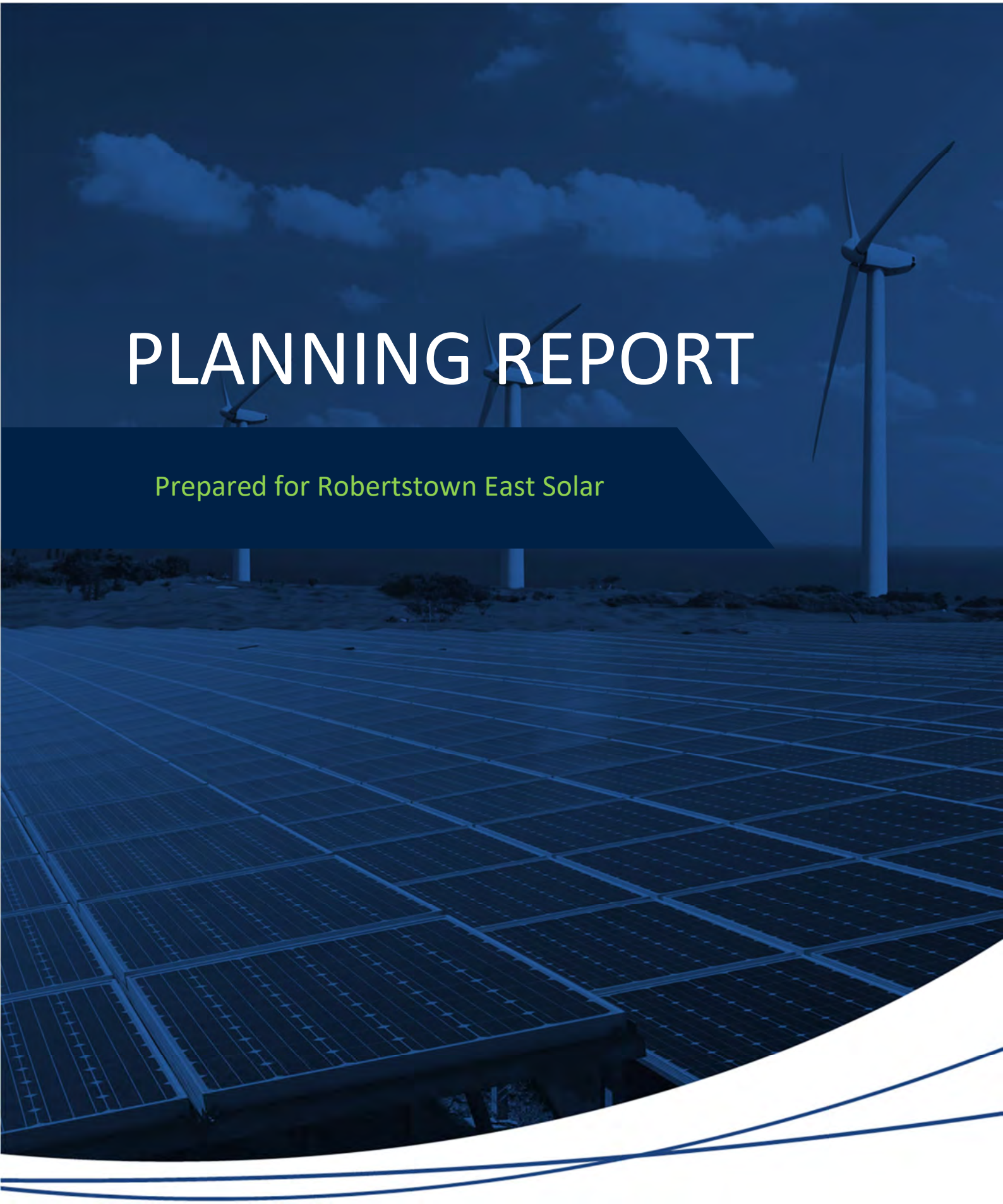

PLANNING REPORT

Prepared for Robertstown East Solar

EPS ENERGY

Reference No. 24031

June 24

EPS ENERGY

www.epsenergy.com.au

QUALITY ASSURANCE AND DECLARATION

Quality Assurance and Version Control Table		
Project:	Robertstown East Solar	
Client:	Amp Power Australia Pty Ltd ABN: 75 618 201 380	
Rev:	**Date:**	**Reference:**
V01	25.06.2024	24031_Robertstown Solar East Planning Report

Checked by:	Simon Duffy
Approved by:	Steve McCall
Declaration:	*The opinions and declarations in this document are ascribed to EPS Energy and are made in good faith and trust that such statements are neither false nor misleading.* *In preparing this document, EPS Energy has considered and relied upon information obtained from the public domain, supplemented by discussions between key EPS Energy staff, representatives from governing agencies and independents, including the client and specialist consultants.*
Applicant:	EPS Energy PO Box 195 Charlestown NSW 2290 (02) 9258 1362
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EXECUTIVE SUMMARY

Robertstown Solar project is approved under Development Approval 422/V005/18 V1 and is proposed to be an integrated but separately operated grid connected Photovoltaic Energy Generation System (PVS) of approximately 500MW (AC) generation capacity and a 500MW capacity Battery Energy Storage System (BESS) with 1,000MWh of storage that will feed into the National Electricity Market via ElectraNet's Robertstown Substation.

Due to site constraints realised from pre-construction investigation works, post development approval on the Robertstown Solar project site, approximately 200MW of PVS solar generation is currently considered unviable for construction under the current approval. The site constraints include but are not limited to geotechnical, hydrological and fauna (wombats) constraints. To ameliorate the loss of generation potential, an additional area of ~630ha of suitable unconstrainted land is required. Accordingly, the client and applicant seek approval for up 300MW (AC) of PVS solar generation on land adjacent to the approved Robertstown Solar project. The additional generation project is called "Robertstown Solar East" and is presented as a new development application. The Robertstown Solar East PVS element and associated infrastructure together are "the Project".

This Planning Report (PR) has been prepared by EPS for Amp.

AMP has applied to the Australian Energy Market Operator (AEMO) to become a Registered Generator in the National Electricity Market (NEM). The PVS will connect through the Robertstown Solar project site to the Robertstown Substation via Robertstown Solar's dedicated connection allowing the PVS to export electricity into the national electricity grid.

PROJECT LAND LOCATION

The Project land comprises the Project area on which the PVS and associated infrastructure will be built and operated, and that part of the Robertstown Solar land required to connect the Project's elements to the Robertstown Solar Substation. The Project area is shown in Figure 2-2.

The Project area is approximately 630ha located in the suburbs of Bright and Geranium Plains in South Australia. The Project is situated approximately 10km north-east of Robertstown, and 115km north-east of the State's capital, Adelaide. The Project is within the Local Government Area (LGA) of Regional Council of Goyder.

Land within the immediate surrounding area of the Project area is predominately used for agriculture.

PROJECT AREA SELECTION

The initial assessment of the 630ha (approximately) Project area found it met several key criteria including:

- The Project area can access via overhead power lines or underground cable the Robertstown Solar substation;
- As the Project is replacing generation lost due to site constraints on the Robertstown Solar land, Robertstown Substation has the capacity to accept the new electricity generation;
- The area has a strong electrical transmission network, which will be further augmented by Project Energy Connect which is currently under construction ;
- The landowners of the Project area were receptive to hosting a solar development;
- The Project area is used for agricultural land uses including cropping and grazing thereby reducing the likelihood of the Project encountering significant areas of native vegetation, Aboriginal cultural heritage items or other environmental constraints;
- Initial site constraint investigations for geotechnical, hydrology and fauna (wombats) have confirmed the suitability of the site for PVS;
- Suitable infrastructure surrounding the Project area including good State and Local road access to the Project area for construction and operation of a solar development;
- Good irradiation levels; and
- Proximity to the towns of Robertstown and Burra but equally enough distance between the Project area and Robertstown.

Based on the positive outcomes of the initial assessment and with strong landowner support the next phase of assessment was commenced including detailed grid connection studies, financial feasibility modelling, specific Project area investigations, including preliminary field works, to identify any unknown environmental and cultural constraints and preliminary Project design works. The assessment found:

- Power generated by the Project can be exported into the grid without any significant constraints;
- Co-location of the Project close to the Robertstown Solar to replace lost generation minimises the connection transmission line distance thereby reducing the need for transmission tower structures, electrical transmission losses and consequently improving the economics of the Project on the Project area;
- The Project should not be constrained by environmental constraints such as geotechnical inadequacy, hydrology, ecology or archaeology; and
- Favourable topography and site conditions for constructing and operating a development.

CONSULTATION

The following stakeholders were identified as key to the Project:

- Landowners and occupiers of the properties forming the proposed Project area and Robertstown Solar;
- Key government members;
- First Peoples of the River Murray and Mallee Region (FPRMMR) and Mid Murray Aboriginal Corporation (MMAC); and
- The wider Robertstown community.

A comprehensive consultation process was undertaken for the Robertstown Solar project approved under Development Approval 422/V005/18. The Robertstown community supported the development and didn't lodge any objections to the approval of the Robertstown Solar project.

