp.). Forb species include *Senecio runcinifolius, Brachyscome lineariloba, Geococcus pusillus, Calandrinia eremaea, Bulbine bulbosa, Tetragonia tetragonioides, Crassula colorata* var. *colorata, Crassula sieberiana* subsp. *sieberiana* and *Osteocarpum acropterum* var. *deminuta*; grass species include *Chloris truncata*, *Austrodanthonia caespitosa*, *Austrostipa nodosa* and *Walwhalleya proluta*.	No	Ground validated. Recorded at one location as a large stand relatively near the homestead (outside the subject land). Whether this is a naturally occurring example of this PCT, or planted is yet to be determined.	Riverine chenopod shrublands	N/a	N/a	N/a
160: Nitre Goosefoot shrubland wetland on clays of the inland floodplains	**Structure:** open to closed shrubland **Height:** to 2 m **Upper stratum:** N/A **Mid stratum:** Nitre Goosefoot *Chenopodium nitrariaceum* with occasional Dillon Bush *Nitraria billardierei* and Lignum *Duma* (*Muehlenbeckia*) *florulenta.* **Ground stratum:** *Tecticornia tenuis*, Common Sneezeweed *Centipeda cunninghamii*, Creeping Saltbush *Atriplex*	Yes	Ground validated. Recorded as a number of patches within the subject land as more frequently inundated vegetation along minor drainage lines.	Ephemeral wetland (wetter and drier sub-types)	N/a	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
	semibaccata, Eastern Flat-top Saltbush *Atriplex lindleyi,* Mossgiel Daisy *Brachyscome papillosa,* Pale Spike Sedge *Eleocharis pallens,* Small White Sunray *Rhodanthe corymbiflora,* Short-wing Saltbush *Sclerolaena brachyptera.*						
163: Dillon bush (Nitre bush) shrubland	**Structure:** open shrubland **Height:** to 1.5 m **Upper stratum:** N/A **Mid stratum:** Dillon Bush *Nitraria billardierei,* Black Bluebush *Maireana pyramidata*, Bladder Saltbush *Atriplex vesicaria*, Cotton Bush *Maireana aphylla*, Old Man Saltbush *Atriplex nummularia,* Nitre Goosefoot *Chenopodium nitrariaceum*. **Ground stratum:** *Atriplex pseudocampanulata*, *Sclerolaena obliquicuspis*, *Disphyma crassifolium* subsp. *clavellatum, Sida intricata,* Black Rolypoly *Sclerolaena muricata* var. *villosa*, Spider-grass *Enteropogon acicularis,* Eastern Flat-top Saltbush *Atriplex lindleyi,* Short-wing Saltbush *Sclerolaena brachyptera,* Ringed Wallaby Grass *Rytidosperma caespitosum.*	No	Ground validated. Recorded occasionally outside the subject land	Open chenopod shrubland	N/a	N/a	N/a
164: Cotton Bush open shrubland of the semi-arid (warm) zone	**Structure:** open shrubland/herbland/grassland **Height:** to 1 m **Upper stratum:** N/A **Mid stratum:** Baldoo *Atriplex lindleyi, Atriplex eardleyae,* Angular Saltbush *Atriplex angulata,* Babbagia *Osteocarpum acropterum* var. *deminuta,* Pop Saltbush *Atriplex holocarpa,* Tangled Copperburr *Sclerolaena divaricata,* Tangled Poverty Bush *Sclerolaena intricata, Sclerolaena brachyptera,* Green Copperburr *Sclerolaena decurrens,* Grey Copperburr *Sclerolaena diacantha, Sclerolaena stelligera,* Salt Copperburr *Sclerolaena ventricosa,* Goathead Copperburr *Sclerolaena bicornis,* Cottonbush *Maireana aphylla,* Fissure Weed	Yes	Ground validated. Commonly recorded throughout the subject land	Open chenopod shrubland	N/a	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
	Maireana ciliata, Crown Fisure-weed *Maireana coronate,* Satiny Saltbush *Maireana turbinate.* **Ground stratum:** Common White Sunray *Rhodanthe floribunda,* Variable Dasiy *Brachyscome ciliaris,* Common Poison Pea *Swainsona affinis, Swainsona campylantha,* Neverfail grass *Eragrostis setifolia.*						
165: Derived corkscrew grass grassland/ forbland on sandplains and plains in the semi-arid (warm) climate zone	**Structure:** mid-high open chenopod shrubland and/or very open woodland **Height:** to 1 m **Upper stratum:** Western Rosewood *Alectryon oleifolius*, Poplar Box *Eucalyptus populnea* subsp. *bimbil*, Black Box *Eucalyptus largiflorens,* Coolabah *Eucalyptus coolabah*. **Mid stratum:** Black Roly Poly *Sclerolaena muricata*, Goathead Burr *Sclerolaena bicornis,* Galvanised Burr *Sclerolaena birchii,* Buckbush *Salsola kali,* Small-leaf Bluebush *Maireana microphylla,* Slender-fruit Saltbush *Atriplex leptocarpa,* Black Bluebush *Maireana pyramidata.* **Ground stratum:** Rat's Tail Couch *Sporobolus mitchellii,* Spider-grass *Enteropogon acicularis,* Tarvine *Boerhavia dominii,* Windmill Grass *Chloris truncata,* Native Millet *Panicum decompostum,* Fairy Grass *Sporobolus caroli,* Common Nardoo *Marsilea drummondii, Goodenia fascicularis,* Quena *Solanum esuriale.*	No	Modelled only.	Riverine plain grassland	N/a	N/a	N/a
216: Black Roly Poly low open shrubland of the Riverina Bioregion and Murray	**Structure:** low to high open chenopod shrubland **Height:** to 1 m **Upper stratum:** Occasional scattered Black Box E*ucalyptus largiflorens* **Mid stratum:** Black Roly Poly *Sclerolaena muricata* var. *semiglabra,* Grey Copperburr *Sclerolaena diacantha,* Small-leaf	No	Modelled only.	Riverine chenopod shrublands	N/a	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
Darling Depression Bioregion	Bluebush *Maireana microphylla,* Wooly Buttons *Leiocarpa panaetioides,* Forest Germander *Teucrium racemosum.* **Ground stratum:** Creeping Saltbush *Atriplex semibaccata,* Fuzzweed *Vittadinia cuneata,* Winged New Holland Daisy *Vittadinia pterochaeta,* Small White Sunray *Rhodanthe corymbiflora,* Hairy Sida *Sida trichopoda,* Austral Cranesbill *Geranium solanderi* var. *solanderi,* Speargrass *Austrostipa scabra* subsp. *scabra,* Ringed Wallaby Grass *Rytidosperma caespitosum, Walwhalleya proluta,* Windmill Grass *Chloris truncata.*						
Modified land (non-PCT)	**Structure:** variable structure depending on land use history ranging from heavily cultivated areas with high proportion of bare ground to regenerating native vegetation dominated by indigenous grasses and chenopods. **Height:** to 0.2 m **Upper stratum:** N/A **Mid stratum:** occasional regeneration of Lignum *Duma* (*Muehlenbeckia*) *florulenta,* Dillon Bush *Nitraria billardierei*, Nitre Goosefoot *Chenopodium nitrariaceum*, Thorny Saltbush *Rhagodia spinescens.* **Ground stratum:**, *Sida intricata, Vittadinia cervicularis, Walwhalleya proluta*, Black Rolypoly *Sclerolaena muricata* var. *muricata, Sclerolaena muricata* var. *villosa*, *Sclerolaena muricata* var. *semiglabra*, Soft Rolpoly *Salsola tragus*, Eastern Flat-top Saltbush *Atriplex lindleyi*, Giant Redburr *Sclerolaena tricuspis*, Quena *Solanum esuirale*. Cotton Bush *Maireanna aphylla*, Grey Germander *Teucrium racemosum*, Slender-fruit Saltbush *Atriplex leptocarpa*,	Potentially in disturbed areas in north-eastern corner of the subject land.	Ground validated. Modified land occurs in areas subject to higher levels of use relating to agricultural activities.	Irrigated cropping land, Dryland cropping, grazing land, disturbed areas	N/a	N/a	N/a