The Project is located adjacent to Robertstown Solar project and will be integrated with the Robertstown Solar project to ameliorate the loss of generation potential from the Robertstown Solar project.

Consultation with the landowners and occupiers of the properties forming the proposed Project area and the FPRMMR has commenced. Consultation with key government members and the wider Robertstown community will be conducted in conjunction with the public exhibition of the Project.

Amp expects the response from the general community will be positive and supportive of the Project.

PROJECT DESCRIPTION

The PVS element of the Project will have a maximum output capacity of approximately 300MW (AC).

The Project will include, but not be limited to, the following components:

- Solar photovoltaic modules and ground mounted tracking racks;
- DC/AC containerised or skid mounted inverter stations;
- Transformers;
- Switching yard and electrical substation;

- Associated underground cables connecting groups of solar panels to inverter stations and inverter stations via overhead and/or underground transmission lines to a transformer in the substation;
- Ancillary infrastructure and buildings associated with the development including a site office, maintenance sheds, laydown area/compound access tracks and perimeter fencing; and
- Connection to Robertstown Solar Substation or Bundey Substation via overhead and/or underground transmission lines.

The National Electricity Market connection between Robertstown Solar and Robertstown Substation is approved under 422/V005/18 V1 for two 275 kV circuits, either overhead and/or underground transmission lines having a route length of between 0.5-3km (approximately) dependant on the final design and location of the Project's transformers and switch gear.

The Project also seeks an approval option for the Project to include a separate alternate connection option to connect to the National Electricity Market via an easement between the Project area and Bundey Substation. This alternate connection is being pursued to mitigate the potential that capacity at Robertstown Substation is not available once Robertstown Solar East is constructed. The dynamic grid connection process and strong interest by other generation projects seeking connection to the Robertstown substation present uncontrollable externalities in this regard.

In line with other utility scale solar developments the Project includes three broad phases, the development or construction phase, the operation phase and the decommissioning phase.

The development/construction phase of the Project with a maximum output capacity of approximately 300MW (AC) is multifaceted and consequently is likely to be constructed in a number of phases over a number of years.

STATUTORY PLANNING CONTEXT

The development application is submitted pursuant to Section 131 of the *Planning, Development and Infrastructure Act 2016 (PDI Act)*.

ENVIRONMENTAL ASSESSMENT

Initial Project technical studies conclude there will be minimal impact to the surrounding environment. The studies underpin the key findings and recommendations outlined in this Planning Report.

The following is a summary of the key environmental considerations:

Visual Amenity

The Visual Impact Assessment (VIA) found the that the overall visual impact rating to residential and viewpoint receptors is “Low”.

The existing landscape and scenic quality of the Project Area and surrounding area indicates the site is appropriate for the Project for the following reasons:

- The Project is located on land zoned Rural. Development of Renewable Energy Facilities within the Rural zone is envisaged;
- The bulk and scale of the Project is consistent with the existing electricity infrastructure and is replacing lost generation on the Robertstown Solar site;
- The uniform and linear layout of the Project is not considered out of character with the existing rural landscape;
- The Project will not be a dominant feature in the landscape; and
- The Project area is screened throughout with existing stands of vegetation which screens views from surrounding locations and some roads.

Traffic and Transport

Anticipated traffic volumes will be highest during the Project’s construction while operational traffic volumes are expected to be minimal. As the Project is the result of replacing lost generation on the Robertstown Solar site, the traffic associated with the original works is now transferred to the Project. The 2024 Stantec Transport Impact Assessment (TIA) report has confirmed the traffic generation is not anticipated to be significantly different to the Robertstown Solar project.

A Traffic Management Plan (TMP) for the construction phase will be prepared before the commencement of construction in consultation with Department of Planning, Transport and Infrastructure (DPTI) and Goyder Regional Council. The TMP will address construction vehicle access arrangements and identify traffic management measures to address traffic safety and access issues inherent with using oversized vehicles and general construction traffic.

Biodiversity

The Project’s area is predominately used for cropping and grazing livestock. Approximately 29% of the Project Area is covered in native vegetation. The solar panel layout will utilise the existing cleared areas that have historically been used for cropping. This approach ensures the Project area’s ecological values avoid any significant impact on the site native vegetation and ameliorates any potential to impact species of conservation significance (i.e. species protected under Commonwealth or State legislation).

Preliminary design works aim to avoid all large areas of native vegetation within the Project area however a number of individual scattered trees or clumps of trees will be removed to assist with the construction of access ways and cable routes and the Project's effective operation. The removal of the individual scattered trees and clumps of trees will not cause any significant impact on local biodiversity.

Further Flora and Fauna field survey work will be carried out to inform the Project's final layout plans and an application for removal of any native vegetation under the *Native Vegetation Regulation 2017 (NVR)*; Regulation 12, Schedule 1; Clause 34 – Infrastructure.

Cultural Heritage

A key criterion for selecting the Project area was most of the area used for cropping is cleared of native vegetation to allow efficient cropping practices. An aim of the Project's layout and design is to position as much of the Project's development footprint, as is technically possible, on the cropped land thereby ameliorating the possibility of disturbing Aboriginal cultural heritage items.

The Project's development footprint (some cable routes & access ways) that cannot be located on cropped land has been designed to result in as small a development impact footprint as possible.

Robertstown Solar has an existing Aboriginal Heritage Agreement and Cultural Heritage Management Plan already in place with FPRMMR. FPRMMR have approved the extension of this agreement to also cover the Robertstown East Solar project area.

Where Aboriginal archaeological value may adversely impact the construction of the PVS element or the Project's effective operation the relevant provisions of the *Aboriginal Heritage Act 1988* will be considered.

Discussions have commenced with the FPRMMR regarding the presence of Aboriginal archaeological value within the Project area. A FPRMMR walkover inspection will be undertaken in accordance with the Aboriginal Heritage Agreement and Cultural Heritage Management Plan already in place with FPRMMR.

The cultural heritage works with the FPRMMR will inform the final layout plans.

Land Use

The possible medium - term change of land use of approximately 630ha of agricultural land is a very minor change on the region's approximately 3.2 million ha + agricultural production potential (Based on Australian Bureau of Agricultural and Resource Economics land use data 2011).

Investigations are being undertaken to assess if sheep grazing under the panels or cropping between the panels is feasible during the operation phase.

After the Project's decommissioning the Project area will be available for agricultural production. Consequently, the Project will not have an adverse impact on the long-term agricultural use of the land.

Flooding

The Project will not have a demonstrable impact on local flooding.

Hydrology

The Project will not affect basic landholder water rights and harvestable rights.

Soils and Salinity

The Project will involve short - term construction, followed by decades of operation with either limited co-location agricultural land uses or no agricultural land uses. The Project will not contribute to an increase in the existing salinity levels or adversely impact the existing soil conditions.

Surface Water and Erosion

The majority of the Project area will be retained in its current condition allowing infiltration of rainfall. A small part of the Project area (approximately 1 ha of the Project area) proposed for the switch yard, could potentially increase the runoff volumes and velocities however with appropriate management the potential for erosion and migration of sediment is considered unlikely.

During the construction and operational phases, the Project will implement measures to ensure peak runoff rates or long-term runoff yields are not increased or are minimal and the possibility of soil erosion is limited.

Groundwater

The risk of groundwater contamination is very low. Fuel, oils and lubricants required during construction and operation will be stored and managed in accordance with relevant standards.

Water Resource

An Australian Conservation Foundation research paper notes that every megawatt hour of electricity generated by coal consumes about 1,245 litres of water, compared to around 10 litres for solar generation. In the 2022-2023 financial year, The department of Climate Change, Energy, the Environment and Water noted Australian's have consumed 188 terrawatt hours of electricity. About 47 per cent of the generation comes from coal, which based on the Australian Conservation Foundation research paper equates to around 110 billion litres of water. The Project will contribute to reducing the amount of water required to generate electricity.

Water requirement during construction will be minimal, likely limited to that required for ablutions, dust suppression activities, fire response requirements and any testing allocations.

Climate

The Project will deliver clean and renewable energy to the South Australian people in the face of climate change, assisting to meet renewable energy targets for the State and the nation.

The Project's stand-alone contribution is a displacement annual equivalent of approximately 489,000 tonnes of greenhouse gas emissions. This is comparable to planting 69,900 trees or removing 195,900 cars from the road and provide clean energy to power an equivalent of 86,400 homes per annum for the Project's 30 year life.

Noise

The Project's construction phase will generate noise emissions. Noise emissions will occur during site preparation, the installation of the Project's infrastructure (including the panel system) and from the construction vehicles / machinery.

Adopting standard environmental management controls, shutting down equipment when not in use and use of noise reduction devices will minimise the construction noise impacts at sensitive receivers which are expected to be negligible.

Operating the Project will generate nominal noise emissions. Consequently, no noise impacts to sensitive receivers are anticipated during the Project's operation phase.

Bushfire

The risk of initiating fire from the solar panels, inverters and other solar infrastructure is very low due to the high quality of the components. Potential ground cover on the Project area does pose a potential risk of fire. Mitigation of this risk will include the internal access roads being maintained for access and where relevant as a firebreak.