PCT	Description	Present within subject land	Ground validated or modelled only	Corresponding habitat type	BC Act	EPBC Act	SAII
	Associated weed species: Spear Thistle *Cirsium vulgare*, Patterson's Curse E*chium plantagineum,* Barley Grass *Hordeum* spp., Burr Medic *Medicago polymorpha*, Bathurst Burr *Xanthium spinosum*, Oats *Avena* spp., Arabian Grass *Schismus barbatus*.						

4.3 Threatened ecological communities

4.3.1 Myall Woodland

Myall Woodland is a BC Act and EPBC Act listed EEC dominated by Weeping Myall *Acacia pendula*. The community structure can vary from low woodland and low open woodland to low sparse woodland or open shrubland, depending on disturbance history, soils, and topographical and ecological influence. The tree layer grows up 10 metres with Weeping Myall as either a dominant species or the only tree species present. The understorey consists of an open chenopod shrub layer including other woody plant species with an open to complete groundcover of herbs and grasses.

Myall Woodland occurs on alluvial plains on red-brown earths and heavy textured grey and brown alluvial soils. The community occurs as a single small patch in the northern portion of the subject land, with scattered trees along the western boundary forming the edge of a larger contiguous patch of the TEC that occurs to the east. This western patch is likely to conform to the EPBC Act listed community.

4.3.2 Natural Grasslands of the Murray Valley Plains

Natural Grasslands of the Murray Valley Plains is an EPBC Act listed CEEC dominated by Spear Grasses *Austrostipa* spp., Wallaby Grasses *Rytidosperma* spp. and Spider Grass *Enteropogon ramosus*. The ecological community may also be dominated or co-dominated by a range of forb species (McDougall et al 1994), depending on seasonality and disturbance history. The ecological community ranges from open to closed tussock grassland. In areas where grasses are sparse, the community may be a herbland/forbland. In other areas, the community may be an open grassy shrubland where low chenopod shrubs are co-dominant with grasses (DSE 2004b).

Natural Grasslands of the Murray Valley Plains occurs generally within a mosaic of woodlands and naturally occurring grasslands on flat alluvial lowland plains with heavy-textured grey, brown and red clays. Extant grasslands derived from the historical removal of open woodlands or chenopod shrublands (through clearing or overgrazing) do not represent an occurrence of the CEEC. Within the subject land, the community could potentially occur on alluvial plains where soils are heavier and less well-drained in the eastern portion of the site.

Further assessment of the origin of extant grasslands across the subject lend is required to determine the presence/absence of the Natural Grasslands of the Murray Valley Plains CEEC. Within the subject land grasslands occur as predominantly grassy areas with a sparse to very sparse cover (<5% cover) of chenopod shrubs, such as Cotton Bush or Dillon Bush, as well as areas where chenopods and other woody plants occur at higher levels. Grasslands derived from former Myall, Pine and Black box woodlands occur across the surrounding landscape, and additional areas of grassland potentially derived from former chenopod shrublands, dominated by species such as Black Bluebush, Old Man Saltbush and Bladder Saltbush, may also exist. The historical presence of these chenopod shrublands is supported by the presence of SVTM modelled PCTs occurring within and surrounding the subject land in vegetation/landscape patterns similar to those where areas of grassland occur within the subject land. Furthermore, it is noted in BioNet that the presence of species such as Cotton Bush and Nitre Goosefoot (in drier habitats) indicate a history of overgrazing, and the potential occurrence of grasslands/shrublands derived from former woodland chenopod shrubland communities. A large stand of Old Man Saltbush shrubland occurs to the west of the subject land, further indicating the possible historical presence of chenopod shrublands, however it is possible that the patch of Old Man Saltbush is planted in origin, and requires clarification.

Nonetheless it is possible that areas of naturally occurring grasslands, conforming to Natural Grasslands of the Murray Valley Plains, exist within the subject land, supporting a very sparse cover of woody shrubs present in the eastern portions of the site. Further detailed investigation is required to resolve the original vegetation likely to have been present in these areas.

4.3.3 Sandhill Pine Woodland

Sandhill Pine Woodland is a BC Act Endangered Ecological community dominated by White Cypress Pine *Callitris glaucophylla*. The community is characterised by an open cover of trees, which may be reduced to isolated individuals or may be absent as a result of past clearing and regenerative failure. The tree layer is dominated by *C. glaucophylla*, primarily in pure stands but sometimes with a range of less abundant trees or tall shrubs. The structure and species composition of the community varies depending on disturbance history and temporal variability in rainfall.

Sandhill Pine Woodland occurs on aeolian stream source-bordering dunes on red-brown loam sands with alkaline sub-soils. Within the subject land, the community is found as scattered trees in the disturbed areas in the north-eastern corner of the site.

4.4 Aquatic habitats

Hydrological features occur within the subject land include ephemeral drainage lines and farm dams. The aquatic ecological communities within the subject land and broader locality are typified by wetland specialist and lowland river generalists, generally comprising highly modified watercourses, altered flow regimes, channel formation, diversions and removal or modification of riparian vegetation. Nevertheless, during peak periods and overflow, parts of subject land and surrounds provide significant habitat for a diverse range, and large number of species.

Aquatic and riparian areas provide a valuable and often essential resource for fauna and flora species. Within the subject land, aquatic habitats are considered to be in poor condition state generally, and provide sub-optimal habitat for aquatic species.

All native fish and aquatic invertebrates within all natural creeks, rivers, and associated lagoons, billabongs and lakes in the area are considered to be part of the FM Act listed threatened ecological community - *Aquatic ecological community in the natural drainage system of the lower Murray River catchment*.