The Project final layout and design will be prepared in consultation with South Australia's Country Fire Service.

Air Quality

Potential dust generated by construction traffic on internal access roads and unsealed public roads will be mitigated by standard management controls. The Project is not expected to generate measurable dust during operations.

Electric and Magnetic Fields

The Project design will adhere to the clearance distances from sensitive receivers for safety purposes and incorporate suitable buffers to limit exposures in accordance with several technical and legislative requirements.

Socio-Economic

The Project will:

- Deliver clean and renewable energy for Australia in the face of climate change;
- Assist in meeting renewable energy targets for the State and the Nation;
- For each year of its 30-year operational life, displace the equivalent of 489,000 tonnes of greenhouse gas emissions per annum;
- Provide clean energy to power an equivalent of 86,400 homes for the Project's life;
- Create industry diversity for the Goyder region;
- Create substantial employment opportunities during Project construction phases;
- Be located in a suitable area with access to existing infrastructure;
- Provide a flexible, low-impact alternative to the existing agricultural land use;
- Along with Robertstown Solar will generate:
    - an estimated economic benefit in the order of $315.9 million for the broader economy and approximately $77.3 million as direct domestic expenditure;
    - up to an estimated 275 equivalent full-time jobs during construction, and a further 410 indirect full-time equivalent jobs; and
    - up to an estimated 10 equivalent full-time jobs during operations.

Glint and Glare

The assessment identified only one residence where the residents of the house may potentially view low-level glare for a small amount of time when looking towards the PVS solar panels early in the morning or late in the evening. Based on observations, existing obstacles (including existing vegetation, topography, and structures) between the residents of the identified house and the PVS panel arrays obstruct and ameliorate the low-level glare

identified in the Glint and Glare report. This outcome would also be further ameliorated through the proposed landscape screening along the southern section of Junction Road.

The assessment concluded almost all instances of potential glare occur for early morning conditions. Lower Bright Road can experience reflections morning and afternoon (depending on the direction of traffic).

The roads experience very limited local traffic and observations of existing obstacles (including existing vegetation, topography and structures) between the relevant sections of roads and the PVS panel arrays partially obstruct and ameliorate the low-level glare identified in the Glint and Glare report.

Environmental Management Framework

Environmental Management Plans for the Project's construction phase and operation phase will be prepared detailing the management measures for any potential environmental risk.

CONCLUSION

The Planning Report concludes the Project:

- Is consistent with the relevant statutory provisions;
- Will not result in significant environmental impacts;
- Is suitable at the proposed Project area; and
- Is in the public interest.

Therefore, it is respectively requested the Project be approved subject to final Project documents and plans being approved by relevant Government authorities prior to the commencement of construction and operation.

ABBREVIATIONS

Abbreviation	Description
AADT	Annual Average Daily Traffic
AC	Alternating Current
ACMA	The Australian Communications and Media Authority
AEMO	Australian Energy Market Operator
APZ	Asset Protection Zones
Asl	Above Sea Level
BESS	Battery Energy Storage System
CASA	Civil Aviation Safety Authority
CMP	Construction Management Plan
dbA	decibels A
DEM	Department for Energy and Mining
DIT	Department for Infrastructure and Transport
DNF	Decision Notification Form
DRP	Decommissioning and Rehabilitation Plan
EMF	Electromagnetic Fields
EMP	Environmental Management Plan
EPA	Environment Protection Authority
ESCOSA	Essential Services Commission of South Australia
FPRMMR	First Peoples of the River Murray and Mallee Region
FTE	Full Time Equivalent
GHG	Greenhouse Gases
LGA	Local Government Area
MMAC	Mid Murray Aboriginal Corporation
MW	Megawatt
MWh	Megawatt hour
NEM	National Electricity Market
OEMP	Operational Environmental Management Plan
OP	Observer locations
OTR	Office of the Technical Regulator
PBS	Performance Based Standards
PR	Planning Report
Project	Robertstown Solar East
PV	Photovoltaic

PVS	Photovoltaic Energy Generation System
RFI	Radio Frequency Interface
RO	Route locations
RET	Renewable Energy Target
SA	South Australia
SAPPA	South Australian Property and Planning Atlas
SARIG	South Australian Resource Information Gateway
The Act	*Planning, Development and Infrastructure Act 2016*
The Regulations	*Planning, Development and Infrastructure (General) Regulations 2017*
TIA	Transport Impact Assessment
VIA	Visual Impact Assessment

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APPENDIX 4 P&D Code Assessment

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1. INTRODUCTION

Robertstown Solar is approved under Development Approval 422/V005/18 V1 and is proposed to be an integrated but separately operated grid connected Photovoltaic Energy Generation System (PVS) of approximately 500MW (AC) generation capacity and a 500MW capacity Battery Energy Storage System (BESS) with 1,000MWh of storage that will feed into the National Electricity Market via ElectraNet's Robertstown Substation.

Due to site constraints realised from detailed pre-construction investigation works, post development approval on the Robertstown Solar project site, approximately 200MW of PVS solar generation is currently considered unviable for construction under the current approval. The site constraints include but are not limited to geotechnical, hydrological and fauna (wombats) constraints. To ameliorate the loss of generation potential, an additional area of ~630ha of suitable unconstrainted land is required. Accordingly, this planning proposal seeks approval for up 300MW (AC) of PVS solar generation on land adjacent to the approved Robertstown Solar project. The additional generation project is called "Robertstown Solar East" and is presented as a new development application. The Robertstown Solar East PVS element and associated infrastructure together are "the Project".

The Project is within the Local Government Area (LGA) of Regional Council of Goyder. The Project area comprises the Project area on which the PVS, and if required, substation, Operations and Maintenance buildings and associated infrastructure will be built and operated, and land required to connect the Project's elements to Robertstown Solar Substation or ElectraNet's Bundey Substation.

This Planning Report (PR) has been prepared to explain the environmental, social and economic matters associated with the Project. At this stage the Project is proposed to be operated as a grid connected Photovoltaic Energy Generation System (PVS) of approximately 300MW (AC) generation capacity. The Project's detailed design will be completed prior to construction.

Attached as Appendix 1 is Department for Energy and Mining's (DEM) endorsement of the Project for the purposes of Sections 131 of the PDI Act . The development application is submitted for the approval of construction, operation and decommissioning of the Project including the Project's connection to the Robertstown Solar Substation or ElectraNet's Bundey Substation.

1.1. APPROVALS SOUGHT

The development application seeks development approval for the following Project components and approach:

- Development approval for the construction, operation and decommissioning of the following components:
  - A Photovoltaic Energy Generation System (PVS) of approximately 300MW (AC) generation capacity and associated infrastructure;
  - Temporary construction components required to construct the Project's PVS element including (but not limited to) access points, workshops, outbuildings, site office, amenities, laydown areas, waste storage areas, car parking areas, refuelling areas, clean-down facilities, roads, fences;
  - Permanent operations components of the PVS element including (but not limited to) the series of mounted photovoltaic modules set out in arrays, inverter/ transformer stations, interconnector substations, switching station, all overhead transmission and/or underground cabling and operational, maintenance and control buildings;
  - Connection of the Project's PVS element to Robertstown Solar Substation and required connection infrastructure including but not limited to overhead transmission and/or underground cabling and associated poles;
  - As an alternative, Connection of the Project's PVS element to ElectraNet's Bundey Substation and required connection infrastructure including but not limited to overhead transmission and/or underground cabling and associated poles;
  - If the alternate option is required, infrastructure upgrades to ElectraNet's Bundey Substation to allow the Project's PVS element to export and import electricity into and out of the national electricity grid;
  - Permanent operations ancillary components of the Project including (but not limited to) all internal roads, car parking areas, fencing, and access points to the road network, and any other relevant matter; and
  - Landscaping plan(s) if required.
- Phased completion of construction to follow after Robertstown Solar BESS and PVS construction;
- An approval validity timeframe providing four (4) years after the operative date of the development approval to substantially commence construction (i.e. bulk onsite earthworks), and six (6) years after the operative date of the development approval to substantially complete construction;
- Temporary construction facilities to be dismantled post construction; and
- Staging of building rules consent and commencement of construction for different Project elements and/or components, as described in section 1.3 of this document.

1.2. TIMING

Construction, including the commissioning, of a 300MW(AC) PVS element is complex, multifaceted and dependant on a number of factors including:

- Development of the required final detailed construction/engineering plans;
- Tender process for the PVS technology, the construction and the operation of the PVS technology;
- Project financing, which is itself dependent on a number of factors including a feasible development consent, the economic and political environment at the time of construction, the time required for a financial organisation's due diligence enquires for an estimated CAPEX of AUD $320M, the financial arrangements/requirements for constructing the Project and possibly negotiating and entering into offtake agreements;
- Lead times for the delivery from overseas suppliers of the various components for the Project. The lead times are influenced by the selected technology which will not be known until the final design stage. Given the world's current interest in solar development, some components are anticipated to have delivery lead times of up to 2 years from order;
- Phased commencement and completion of the Project construction to follow after Robertstown Solar BESS and PVS construction, anticipated for Project commencement of construction late 2028;
- Efficiencies associated with both economies of scale and with reduced demobilisation and remobilisation costs, which influences the timing of the phases for construction; and
- The time required to comply with AEMO's commissioning tests and verification testing requirements prior to grid connection.