4.5 Threatened species

Background searches identified five threatened flora species and 29 threatened fauna species as being recorded (EES 2023) or predicted to occur (Commonwealth of Australia 2023) within 20 kilometres of the subject land (the locality). Furthermore, based on the PCTs confirmed present within the subject land, and those additional modelled PCTs conservatively included in the BAM Calculator case, a total of 33 candidate species credit species and 36 predicted ecosystem credit species, have been generated as potentially occurring within the subject land.

Review of relevant contemporary biodiversity studies, including the Project Energy Connect BDAR (WSP 2022) which overlaps with the subject land, confirmed records of four of the potentially occurring threatened flora species, and two of the potentially occurring threatened fauna species, within or in close proximity to the subject land. The potential presence of other threatened species has considered the findings of, and regulator responses to, other contemporary biodiversity assessments as listed in Section 3.2.

4.5.1 BAM species credit species

Table 3 below provides a preliminary assessment of potential occurrence of candidate species credit species within the subject land. This assessment is based on the PCTs confirmed present within the subject land, and those additional modelled PCTs conservatively included in the BAM Calculator case, and provides a list of relevant habitat or geographic constraints not present at the subject land (or outside the locality of the subject land), as well as a brief analysis of species records. A preliminary likelihood of occurrence is then

provided for each candidate species credit species based on preliminary habitat assessments undertaken in February 2023 and each species' known extent of occurrence based partly on existing records. It should be noted that a paucity of records may be as much a product of lack of official survey in the locality, as an actual lack of occurrence.

Those candidate species credit species concluded to have a moderate or higher likelihood of occurrence within the subject land are considered to have a higher likelihood of being impacted by the project.

Table 3 Preliminary assessment of potential occurrence of candidate species credit species within the subject land

Scientific name	Common Name	PCT ID - Ground validated														PCT ID - Modelled only				Relevant Habitat constraints / Geographic limitations	BioNet and other relevant record notes	Preliminary likelihood of occurrence within subject land (species credit habitat only)
		10	13	15	17	23	24	26	28	44	45	46	160	163	164	16	153	157	159			
Flora																						
Austrostipa wakoolica	A spear-grass				x			x	x												No records within 60km of the subject land, all records to the south	Moderate
Brachyscome muelleroides	Claypan Daisy									x	x	x									Closest record 115km to the east of the subject land near Morundah	Low – Moderate
Brachyscome papillosa	Mossgiel Daisy		x	x			x			x	x	x	x	x	x	x	x	x	x		Records within 10km of the subject land (PEC records close to subject land)	High
Caladenia arenaria	Sand-hill Spider Orchid								x											East of Jerilderie	n/a	Negligible
Calotis moorei	A burr-daisy					x											x	x			Single historic (1913), low accuracy (25000m) record over 50km from the subject land	Low
Convolvulus tedmoorei	Bindweed				x		x	x		x	x	x		x	x			x	x		Single historic (1969), low accuracy (10000m) record 50km from the subject land	Low
Cullen parvum	Small Scurf-pea									x											No records on the Hay Plain, closest 60km south-east between Conargo and Jerilderie	Moderate

Scientific name	Common Name	PCT ID - Ground validated													PCT ID - Modelled only				Relevant Habitat constraints / Geographic limitations	BioNet and other relevant record notes	Preliminary likelihood of occurrence within subject land (species credit habitat only)
		10	13	15	17	23	24	26	28	44	45	46	160	163	164	16	153	157	159			
Eucalyptus leucoxylon subsp. *pruinosa*	Yellow Gum		x	x												x					Very few proximal records, single record cantered on Hay, remainder west of Moulamein (95-110km from the subject land)	Low
Lepidium monoplocoides	Winged Peppercress		x	x			x	x			x	x	x	x		x	x		x		Records within 10km of the subject land	Moderate - High
Leptorhynchos orientalis	Lanky Buttons						x	x		x	x	x									Single historical (1917) records 35km form the subject land, remainder of proximal records over 100km east near Morundah and Urana	Low
Maireana cheelii	Chariot Wheels							x		x		x						x			Records within 5km of the subject land (PEC records close to subject land)	High
Pilularia novae-hollandiae	Austral Pillwort		x	x				x		x	x	x				x			x	East of Deniliquin	PEC records within subject land, single BioNet record 20km to the north-east of the subject land, remainder east of Jerilderie	High
Sclerolaena napiformis	Turnip Copperburr							x		x											Records centred around Jerilderie, 75km to the south-east of the subject land	Low - Moderate

Scientific name	Common Name	PCT ID - Ground validated														PCT ID - Modelled only				Relevant Habitat constraints / Geographic limitations	BioNet and other relevant record notes	Preliminary likelihood of occurrence within subject land (species credit habitat only)
		10	13	15	17	23	24	26	28	44	45	46	160	163	164	16	153	157	159			
Solanum karsense	Menindee Nightshade		x	x	x		x						x			x	x		x	West of Maude	n/a	Negligible
Swainsona murrayana	Slender Darling Pea			x		x		x	x	x	x	x		x	x	x		x			Recorded within the eastern portion of the subject land (numerous PEC records close to, and within subject land)	High
Swainsona plagiotropis	Red Darling Pea							x		x	x	x									Records centred around Jerilderie, 75km to the south-east of the subject land	Low - Moderate
Swainsona sericea	Silky Swainson-pea					x		x	x	x	x	x			x						Records generally east of the subject land, closest record 25km to south-east	Moderate
Fauna																						
Ardeotis australis	Australian Bustard			x		x	x	x	x	x	x	x	x	x	x	x	x	x	x		Records within 30km of the subject land	Moderate
Burhinus grallarius	Bush Stone-curlew	x	x	x		x		x	x				x	x	x	x	x	x			Records within 35km of the subject land	Low
Calidris ferruginea	Curlew Sandpiper						x													As per Important Habitat Map	n/a	Negligible
Haliaeetus leucogaster (Breeding)	White-bellied Sea-Eagle	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		Very few records on Hay Plain	Low

Scientific name	Common Name	PCT ID - Ground validated													PCT ID - Modelled only				Relevant Habitat constraints / Geographic limitations	BioNet and other relevant record notes	Preliminary likelihood of occurrence within subject land (species credit habitat only)
		10	13	15	17	23	24	26	28	44	45	46	160	163	164	16	153	157	159		
Hieraaetus morphnoides (Breeding)	Little Eagle	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		Records within 15km of the subject land (PEC recorded [foraging] close to subject land)	Low
Lathamus discolor	Swift Parrot	x													x					As per Important Habitat Map	n/a	Negligible
Litoria raniformis	Southern Bell Frog	x	x		x		x										x				Recent (2017) records in Coleambally Outfall Drain and Werkenbergal Wetland within 2km of the subject land	Moderate
Lophochroa leadbeateri (Breeding)	Major Mitchell's Cockatoo	x	x	x		x		x	x		x			x		x	x		x		Few records on the Hay Plain, but generally surrounding the subject land	Low
Lophoictinia isura (Breeding)	Square-tailed Kite	x	x	x		x		x	x		x		x	x	x	x	x	x	x		Records within 5km of the subject land	Low
Myotis macropus	Southern Myotis	x											x		x		x				No records on the Hay Plain, but generally surrounding the subject land	Low – Moderate
Ninox connivens (Breeding)	Barking Owl	x	x	x									x	x	x	x	x	x	x		Single historic (1985), low accuracy (10000m) record within 60km of the subject land	Low
Pedionomus torquatus	Plains-wanderer									x		x									Numerous records surrounding the subject land, closest records within 200m of the subject land	Moderate

Scientific name	Common Name	PCT ID - Ground validated														PCT ID - Modelled only				Relevant Habitat constraints / Geographic limitations	BioNet and other relevant record notes	Preliminary likelihood of occurrence within subject land (species credit habitat only)
		10	13	15	17	23	24	26	28	44	45	46	160	163	164	16	153	157	159			
Phascolarctos cinereus	Koala	x	x	x	x	x	x	x	x				x		x	x	x	x	x		No records on the Hay Plain, records associated with major watercourses	Low
Polytelis anthopeplus monarchoides (Breeding)	Regent Parrot (eastern subspecies)	x	x	x												x				Within 10 km of the junction of the Murray River	n/a	Negligible
Polytelis swainsonii (Breeding)	Superb Parrot	x	x			x		x	x		x	x					x				Records within 5km of the subject land	Low
Tyto novaehollandiae (Breeding)	Masked Owl	x	x				x	x					x		x		x	x	x		Few historic (1955, 1982), low accuracy (1000-10000m) record within 70km of the subject land	Low

4.6 Matter of National Environmental Significance

Based on the results of a Protected Matters Search Tool run in March 2023, and the findings of the preliminary field investigations, MNES potentially of relevance to the Project are provided in Table 4 below.

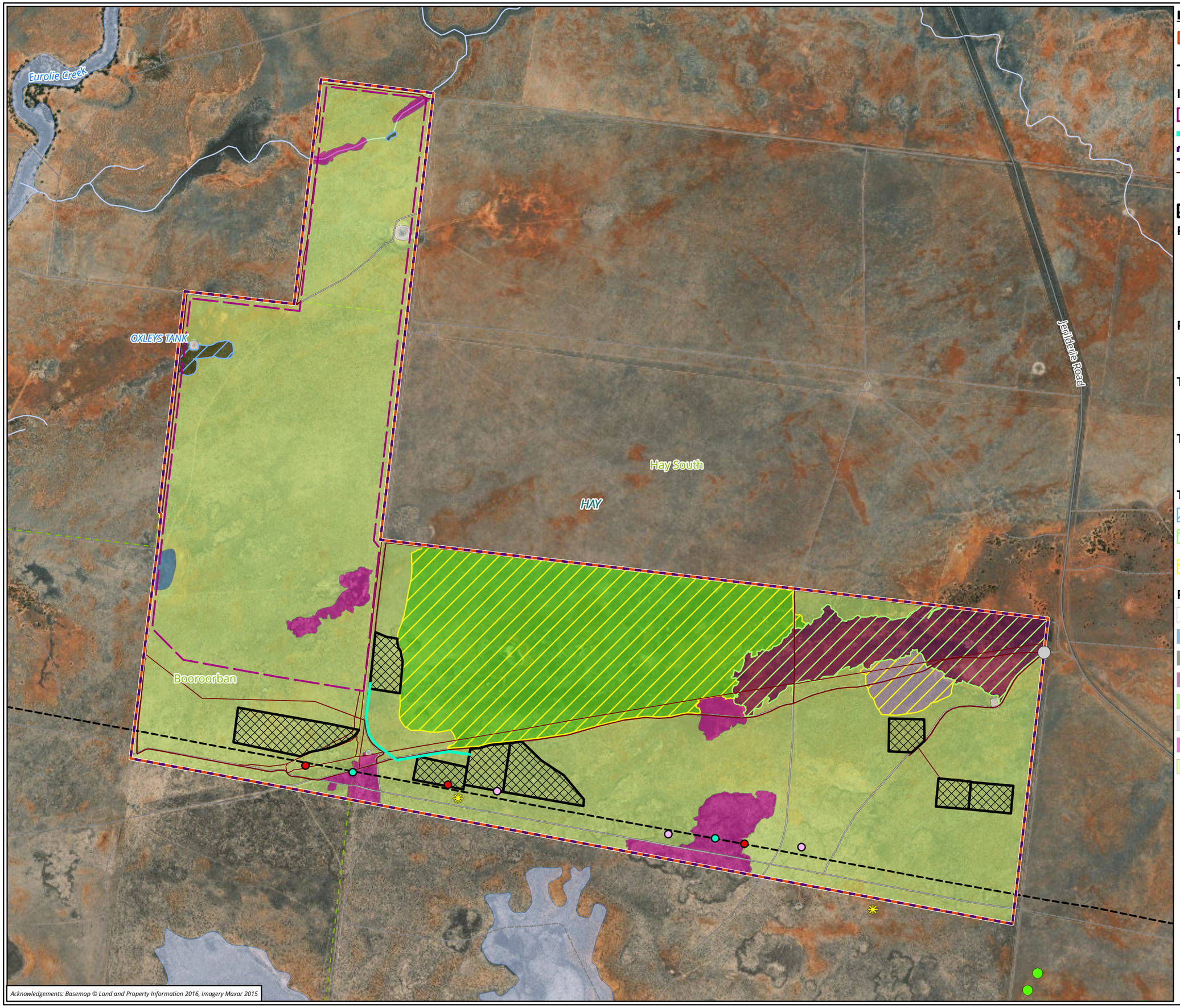
Table 4 MNES of relevance to the Project

MNES	Relevance to the Project
World Heritage Properties	Not identified within the subject land or a 30 km radius.
National Heritage Places	Not identified within the subject land or a 30 km radius.
"Wetlands of International Importance (Ramsar Wetlands)	There are no Wetlands of International Importance within the subject land or 30 km buffer. The closest Ramsar Wetlands, based on a PMST search include: • Banrock Station Wetland Complex (300 - 400km downstream). • The Coorong, and Lakes Alexandrina and Albert Wetland (400 - 500km downstream). • Hattah-Kulkyne Lakes (150 - 200km downstream). • Riverland (300 - 400km downstream).
Great Barrier Reef Marine Park	Not identified within the subject land or a 30 km radius.
Commonwealth Marine Area	Not identified within the subject land or a 30 km radius.
Listed Threatened Ecological Communities	A total of five Commonwealth listed TECs are predicted to occur within the subject land and/or 30 km buffer. Those TECs include: • Natural Grasslands of the Murray Valley Plains (Critically Endangered) – Potentially recorded within the subject land. • Weeping Myall Woodlands (Endangered) – Likely to be present within the subject land. • Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plain Bioregions (Critically Endangered) – Not recorded within the subject land and not expected to occur. • Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Endangered) – Not recorded within the subject land and not expected to occur. • Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions (Endangered) – Not recorded within the subject land and not expected to occur.
Listed Threatened Species	A total of 31 listed threatened species are predicted to occur within the subject land and 30km buffer. Those considered most likely to occur include: • Chariot Wheels (Vulnerable) • Mossgiel Daisy (Vulnerable) • Painted Honeyeater (Vulnerable) • Plains-wanderer (Critically Endangered) • Slender Darling-pea (Vulnerable) – Recorded within the subject land • Southern Bell Frog (Vulnerable) • Superb Parrot (Vulnerable) • Winged Pepper-cress (Endangered)