To adequately manage the factors influencing the construction of a 300MW(AC) PVS element, the development timeframes provided in Table 1-1 are proposed for the Project with the option of the relevant approval authority being permitted to extend these periods if required.

Table 1-1: Development Milestone Timeframes – PVS – Robertstown Solar East

Milestone	Timeframe Sought
Substantial Commencement	4 years after the Development Approval operative date
Substantial Completion	6 Years after the Development Approval operative date

1.3. STAGING OF CONSTRUCTION WORKS AND BUILDING RULES CONSENT

A Project's PVS element, of this size, would typically be constructed in 3 phases. The PVS phases would typically comprise the following works:

- PVS Phase 1: PVS up to approximately 100MW(AC) with associated infrastructure;
- PVS Phase 2: PVS up to approximately 100MW(AC) with associated infrastructure;
- PVS Phase 3: PVS up to approximately 100MW(AC) with associated infrastructure.

On that basis, it is proposed that once development approval for the Project has been obtained, building rules consent will be obtained and construction will proceed in stages.

Works which do not require building rules consent will comprise a separate stage so that construction can commence as soon as practicable subject to compliance with development approval conditions and reserved matters (if any). This stage will encompass such things as site mobilisation activities, establishing temporary laydown areas and facilities, access roads formation or widening, underground cable works and other civil works.

For works that do require building rules consent, it is proposed that building rules consent may be obtained separately for each structure and for each stage of construction as exemplified but not limited to the following list:

- PVS Phase 1: PVS up to approximately 100MW(AC) with associated infrastructure;
- PVS Phase 2: PVS up to approximately 100MW(AC) with associated infrastructure;
- PVS Phase 3: PVS up to approximately 100MW(AC) with associated infrastructure.
- Temporary construction components required to construct the Project's PVS element including (but not limited to) access points, workshops, outbuildings, site office, amenities, laydown areas, waste storage areas, car parking areas, refuelling areas, clean-down facilities, roads, fences;
- Permanent operations components of the PVS element including (but not limited to) the series of mounted photovoltaic modules set out in arrays, inverter/ transformer stations, interconnector substations, switching station, all overhead transmission and underground cabling and operational, maintenance and control buildings;
- Connection of the Project's PVS element to Robertstown Solar Substation or alternatively ElectraNet's Bundey Substation and required connection infrastructure including but not limited to overhead transmission and/or underground cabling and associated poles;
- If the alternate connection (Bundey substation) is required, infrastructure upgrades to ElectraNet's Bundey Substation to allow the Project's PVS element to export and import electricity into and out of the national electricity grid; and

- Permanent operations ancillary and associated components of the Project including (but not limited to) all internal roads, car parking areas, fencing, and access points to the road network, landscaping plan(s) if required and any other relevant matter.

The Office of the Technical Regulator (OTR) prescribes technical requirements that must be met in order to lodge an application for Development Approval. In summary the technical conditions met are noted as:

- approval is granted for the proposed generator on the condition that the stage 1 250MW/500-MWh battery energy storage system at the Large Scale Battery and PV Project Robertstown provides 141.6MW of fast frequency response.

The OTR has issued a certificate of approval for the Project which is provided in Appendix 1.

1.4. OBJECTIVES

The Project's objectives are:

- To provide a large-scale, grid connected solar power development to replace lost generation from the Robertstown Solar project that can contribute to SA's electricity supply;
- To contribute to Australia's competitive electricity market with a renewable energy resource;
- To contribute to Australia's growing solar industry;
- To encourage development in regional SA areas;
- To develop infrastructure and technical knowledge that will contribute to the Australian renewable energy industry;
- To assist in reducing electricity prices in South Australia; and
- To assist South Australia's electricity network increase resilience to operation of the network.

1.5. PROPONENT

Amp Power Australia Pty Ltd ABN: 75 618 201 380 ("Amp") is the proponent.

Energy Projects Solar (EPS) Pty Ltd ABN: 99 609 935 588 (EPS) is the applicant and development consultant for the Project.

2. LAND DESCRIPTION

2.1. PROJECT AREA SELECTION

The initial assessment of the 630ha (approximately) Project area found it met several key criteria including:

- The Project area can access the Robertstown Solar substation via overhead power lines or underground cable;
- As the Project is replacing generation lost due to site constraints on the Robertstown site, Robertstown Substation has the capacity to accept the new electricity generation;
- The area has a strong electrical transmission network, which will be further augmented by Project Energy Connect which is currently under construction;
- The landowners of the Project area were receptive to hosting a solar development;
- The Project area is used for agricultural land uses including cropping and grazing thereby reducing the likelihood of the Project encountering significant areas of native vegetation, Aboriginal cultural heritage items or other environmental constraints;
- Site constraint investigations for geotechnical, hydrology and fauna (wombats) have confirmed the suitability of the site for PVS;
- Suitable infrastructure surrounding the Project area including good State and Local road access to the Project area for construction and operation of a solar development;
- Good irradiation levels; and
- Proximity to the towns of Robertstown and Burra but equally enough distance between the Project area and Robertstown.

Based on the positive outcomes of the initial assessment and with strong landowner support the next phase of assessment included detailed grid connection studies, financial feasibility modelling, specific Project area investigations including preliminary field works to identify any unknown environmental and cultural constraints and preliminary Project design works. The assessment found:

- Power generated by the Project can be exported into the grid without any significant constraint;
- Co-location of the Project close to Robertstown Solar to replace lost generation minimises the connection transmission line distance thereby reducing the need for transmission tower structures, electrical transmission losses and consequently improving the economics of the Project on the Project area;

- The Project will not likely be constrained by environmental constraints such as geotechnical, hydrology, ecology or archaeology; and
- Favourable topography and site conditions for constructing and operating a development.

2.2. PROJECT AREA CONTEXT

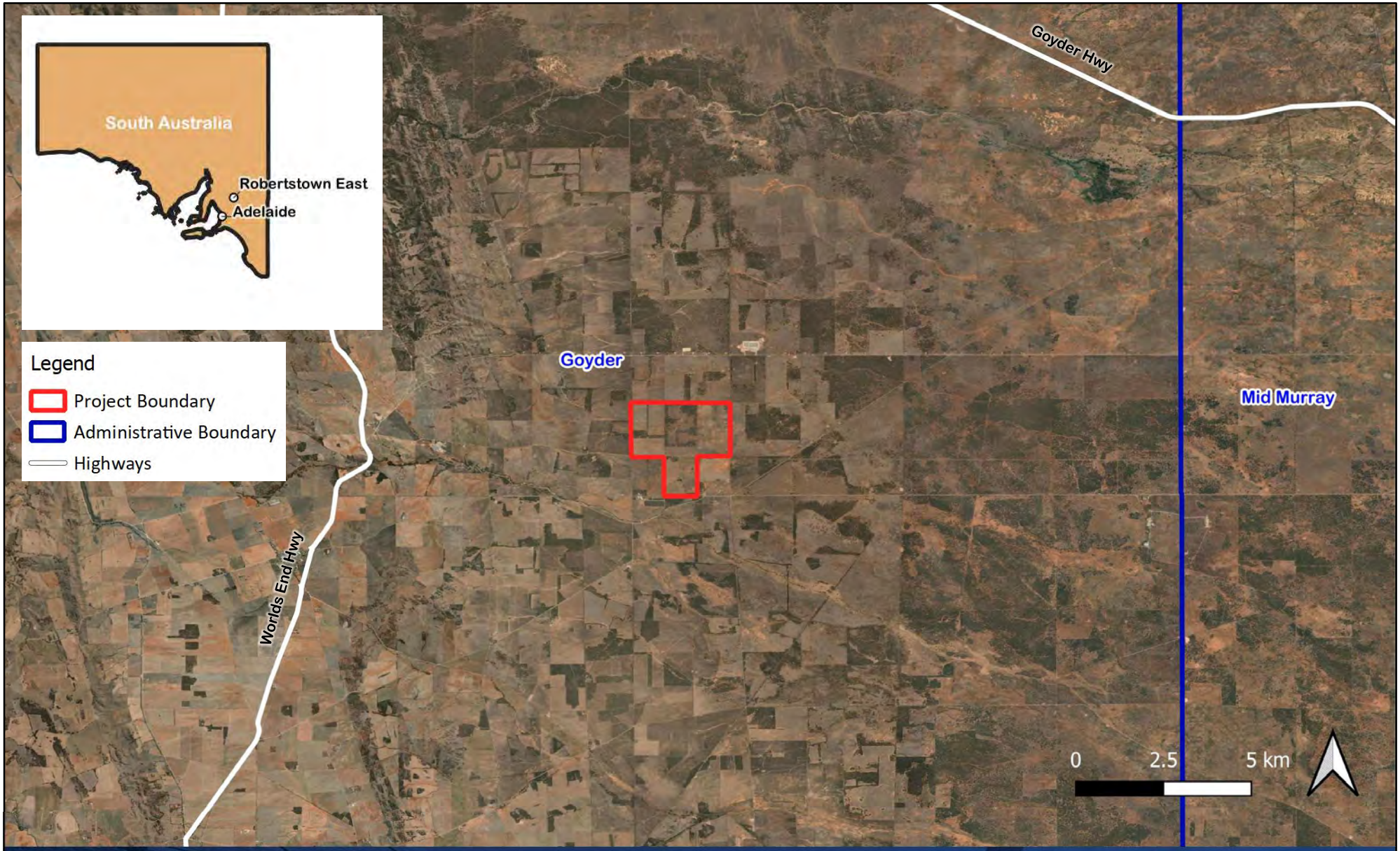
The Project area is approximately 630ha located in the suburbs of Bright and Geranium Plains in South Australia. The Project is situated approximately 10km north-east of Robertstown, and 115km north-east of the State's capital, Adelaide. The Project is within the Local Government Area (LGA) of Regional Council of Goyder.