MNES	Relevance to the Project
Listed Migratory Species	A total of 10 listed threatened species are predicted to occur within the subject land and 30km buffer. Those considered most likely to occur include: • Common Sandpiper • Sharp-tailed Sandpiper • Pectoral Sandpiper • Yellow Wagtail • Marsh Sandpiper • Glossy Ibis (note this species was not predicted to occur by the PMST search, however it is considered highly likely to occur in the subject land)

MNES listed above, along with any other MNES recorded or predicted as likely to occur within the subject land, will require consideration as part of ongoing ecological assessments. A referral of the Project to DCCEEW is planned and will provide a determination as to whether the Project is considered a Controlled Action under the EPBC Act. The above listed MNES will form the basis of potential impacts included in the Referral.

Figure 3 Biodiversity values



Legend

- Subject land
- Project Energy Connect alignment (assumed)

Indicative development footprint

- Proposed photovoltaic arrays
- Solar transmission line
- Project area
- Access track
- Project access
- Ancillary infrastructure

PEC threatened flora records

- Austral Pillwort, *Pilularia novae-hollandiae*
- Slender Darling Pea, *Swainsona murrayana*

PEC threatened fauna records

- White-fronted Chat, *Epthianura albifrons*

Threatened fauna (Bionet 2023)

- Plains-wanderer,Pedionomus torquatus

Threatened flora (Bionet 2023)

- Slender Darling Pea, *Swainsona murrayana*

Threatened Ecological Communities

- Myall Woodland
- Sandhill Pine Woodland
- Natural Grasslands of the Murray Valley Plains (potential)

Plant Community Types

- Non-native / cleared
- 17
- 26
- 28
- 44
- 45
- 160
- 164

Figure 3 Biodiversity values

0 0.25 0.5 0.75 1

Kilometers

Scale: 1:25,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

biosis

Matter: 38557,
Date: 10 May 2023 ,
Prepared for: CW, Prepared by: AM, Last edited by: amackegard
Layout: Solar_F3_BV
Project: P:\38500s\38557\Mapping\
38557_PottingerEnergyPark_figures_v2.aprx

Acknowledgements: Basemap © Land and Property Information 2016, Imagery Maxar 2015

5 Preliminary impact assessment and next steps

5.1 Biodiversity values and potential impacts

Biodiversity values and potential impacts presented herein are based largely on the ground validated results of the field investigations completed in February 2023, with some areas outside the extent of the subject land (and the broader areas assessed during February 2023), subject to constraints based on modelled vegetation (Riverina SVTM) only. The subject land supports a range of biodiversity values with only the more degraded areas in the north-eastern corner considered of lower risk of impact. This is due to almost the entirety of the subject land supporting native vegetation. Higher risk areas are associated with TECs including Myall Woodland, Sandhill Pine Woodland (although present in lower condition) and the potential occurrence of Natural Grasslands of the Murray Valley Plains. Ongoing application of the principles of avoid, minimise and mitigate will be essential in development of a project design with further detailed surveys to be completed as part of the BDAR.

There are however, opportunities to locate project infrastructure in areas considered to be of lower risk to biodiversity values, albeit generally still within areas of native vegetation. Such areas include where historical land management practices have led to lower condition grassy / chenopod shrubland areas, less likely to support habitat for threatened species. Biodiversity constraints have been presented on a worst case scenario basis to allow for consideration of impact minimisation over the life of the project, and strategies are likely to be able to be developed that balance impact minimisation with maximising the benefits a project of this nature can provide.

Potential serious and irreversible impacts

Areas of highest constraint and higher significance potential impacts are associated with Mapped Important Areas of habitat for Plains Wanderer, and an additional 100 metre buffer around the DPE mapped polygons. It should be noted that these areas not expected to be impacted by the Project.

Potential future impacts within these areas (i.e. as a result of project redesign), if they occur, would require further detailed assessment for direct and/or indirect impacts to Plains Wanderer in accordance with the assessment for SAIIs on biodiversity values, as outlined in Section 9.1 of the BAM. This assessment would be required as part of the BDAR, with the consent authority (upon recommendation from BCD) making the final determination on whether a SAII is likely to occur.

Solar farm constraints

Modelled biodiversity constraints associated with the Project have been developed in accordance with the hierarchy and method outlined in Table 1. Higher level constraints for solar farms (i.e. solar arrays, transmission line towers, roads, hardstands, ancillary facility etc.), generally relate to direct and indirect impacts to TECs, threatened species populations and habitats, and areas of native vegetation.

The Project will avoid areas of high constraints comprising areas mapped as TECs (or potential TECs) listed under state or Commonwealth legislation wherever possible to ensure the BC Act and EPBC Act requirement for avoidance and minimisation of impacts to biodiversity values is implemented. Mapped (potential) TECs include areas of the EPBC Act listed Critically Endangered Natural Grasslands of the Murray Valley Plains, which has the potential to occur in areas of natural grasslands across the subject land. Further detailed data collection is required to confirm the presence/absence of this TEC within the subject land, however all areas of potential TEC have been conservatively mapped as the TEC to ensure avoidance and minimisation of impacts is considered in these areas from the outset of project design.

Impacts to treed PCTs, particularly those within proximity of a watercourse have the potential to directly and indirectly impact on breeding habitat for bird and microbat species, as well as the state and Commonwealth listed Southern Bell Frog. Furthermore, the Riverina is known to support a large number of significant wetlands (NPWS 2003), and the landscape surrounding the subject land supports wetland habitats that can act as stepping stones between larger more significant wetland habitats. Impact minimisation strategies such as maintenance of infrastructure-free flyways during project design will be required to minimise Project specific and cumulative impacts. Moderate level constraints for solar farm projects, include the risk of impact associated with overhead powerline collisions, particularly for threatened and protected bird and bat species. Impacts of this nature are considered indirect, and will be minimised wherever possible.

Measures implemented during early project design, as detailed below in Section 5.2, have reduced the potential for the Project to result in the above higher risk impacts, and efforts will continue through future project design to further avoid and minimise impacts associated with the Project.

The current biodiversity constraints model does not specifically attribute constraints to existing records of threatened flora and fauna species. This is due to items such as issues with the scale at which the modelling was undertaken, the transient nature of threatened species records, and the use of native vegetation as suitable surrogates for threatened species related constraints during the early stages of project design. Following further detailed field survey, existing population of threatened species and/or higher condition habitats will form part of avoidance and minimise considerations and will represents specific biodiversity constraints to be considered.