The Regional Council of Goyder is in the Mid North region of South Australia. The area is reliant on agriculture, primarily associated with cereal crops, such as wheat and barley, as well as sheep grazing for merino wool, as a mainstay of its economy, with manufacturing and tourism also becoming prominent. The council seat lies at Burra, with a branch office situated at Eudunda.

The Regional Council of Goyder area is approximately 6,719 km^2 with a population of 4,060 (2021 census). The Regional Council of Goyder area is located within the Mid North Region of South Australia which covers about 23,000km^2 with a population of 27,164 (2021 census).

Agriculture east of Goyder's Line is highly influenced by annual rainfall. The opportunity to diversify agriculturally based income with solar farm lease payments provides significant certainty for host landowners as well as the opportunity for economic multipliers in the Project region.

Figure 2-1 shows the location of the Project area.



EPS ENERGY

Figure 2-1

Robertstown East
Location Plan

Robertstown East Solar | Geranium Plains South Australia

Date:	19/06/2024
Author:	TP
Reviewer:	SmC
Scale:	N/A
Job Ref/Ver:	24031 V01

2.3. PROJECT AREA

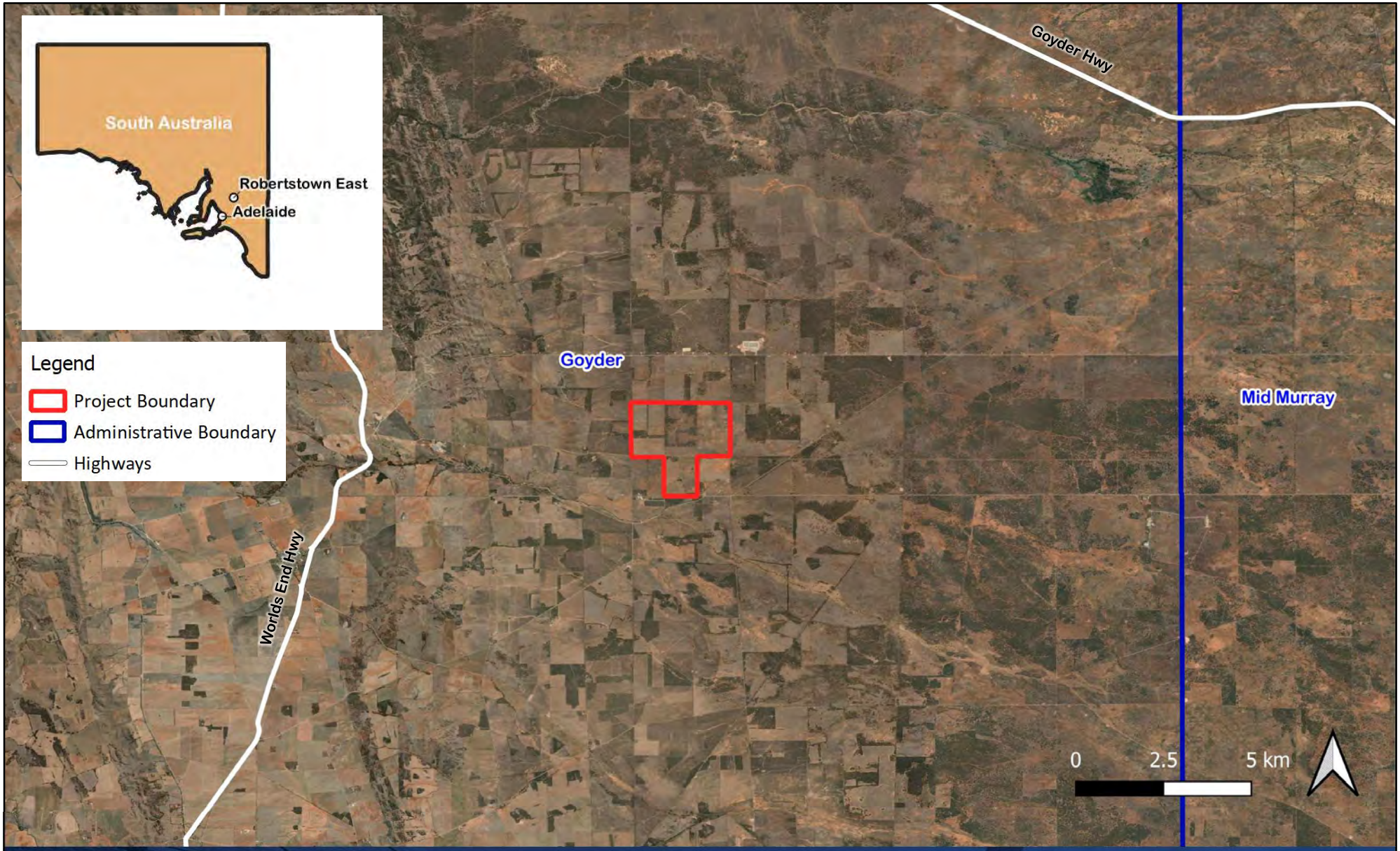
The Project area title particulars are:

Title	Lot/Plan/Section
CT5400/625	Section 32
CT5400/625	Section 31
CT5974/451	Section 30
CT5978/775	Section 2

The Project area comprises the Project area on which the PVS, if required, a substation, Operations and Maintenance buildings and associated infrastructure will be built and operated, and land required to connect the Project's elements to Robertstown Solar substation or ElectraNet's Bundey Substation.

A copy of the Project area Certificates of Title are attached as Appendix 2

Figure 2-2 shows the Project area.



EPS ENERGY

Figure 2-1

Robertstown East
Location Plan

Robertstown East Solar | Geranium Plains South Australia

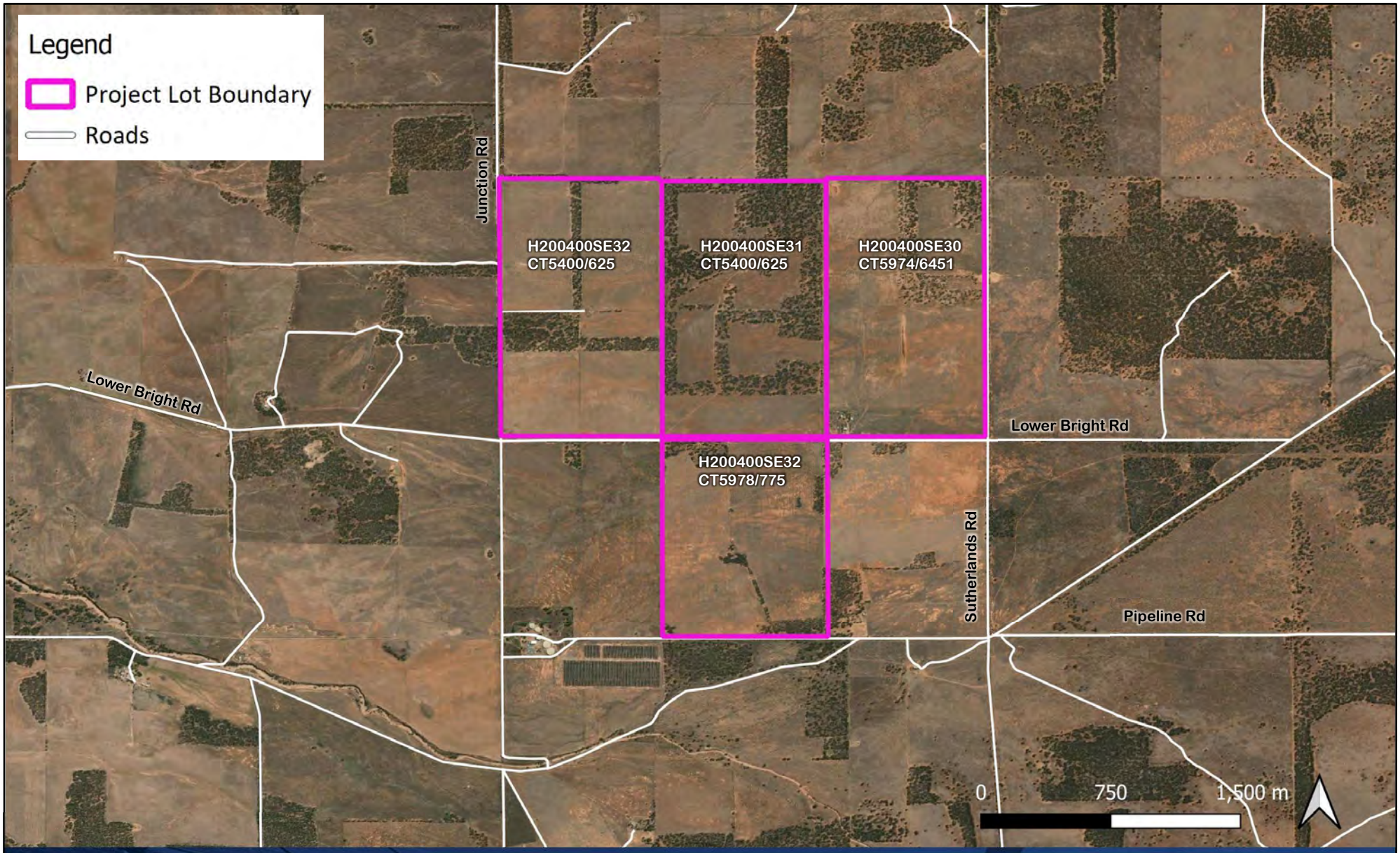
Date:	19/06/2024
Author:	TP
Reviewer:	SmC
Scale:	N/A
Job Ref/Ver:	24031 V01