All native vegetation (not highlighted as part of the above constraints) remains a moderate constraint due to the legislative requirements to avoid and minimise impacts, and the potential for threatened species to occur. However, locating project infrastructure within areas of moderate and low constraints is considered most suitable and is likely to result in the least amount impacts to biodiversity values. In locating project infrastructure in these areas, the potential for more significant or substantial impacts will be minimised.

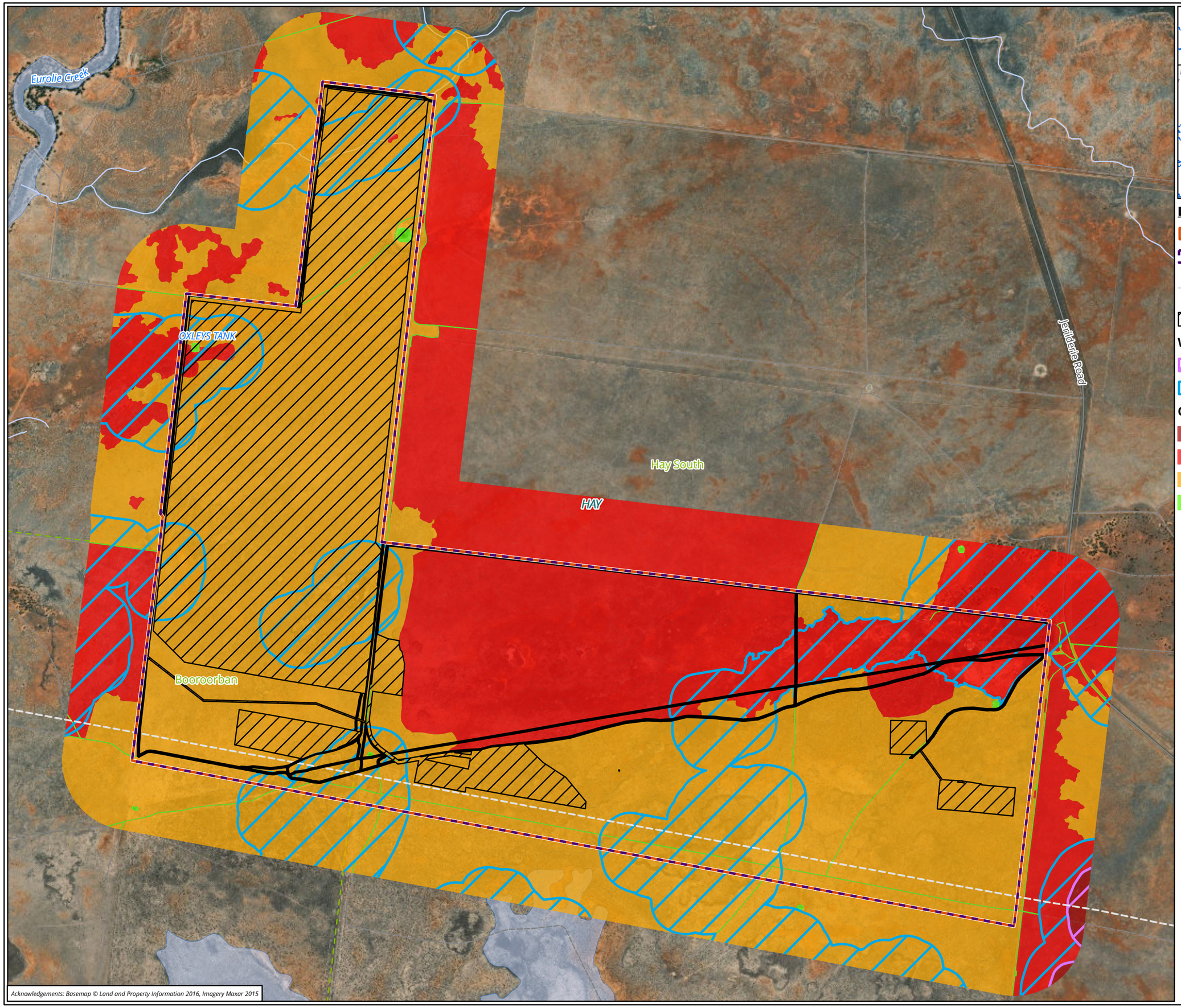
5.2 Avoidance and minimisation of impacts

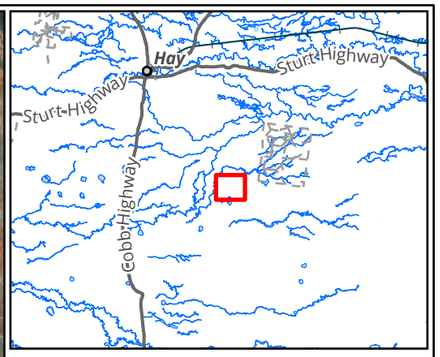
As outlined above, the avoidance and minimisation of impacts to biodiversity values is a requirement under both state and Commonwealth legislation, and will be implemented throughout the Project. Avoidance and minimisation has already occurred in the initial project design phases, as a result of the initial desktop biodiversity constraints prepared by Biosis, prior to the February field investigation.

Initial desktop biodiversity constraints were based on parameters similar to those presented in Table 1, however included larger, more conservative buffers around some higher constraint biodiversity items (based on desktop assessment only). Some avoidance buffers have been reduced following ground validation of habitat values. Application of the avoidance and minimisation principles in the initial pre-scoping stage of the Project has resulted in the following (Figure 4):

- Moving roads and access tracks out of No Go areas, and minimising impacts in High Constraint areas by locating tracks in areas of existing disturbance.
- Locating all ancillary infrastructure outside of No Go and High Constraint areas.
- Commitments to future design continuing to minimise all impacts to High Constraint areas to the fullest extent possible.

Figure 4 Avoid and minimse biodiversity constraints





Legend

- Subject land
- Project area
- Project Energy Connect alignment (assumed)
- Indicative development footprint

WTG, powerline constraints

- No-go
- High constraint

Civil constraints

- No-go
- High constraint
- Moderate constraint
- Low constraint

Figure 4 Biodiversity constraints

0 0.25 0.5 0.75 1

Kilometers

Scale: 1:25,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

N

biosis

Matter: 38557,
Date: 10 May 2023 ,
Prepared for: CW, Prepared by: AM, Last edited by: amackegard
Layout: Solar_F4_Avoid
Project: P:\38500s\38557\Mapping\
38557_PottingerEnergyPark_figures_v2.aprx

Acknowledgements: Basemap © Land and Property Information 2016, Imagery Maxar 2015

5.3 SAII species and communities

Serious and Irreversible impacts (SAII) are defined by the BC Act as an impact that a consent authority considers likely to significantly increase the extinction risk of a threatened species or ecological community. Under section 9.1 of the BAM, the consent authority is responsible for determining if a SAII impact is likely to occur. This assessment includes:

- Identifying every potential SAII entity that may occur.
- Evaluating the nature of the impact on each entity.
- Documenting efforts to avoid and minimise impacts on biodiversity in accordance with the assessment criteria.