2.4. EXISTING LAND USE OPERATIONS

The Project area has been used for many years for cereal cropping and grazing. Land within the immediate area of the Project area is predominately used as agricultural land.

There is existing utility scale electricity infrastructure in the immediate area including the Robertstown Substation and the Bundey Substation.

Figure 2-3 shows key physical features of the Project area.



EPS ENERGY

Figure 2-2

Robertstown East
Project Area Plan

Robertstown East Solar | Geranium Plains South Australia

Date:	19/06/2024
Author:	TP
Reviewer:	SmC
Scale:	N/A
Job Ref/Ver:	24031 V01

3. PROJECT DESCRIPTION

3.1. PROJECT CAPACITY

3.1.1. Description of Development

The Project area comprises the land on which the PVS, switching yard, if required, a dedicated substation, Operations and Maintenance buildings and associated infrastructure will be built and operated. It also comprises the land required to connect the Project to Robertstown solar Substation or ElectraNet's Bundey Substation.

The Project area is approximately 630ha and the Project development footprint is approximately 420 ha (approximately 66% of the Project Area).

The predominance of the development footprint comprises the PVS which will have a maximum capacity of up to approximately 300MW (AC).

The PVS element will be connected to the Robertstown Solar Substation via over-head lines and poles or underground transmission lines having a route length of between 6km and 10km (approximately) dependant on the final design and location of any transformers and switch gear.

If required as an alternate option, any connection to the Bundey Substation would be via 275 kV circuit over-head or underground transmission lines having a route length of between 3km and 6km (approximately) dependant on the final design and location of any transformers and switch gear.

PVS description

Solar photovoltaic (solar panel) technology uses manufactured semiconductor material to absorb and convert sunlight into electricity. Each solar panel contains a series of interconnected cells that convert sunlight directly into electricity. The solar panels produce energy in the form of direct current (DC), which is converted to alternating current (AC) via a solar inverter.

The solar panels will be mounted on single axis tracking racks. The panels will be installed in parallel rows with the spacing being between approximately 4m to 10m depending on the type of the single axis tracking racks selected as part of the final design.

Groups of solar panels are connected to each inverter by underground cabling and the inverters are linked together to collect the total energy being produced. Step-up transformers, that increase the voltage are housed in the inverter containers. Underground or overhead lines are run from each inverter station to a switching substation where the voltage is again stepped up via one or more transformers to match the voltage of the transmission network.

3.2. PROJECT DESIGN AND LAYOUT

The Project's PVS together with supporting associated and ancillary infrastructure includes (but is not limited to):

- Solar modules – mounted on single axis tracking racks;
- Module footings and racking for solar modules;
- Inverter stations;
- Transformers (if required);
- Switching yard;
- Associated underground cables connecting groups of solar panels to inverter stations and underground and/or overhead transmission lines from inverter stations to a switching yard;
- Associated cables and poles to connect the Project switching yard to Robertstown Solar Substation or alternatively ElectraNet's Bundey Substation;
- Administration and controls area including:
    - Control room and site office with amenities;
    - Maintenance and spare parts building;
    - Other buildings;
    - Car parking sufficient for employees and contractors during operation;
    - Laydown/compound area and future battery storage area;
    - Internal access roads;
- Drainage works, including stormwater management systems;
- Areas not to be developed e.g. native vegetation areas, heritage areas;
- Security fencing and CCTV;
- Low-level night time lighting; and
- Lightning protection.

Indicative layout and preliminary PVS Operation design drawings are attached as Appendix 3. Illustrative examples of typical project componentry are included within the visual impact assessment at Appendix 5.

The following subsections examine the Project's proposed key components identified in the indicative layout and preliminary PVS Operations design drawings. The Project's final key components will be identified in the final design plans.

3.2.1. Single Axis Panel Solar Photovoltaic Modules

Further site layout assessments and detailed engineering will define the preferred configuration of panels to ensure:

- Maximum exposure to sun;
- Efficient layout of solar panels across the Project area;
- Efficient connection to the substation;
- Ease of construction;
- Efficient access for maintenance and long-term operation; and
- Technology advances can be incorporated.

The solar panels will be mounted on single axis tracking racks. Depending on the type of single axis panel solar photovoltaic modules selected for the final design and layout, the height of the bottom of the solar modules could be in the range of 0.3 to 1.2m (approximately) above ground level while the height of modules could be approximately 2 - 4m above ground level.

Based on preliminary designs the Project's photovoltaic area, including the spaces between the arrays, will cover approximately 420ha of the 630ha Project area. The modules will generally be aligned on the tracking system in a north/south row and rotate in position from east to west.

Prior to the commencement of construction of a stage of works, final layout and design drawings will be submitted to the authority specified in the development approval for endorsement.

3.2.2. Module Foundation Systems

Foundation systems for photovoltaic solar panel arrays typically comprise driven piles (most common), screw piles or mass concrete foundations that are sized to resist uplift and lateral loading during wind events.

The results of preliminary desktop geotechnical investigations indicate either screw or driven piles are likely foundations for the Project's geotechnical conditions. Additional investigations will be conducted prior to final design to confirm the Project's optimum foundation solution.

3.2.3. Inverter Stations

The solar panels produce energy in the form of direct current (DC), which is converted to alternating current (AC) via a power conversion unit (inverter), to allow the solar generated energy to be fed into the electricity grid. Utility-scale inverters harvest the maximum power from the solar photovoltaic array over a wide range of operating conditions (e.g. solar irradiation, temperature and shading). Typically, the inverter units will be approximately 3m in height.

The final type, design and therefore quantity of the inverter stations to be used for the Project are yet to be finalised. Final selection will be dependent on several factors including suitability for the Project area, relative cost, maintenance requirements, efficiency and reliability of units available on the market at the time of detailed design.

3.2.4. Solar Modules Connection to Inverter Stations

Groups of solar panels are connected to each inverter by underground cabling and the inverters are linked together to collect the total energy being produced. Step-up transformers, that increase the voltage, are housed in the inverter containers. Underground lines and or overhead transmission lines may be used due to the long distances across the Project area. These will run from each inverter station to a switchyard/substation where the voltage is again stepped up via one or more transformers to match the voltage of the transmission network. The solar energy generated from the Project will be exported to the transmission network.

Existing SA Power Networks and ElectraNet's Robertstown Substation is located adjacent to the Robertstown Solar proposed substation. Grid connection works are well underway for Robertstown Solar and the Project is likely to connect to the Robertstown Solar Substation.

However, due to the dynamic and uncertain nature of the grid connection process the Project seeks an alternate network connection option to the ElectraNet Bundey Substation via a dedicated Project switchyard/substation.

3.2.5. Project's Switchyard/Substation (if required)

The Project is intended to connect to the approved Robertstown Solar Substation. However, if required as an alternative, the project would include 275/33/33 kV transformers. The transformers provide reliable supply reticulation and step up the electricity voltage suitable for connection to the network. These network connection facilities, if required, will be

designed, constructed and operated in accordance with all statutory requirements. The number and size of transformers will be a function of technical requirement and confirmed in the Project's final design.

3.2.6. Administration and Controls Area

The administration and control area may incorporate several buildings including a single ancillary office building and control room, together with a maintenance and spare parts building, shed or containers. These structures have been indicatively located adjacent to Lower Bright Road and sited to allow for ease of access of the workforce and to maximise the area available for solar panels. Amenities and car parking will also be provided in the administration and controls area. This area may also be used as a laydown and storage area during the construction phase.