The BAM assessment pathway will determine the presence of SAII species and communities within the subject land. SAII species and communities have the potential to occur within the subject land. These include:

- Plains Wanderer.
- *Convolvulus tedmoorei.*

The potential for SAIIs will be further investigated as part of the preparation of a BDAR.

5.4 Estimated direct impacts to biodiversity values

The indicative development footprint has been developed following initial efforts to avoid and minimise impacts to biodiversity values as outlined above, with the estimated direct impacts associated with the project outlined in Table 5 below.

Table 5 Estimated direct impacts of the project

Biodiversity value	Estimated impacts
Native vegetation	
• **7 PCTs (based on rapid field validation survey)**	• 618.36 ha
TECs	
• **Myall Woodland (PCT 26)** • **Sandhill Pine Woodland (PCT 28)** • **Potential Natural Grasslands of the Murray Valley Plains (PCT 44, 45)**	• 5.05 ha • 3.97 ha • 5.43 ha
Potential SAII candidate species habitat	
• ***Convolvulus tedmoorei*** • **Plains Wanderer**	• 611.17 ha of potential habitat • No mapped important areas, but potential habitat remains present

5.5 Indirect, prescribed and uncertain impacts

Indirect impacts associated with solar farm projects generally relate to items such as those highlighted above, including potential collisions with overhead powerlines and operational disturbance to adjacent retained habitats, as well as the suite of potential indirect impacts associated with major construction projects. Solar farms also have the potential to disrupt habitat connectivity and fauna movement for ground-dwelling fauna, and potential alteration of local-scale hydrological regimes, which may both be required to be addressed as prescribed impacts under BAM.

As part of application of the BAM it is a requirement to identify indirect and prescribed impacts and apply the same avoidance and minimisation hierarchy as with direct impacts. This process will be ongoing throughout the future design phases of the Project.

Any impacts that are determined as being uncertain would likely be subject to ongoing monitoring and adaptive management.

6 Recommendations

6.1 Recommendations

The results of preliminary and future field surveys will be used to continue to guide the design for the Project. Avoiding and minimising impacts to biodiversity will be considered further during detailed design revisions and will be developed in consultation with relevant stakeholders and agencies. Specific considerations will include:

- Avoidance and minimisation of impacts to potential SAII entities.
- Clearing of native vegetation to the minimum extent necessary.
- Minimising project infrastructure in High Constraint areas to reduce direct and indirect impacts.
- Minimising placement of all infrastructure types in mapped TECs and threatened species habitat / populations, to reduce potential impacts to highly sensitive biodiversity values and to ensure application of the avoid and minimise principles.
- Development of impacts minimisation strategies including maintenance of terrestrial habitat connectivity and infrastructure-free buffer zones (flyways) through the subject land, between wetlands (stepping-stones), and other habitat feature during project design.
- Minimisation of impacts in areas of good condition native vegetation and habitats.
- Minimisation of impacts to paddock trees and hollow-bearing trees as far as practicable.
- Avoidance of areas of greater overhead powerline collision risk to resident birds and bats and migrating species.
- Development of measures in designing solar arrays to dissuade perching attracting aerial fauna.
- Restoration of impacted areas beneath solar arrays with native vegetation to improve biodiversity values within the operational solar farm.
- Cross reference with other site/value-based constraints – e.g. Aboriginal cultural heritage values and flood prone areas.

A number of the above impact minimisation strategies have already been implemented during initial project design (as outlined in Section 5.2), and further work will continue as the assessment stage of the Project progresses, and the BDAR is developed.

As part of a BDAR, detailed ecological surveys, investigations and assessment will be undertaken including:

- Collection of floristic plot data.
- Confirmation of extent of all TECs present.
- Targeted surveys for candidate flora and fauna species.
- Assessment of all direct, indirect and prescribed impacts.
- Offset planning for unavoidable residual impacts.

On-site survey effort by suitability qualified ecologists will be undertaken to further ground truth vegetation types, associations with TECs and associations with threatened species habitats. Field surveys in relation to

the BDAR will be grouped together into optimal surveys windows to address the requirements of the BAM, most likely within winter and late spring / summer.

As the Project may significantly impact MNES, EPBC Act assessment requirements are also considered likely, and would need to be addressed with an EPBC referral and assessed under the NSW bilateral agreement.

The BOS will apply to the assessment, generating an offset requirement for the Project. Establishment of Biodiversity Stewardship Sites to satisfy the Project's offset credit obligation is likely to be the most effective approach for the Project, and has the greatest local biodiversity outcome. This can be completed by procuring land that has the potential to generate the required biodiversity credits, or negotiate with landholders to manage an offset site on their land, on their behalf whilst the Project is operational.

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Appendices

Appendix 1 Photos

Photo 1 **PCT 45 grasslands potentially representing Natural Grasslands of the Murray Valley Plains CEEC**

Photo 2 **Grassy PCT 164 with a higher cover of chenopod shrubs such as Cotton Bush**

Photo 3 **Large Nitre Goosefoot dominated wetland (PCT 160) to the south of subject land, providing habitat for a large number and diversity of waterbirds**

Photo 4 **High condition Myall Woodland EEC (PCT 26) to the south-west of the subject land**

Photo 5 **Large Weeping Myall tree (1 metre ranging pole can be seen in the foreground) along the western boundary of the subject land**