3.2.7. Control Room and Site Office / Maintenance and Spare Parts Buildings

The proposed buildings will likely be single storey structures with heights of approximately 6m. The control room will be the centralised control area for managing operations associated with the Project. The site office will be the administrative centre for the Project and will house permanent operational staff associated with the facility.

3.2.8. Car Parking

Car parking will be in the vicinity of the control room and site office to accommodate staff, visitors and temporary contractor parking (note that following sign-in to the site, contractors/tradespeople required to access the solar fields will drive their vehicle directly to the site of work and will not require a formal car parking area).

3.2.9. Amenities

Depending on availability and approval the administration and control area may be connected to mains water and electricity supply where available at Lower Bright Road to provide water and electricity services for the buildings. A suitably sized sewage treatment system will be installed to manage wastewater from the amenities.

3.2.10. Laydown/Compound Area

An indicative area for the Operations administration/controls and laydown/compound is shown in Appendix 3. The layout of the Operations administration/controls and laydown/compound area will be included in the final plans.

3.2.11. Site Access and Internal Access Roads

Site access is proposed from the existing road network surrounding the Project Area. Access will be via existing site access points and possibly additional access points. The internal access roads will be designed and constructed to allow for vehicle maneuvering including large vehicle deliveries.

3.2.12. Drainage Works, Including Stormwater Management System

The Project's final design will determine the drainage and stormwater management design.

3.2.13. Fencing and Security

Security fencing will be installed around the perimeter of the Project and within the Project area. Signage will be clearly displayed identifying hazards present within the Project area.

Perimeter fencing will likely be approximately 1.8m chain wire mesh fencing with three strand barb-wire top. Fencing of this nature is required for security, insurance and to minimise wildlife interaction with the Project.

CCTV with infrared capability will be used to manage security on the Project area.

3.2.14. Lighting

Low-level night time lighting will be installed in the administration area for safety and security purposes.

3.2.15. Lightning Protection

Lightning protection will be incorporated into the Project. Lightening protection masts will likely be established for every third or fourth inverter station, with the final numbers and siting

to be determined during detailed design. The lightning protection masts are thin, tubular structures, approximately 8m high with a concrete base and earthing.

3.2.16. Landscaping

Given the scale and extent of the proposed development and the low level of visual impact, providing landscaping which is adequate to screen the entire Project area's perimeter is not considered practical. Targeted landscaping may be established to support erosion control and improved amenity adjacent to car parking areas and control room/site office and the Project's substation or in areas which may be requested by nearby residences, but this is anticipated to be minimal.

3.2.17. Connection to Robertstown Solar Substation or Bundey Substation

To enable the Project to export electricity into the national electricity grid the following works including (but not limited to) will be required:

- Connection of the Project to Robertstown Solar Substation and required connection infrastructure, including but not limited to, overhead transmission and/or underground cabling and associated poles; and
- Alternatively, if required, connection of the Project to Bundey Substation and required connection infrastructure including but not limited to overhead transmission and/or underground cabling and associated poles.
- If required, infrastructure upgrades to ElectraNet's Bundey Substation to allow the Project's PVS element and BESS element.

The Indicative connection layout to Robertstown Solar Substation and Bundey Substation as an alternative is attached as Appendix 3.

3.2.18. Final Project Layout

The indicative PVS Operations layout (Appendix 3) depicts the Project's development footprint. The PVS final footprint will be determined following the completion of detailed design, and influenced by:

- Final selection of panels and other Project components: the physical and operational requirements of the various components required by the Project (e.g. solar panels and tackers) will influence the final layout, spacing between panels and the number of ancillary components required (inverters, lightning protection etc.);

- Detailed geotechnical investigation: an investigation to determine the geotechnical characteristics of the Project area will influence the final footing selection and may result in alterations to the Project layout; and
- Outcomes of a final network constraints and opportunity analysis to determine export constraints, network constraints and sizing and staging of the Project elements.

As a result, the following information will be submitted to the relevant authority for approval prior to the commencement of construction for each Phase of the Project:

- The final design, specification and layout of all temporary construction components required to construct the Project including (but not limited to) access points, workshops, outbuildings, site office, amenities, laydown areas, waste storage areas, car parking areas, refuelling areas, clean-down facilities;
- The final design, specification and layout of all permanent operations components of the Project including (but not limited to) the series of mounted photovoltaic modules set out in arrays, inverter/ transformer stations, interconnector substations, switching station, all overhead transmission and underground cabling and operational, maintenance and control buildings;
- The final design, specification and layout of all permanent operations associated and ancillary components of the Project including (but not limited to) all internal roads, car parking areas, fencing, and access points to the road network, and any other relevant matter;
- The final landscaping plan(s) if required;
- The final design for the connection of the Project to Robertstown Solar Substation or Bundey Substation and required connection infrastructure including but not limited to overhead transmission and/or underground cabling and associated poles; and
- The final design infrastructure upgrades, if required, to ElectraNet's Bundey Substation to allow the Project's connection.

3.3. PROJECT PHASES

3.3.1. Construction Phase

The development timeframes are explained in Section 1 "Introduction" provided in Table 1-1.

The key construction works required to complete the construction phase include (but are not limited to):

- Construction of internal access tracks and laydown areas;
- Installation of site office, maintenance sheds and other buildings;
- Site preparation earthworks for installation of panel supports;
- Installation of panel supports;

- Solar panel erection;
- Electrical substations and connection between solar panels and central inverters, substations and battery storage;
- Provision of other utility services (electricity, communications, etc.) as required;
- Overhead or underground electrical connections to the Robertstown substation;
- Robertstown or Bundey Substation infrastructure works;
- Installation of the remaining system components ;
- Landscaping (if required), fencing and signage; and
- Commissioning.

3.3.2. Construction Workforce

Direct employment generation during the construction period is up to approximately 275 full time equivalent (FTE) jobs. An estimated additional 410 FTE roles are anticipated to be indirectly generated by the Project. Additional support to local employment is also anticipated during the construction period with a preference for local goods and skills if available and practicable and spending in local retail and services by construction employees if available and practicable.

A temporary construction workers camp on a suitable part of the Robertstown Solar project site will likely be the most efficient/effective way to manage the construction workforce during the construction phase.

3.3.3. Temporary Construction Facilities

Temporary facilities will be established during construction to provide basic amenities for construction workers and temporary laydown and storage areas for construction materials. The requirements for temporary facilities will be determined by the construction contractor, however are anticipated to include (but not limited to):

- Site office;
- Temporary toilet facilities;
- Multiple Laydown areas; and
- Temporary car parking (informal).

Lay-down areas will be required for the delivery and management of construction material. The construction contractor will determine the lay-down requirements within the Project area. Other temporary construction facilities will most likely be accommodated within the Project area.

3.3.4. Utilities

The construction contractor will be responsible for providing power and water required to support construction activities. It is anticipated the first priority will be establishment of a permanent auxiliary power supply, so it can be used to supply power during the construction period. It is anticipated construction water requirements will be trucked in.

3.3.5. Vehicle Movements

Construction/commissioning vehicle movements are linked to the phases explained in Section 1 “Introduction”.

Based on the estimated level of light and heavy vehicle construction/commissioning vehicles, movements on the highways are not expected to greatly alter existing highway traffic movements.

Available traffic data is limited for Lower Bright Rd, Powerline Rd and Junction Rd but based on discussions with some of the local landowners the roads have relatively minor vehicle flows, except during harvest. The estimated level of light and heavy vehicle construction/commissioning vehicles movements on Lower Bright Rd, Powerline Rd and Junction Rd is not expected to greatly alter the existing roads traffic movements and are within the design criteria of the road.

A Traffic Management Plan for the construction phase will be prepared before the commencement of construction in consultation with DIT and Goyder Regional Council. The Traffic Management Plan will address construction vehicle access arrangements and identify traffic management measures to address traffic safety and access issues inherent with using oversized vehicles and general construction traffic.

3.3.6. Waste Management

Waste products will be generated during construction. Construction waste management procedures will be implemented via a Construction Management Plan (CMP) for each Phase as required. Suitable management measures typically include:

- Construction waste will be separated into different streams to facilitate recycling with waste removed from the Project area by a licensed contractor as appropriate;

- Liquid waste (including hydrocarbons, paints and solvents) will be stored in sealed drums or containers in a bunded area before removal from the Project area by an EPA licensed contractor for recycling, where possible, or disposal to a licensed facility; and
- Temporary ablution facilities will be serviced by pump-out tanker trucks, used with offsite disposal by a licensed contractor.

3.3.7. Stormwater Management

The Project's construction has the potential to cause erosion, sedimentation, and pollution of water courses running through the Project area. Suitable key principles that could be incorporated into the Project's detailed design to appropriately manage stormwater runoff include:

- Surface water runoff will be discharged to match existing drainage patterns (if any) as much as possible;
- All drainage works will be designed and constructed to prevent scour and erosion. Additional protection measures will be included as required at locations particularly susceptible to scour/erosion; and
- If practicable all drainage works will be formed to provide a consistent fall along drainage lines and to avoid flat spots, where water may be subject to collection adjacent to the Project's infrastructure.