Appendix F Preliminary Social Impact Assessment Worksheet

	Social Impact Assessment (SIA) Worksheet						Project name: Pottinger Solar Farm							Date: 15 March 2023					
PROJECT ACTIVITIES	**CATEGORIES OF SOCIAL IMPACTS**	**POTENTIAL IMPACTS ON PEOPLE**		**PREVIOUS INVESTIGATION OF IMPACT**		**CUMULATIVE IMPACTS**		**ELEMENTS OF IMPACTS - Based on preliminary investigation**					**ASSESSMENT LEVEL FOR EACH IMPACT**				**PROJECT REFINEMENT**	**MITIGATION / ENHANCEMENT MEASURES**
Which **project activity / activities** could produce social impacts ?	what **social impact categories** could be affected by the project activities	What impacts are likely, and what concerns/aspirations have people expressed about the impact? Summarise how each relevant stakeholder group might experience the impact. **NB. Where there are multiple stakeholder groups affected differently by an impact, or more than one impact from the activity, please add an additional row**	Is the impact expected to be **positive or negative**	Has this impact previously been investigated (on this or other project/s)?	If "yes - this project," briefly describe the previous investigation. If "yes - other project," identify the other project and investigation	Will this impact combine with others from this project (think about when and where), and/or with impacts from other projects (cumulative)?	If yes, identify which other impacts and/or projects	Will the project activity (without mitigation or enhancement) cause a material social impact in terms of its: You can also consider the various magnitudes of these characteristics					Level of assessment for each social impact	What methods and data sources will be used to investigate this impact?			Has the project been refined in response to preliminary impact evaluation or stakeholder feedback?	What **mitigation / enhancement measures** are being considered?
								extent i.e. number of people potentially affected?	**duration** of expected impacts? (i.e. **construction** vs **operational** phase)	**intensity** of expected impacts i.e. scale or degree of change?	**sensitivity** or vulnerability of people potentially affected?	**level of concern/interest** of people potentially affected?		Secondary data	Primary Data - Consultation	Primary Data - Research		
Construction of solar farm.	community	Potential impacts in relation to change in the natural environment and visual amenity may lead to impacts on the perceived quality, use and aesthetics of the landscape in the Social Locality.	Negative	Yes - this project	Preliminary Landscape and Visual Impact Assessment. Preliminary community consultations.	Yes	Keri Keri Wind Farm (SSD-38358962); Project EnergyConnect (NSW - Eastern Section; SSI-9172452) The Plains Wind Farm (SSD-50629707) Yanco Delta Wind Farm (SSD-41743746) Dinawan Wind Farm (SSD-50725708) Baldon Wind Farm (SSD-40138508)	Yes	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Appropriate set back from neighbouring residences incorporated into project, design, layout will continue to be revised during EIA stage to minimise impacts where possible. Consideration of mitigation strategies for any residual impact, including landscape screening and other opportunities that will be co-designed with project neighbours into a Neighbour Benefits Program.
Construction of solar farm.	community	Potential impacts on social cohesion between community members (for/against renewable energy and/or the project) in the Social Locality.	Negative	Yes - this project	Preliminary community consultations and known documented feedback about other largescale renewable energy projects in NSW.	Yes	As above.	Yes	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Someva to continue conducting timely and detailed community engagement. Ensure community concerns are listened to and information to address concerns is provided to the community. Work with local community stakeholders to identify needs in the community that can be supported via the Project's Community Benefit Fund/ Voluntary Planning Agreement, and Neighbour Benefits Program.
Construction phase of the project.	way of life	In the Social Locality: Potential for increased pressure on limited local accommodation from construction and operational work force (for limited period of construction). Potential for increased pressure on local work force, negatively impacting local businesses with labour competition and wage increases. Perceived impacts on land/property values (price increases), adding further pressure on local housing/ accommodation. Topic was raised during initial consultation.	Negative	Yes - other project	These impacts are well understood from other projects.	No	As above.	Yes	Yes	No	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Explore possibility for accommodation camp near the project site during construction. Consultation with local business groups and Councils to understand existing constraints and opportunities to deliver local economic benefits.
Construction of solar farm.	way of life	Alteration of landscape: potential impact to tangible and intangible Aboriginal heritageín the Social Locality..	Negative	Yes - other project	These impacts are well understood from other projects.	Yes	As above.	Yes	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Someva is engaging early with identified Local Aboriginal Land Councils (Hay LALC; Deniliquin LALC) to understand and address potential impacts.
Operating life of the project.	livelihoods	Diversification of income streams for involved landowners and nearby neighbours, which will in turn provide flow on economic benefits for the surrounding community.	Positive	Yes - other project	These impacts are well understood from other projects.	Yes	As above.	Yes	Yes	Yes	Yes	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Conduct timely and appropriate community engagement and implement measures to maximise benefits for the local and regional economy.
Construction phase and operating life of the project.	access	Potential upgrades to local infrastructure (road network and electricity grid) to facilitate the project in the Social Locality..	Positive	Yes - other project	These impacts are well understood from other projects.	Yes	Positive impacts as a result of road and electricty infrastructure upgrades have been demonstrated on other projects.	Yes	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Consultation with landholder and local Councils and community on transport routes, local roads, private roads and potential upgrades to ensure benefits are delivered for landholder and local community wherever possible. Conduct timely and appropriate community, Council, local business and energy industry engagement and implement measures to maximise benefits for the local and regional economy.
Construction phase (up to 18 mths) of the project.	access	Potential impacts and disruptions to host landowners, near neighbours and local traffic during construction from increased traffic, noise and dust and oversized loads during construction.	Negative	Yes - other project	These impacts are well understood from other projects.	No	Not required	Yes	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Project boundary and noise generating infrastructure (substation, inverters, batteries) are located a sufficient distance (minimum 3.5km) from nearest neighbour. A detailed noise and shadow flicker impact assessment will be completed as part of the EIS.
Construction phase (up to 18 mths) of the project, and then support for operating life of the project.	way of life	Increased demands for local goods and servicesin the Social Locality. Broader community - employment and contracting opportunities during the construction and operation period. Also flow on economic benefits for regional community. Topic was raised during initial consultation.	Positive	Yes - other project	These impacts are well understood from other projects.	Yes	Keri Keri Wind Farm (SSD-38358962); Project EnergyConnect (NSW - Eastern Section; SSI-9172452) The Plains Wind Farm (SSD-50629707) Yanco Delta Wind Farm (SSD-41743746) Dinawan Wind Farm (SSD-50725708) Baldon Wind Farm (SSD-40138508)	Yes	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Conduct timely and appropriate community, Council and local business engagement and implement measures to maximise benefits for the local and regional economy. This may include the development of a Local Content Strategy.
Construction phase of the project.	health and wellbeing	Perceived health impacts of solar farms (noise, dust or otherwise) in the Social Locality.	Negative	Yes - other project	These impacts are well understood from other projects.	Yes	As above.	Yes	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	A detailed noise and shadow flicker impact assessment will be completed as part of the EIS.
Majority of project activities, project delivery and operation phases.	community	Stakeholders in the Social Locality are unable to make informed decisions; do not have influence on project design or decisions; to not have influence on the project benefits programs (neighbour or community programs); and are unable to access enquiry and complaint processes.	Negative	Yes - other project	These impacts are well understood from other projects. Someva ensures continous engagement with community (especially project neighbours) to ensure accurate information is conveyed and co-design of benefits programs is enabled.	Yes	As above.	Unknown	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Someva has prepared and maintains a Community Stakeholder Register, with phone/postal/email contact details, to ensure proactive advice is shared when Planning Milestones for the project are achieved. Someva to continue conducting timely and detailed community engagement. Ensure community concerns are listened to and information to address concerns is provided to the community. Work with local community stakeholders to identify needs in the community that can be supported via the Project's Community Benefit Fund/ Voluntary Planning Agreement, and Neighbour Benefits Program.
Project decomissioning or replacement phase.	surroundings	Potential impacts during future project decommissioning (or re-energising/ replacement). Topic was raised during initial consultation.	Negative	Yes - other project	These impacts are well understood from other projects.	Yes	As above.	Yes	Yes	Yes	Unknown	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Ensure deconstruction and/or replacement activities are carried out in accordance with the relevant legislation, including as outlined in the EMP, with a strong emphasis on recycling project materials.