A soil erosion and drainage management plan will be prepared as part of the CMP.

3.4. OPERATIONAL PHASE

The Project is expected to operate for approximately 30 years. It is expected up to approximately 10 permanent full-time staff will be required to run the Project during operations. Some of the permanent staff will operate out of the site office while others will operate generally across the Project area. Specialist contractors will be on-call to assist with maintenance activities that will include (but not be limited to):

- Solar panel washing;
- General PVS equipment maintenance;
- Fence and landscape maintenance; and
- Land management.

Equipment updates and replacements will be required from time to time as equipment fails or is rendered obsolete by improvements in technology.

3.4.1. Utilities

Depending on availability and approval the Project area will be connected to electricity and water at Lower Bright Road or from the Robertstown Solar project area to the west.

Requirements for disposal of sewerage during operations are considered small as there will be minimal staff on site at any one time. Sewerage management will likely comprise either:

- Installation of a small on-site sewerage treatment system such as a BioCycle; and/or
- Installing holding tanks to be pumped out and disposed of at a suitably licenced facility.

3.4.2. Vehicle Movements

Operational vehicle movements are expected to be minimal, and not have any significant impact on the State or local road network. During the operational phase staff attendance on site will be up to approximately 10 personnel employed on a full-time basis. Additional staff are expected to be employed on part-time and contract basis, for specialist electrical skills, module cleaning and other maintenance requirements associated with the Project. Operational vehicle movements are not expected to significantly impact on other road users and the local road network.

3.4.3. Waste Management

A limited amount of waste will be generated during Operations. Operational waste management procedures will be implemented via an Operational Environment Management Plan (OEMP). Suitable management measures typically include:

- Operation waste will be separated into different streams to facilitate recycling with waste removed from the site by a licensed contractor as appropriate;
- Liquid waste (including hydrocarbons, paints and solvents) will be stored in sealed drums or containers in a bunded area before removal from the site by an EPA licensed contractor for recycling, where possible, or disposal to a licensed facility; and
- Management of ablution facilities.

3.4.4. Stormwater Management

The predominance of the Project area will continue to be permeable; covered by the PVS solar array; represent the spacing between the arrays; or be undeveloped land. The areas underneath and surrounding the solar modules will be pervious and therefore most of the

Project area will be retained substantially in the current infiltration condition. Consequently, the runoff from most of the Project area, is likely to remain at the same pre-development levels and allow infiltration of rainfall.

Runoff from areas such as the administration and control area, laydown and compound area, inverters stations and switchyard/substation area may increase compared with current levels, but this is not anticipated to be significant because the areas will likely comprise less than 2ha in total of the Project's development footprint.

Drainage will be designed for all Project-disturbed areas to ensure there is no or minimal increase in developed flow intensity/frequency beyond the Project area boundaries. Suitable key principles that could be incorporated into the Project's detailed design to appropriately manage stormwater runoff include:

- Surface water runoff will be discharged to match existing drainage patterns (if any) as much as possible;
- All drainage works will be designed and constructed to prevent scour and erosion. Additional protection measures will be included as required at locations particularly susceptible to scour/erosion; and
- If practicable all drainage works will be formed to provide a consistent fall along drainage lines and to avoid flat spots, where water may be subject to collection adjacent to the Project's infrastructure.

3.5. DECOMMISSIONING PHASE

The Project would likely be decommissioned at the end of its operational lifespan. In consultation with the landowners, all Project related infrastructure would be removed from the Project area, and the land returned for agricultural use.

Prior to the commencement of Project's operation phase a Decommissioning and Rehabilitation Plan (DRP) that outlines end-of-project decommissioning works (describing the extent of reinstatement and restoration activities upon the removal of the renewable energy infrastructure and associated facilities) will be provided to the relevant authority for approval. The plan will include but is not limited to;

a) identification of structures, including but not limited to all solar panels, the control and facility building and electrical infrastructure, including underground infrastructure to be removed, except where such facilities are to be transferred to or in the control of the local network operator, and how they will be removed;
b) measures to reduce impacts of the development on the environment and surrounding land uses; and

c) details of how the land will be rehabilitated back to its pre-development condition, including slope and soil profile.

The alternate to decommissioning is to extend the life of the Project however currently it is not possible to determine if extending the life of the Project is a viable option.

4. STRATEGIC CONTEXT

4.1. ALIGNMENT WITH NATIONAL POLICY OBJECTIVES

Australia is party to the Paris Agreement. The Paris Agreement came into force in 2016. It was a major step forward in international efforts to address climate change. Under the Paris Agreement, Australia must submit emissions reduction commitments known as Nationally Determined Contributions (NDCs). Australia submitted its first NDC to the United Nations Framework Convention on Climate Change (UNFCC) in 2015 and an updated version of this NDC in 2022. The update commits Australia to reducing its emissions to 43% below 2005 levels by 2030.

The Federal Government has developed or is developing a number of climate change strategies to meet its Paris Agreement commitments including but not limited to:

- The Climate Change Act 2022 that legislates economy-wide emissions reduction targets of; reducing net GHG emissions to 43% below 2005 levels by 2030; and reducing net GHG emissions to zero by 2050;
- The Australian Government is developing a Net Zero 2050 plan establishing the pathways to achieve the Climate Change Act 2022 legislated emissions reduction targets;
- The National Climate Resilience and Adaptation Strategy 2021 – 2025 outlines how the Australian Government will fulfil its 2012 COAG Roles and Responsibilities;
- The National Greenhouse and Energy Reporting (NGER) scheme is a single national framework for reporting greenhouse gas emissions, energy production and energy consumption;
- The Safeguard Mechanism requires Australia's largest greenhouse gas emitters to keep their net emissions below a limit that will be reduced over time; and
- The Capacity Investment Scheme (CIS) provides a national framework to encourage new investment in renewable capacity, such as wind and solar, as well as clean dispatchable capacity, such as battery storage. The CIS involves the Australian Government seeking competitive tender bids for renewable capacity and clean dispatchable capacity projects to deliver an additional 32 GW of capacity by 2030; fill expected reliability gaps as ageing coal power stations exit and deliver the Australian Government's 82% renewable electricity by 2030 target.

The Project will complement and increase the generation of renewable energy within South Australia and the broader National Electricity Market.

The Project will assist the Federal government to meet Australia's Paris Agreement commitments to reducing greenhouse gas emissions.

4.2. ALIGNMENT WITH STATE POLICY OBJECTIVES

The Climate Change and Greenhouse Emissions Reduction Act 2007 provides the measures to address climate change with a view to assisting to achieve a sustainable future for the State; to set targets to achieve a reduction in greenhouse gas emissions within the State; to promote the use of renewable sources of energy; to promote business and community understanding about issues surrounding climate change; to facilitate the early development of policies and programs to address climate change; and for other purposes.

The South Australia Government is amending the Climate Change and Greenhouse Emissions Reduction Act 2007 to update the greenhouse gas emission reduction and renewable electricity targets and strengthen requirements around government planning, risk assessment and action on climate change. The proposed amendments to the Act will:

- Update the state's emissions reduction for 2030 and 2050;
- Require five yearly emissions reduction targets to be set between 2030 and 2050;
- Require a state-wide emissions reduction plan to help achieve South Australia's emission reduction targets;
- Include a state-wide climate risk assessment to identify risks and opportunities and to inform adaptation planning;
- Introduce an ability for the Premier to nominate a public sector entity to prepare a climate change plan for an entity or sector;
- Provide for public sector action and reporting on reducing emissions and managing climate risk in government actions;

The draft Bill currently proposes to update the renewable electricity target in the Act to 100% net renewable electricity generation by 2030 in line with a previous commitment made by the South Australian Government.

On 27 February 2024, the South Australian Government announced a more ambitious target of achieving 100% net renewable electricity generation by 2027. Public consultation of the draft Bill closed on Friday, 5 April 2024. The Bill is expected to be introduced to Parliament later in 2024.

The Project will complement and increase the generation of renewable energy within South Australia and the broader National Electricity Market.

The Project will assist the SA government meet the Climate Change and Greenhouse Emissions Reduction Act 2007 current and proposed emission targets and the Federal government to meet Australia's Paris Agreement commitments to reducing greenhouse gas emissions.

4.3. ALIGNMENT WITH YORKE PENNISULA AND MID NORTH REGION PLAN

The State is divided into planning regions for the purposes of the Planning, Development and Infrastructure Act 2016 (the Act). On 19 March 2020 the Governor issued a Proclamation constituting the following planning regions for South Australia: (a) Greater Adelaide; (b) Eyre and Western; (c) Far North; (d) Kangaroo Island; (e) Limestone Coast; (f) Murray Mallee; (g) Yorke Peninsula and Mid North. The Proclamation also provides a period of three years before a new regional plan for each of the planning regions is to be prepared and adopted. In the meantime transitional provisions in the PDI Act allow the existing South Australian Planning Strategies to apply until such time as the new Regional Plans are prepare

The Project is located in the Yorke Peninsula and Mid North Planning Region. The 2 current plans for this planning region are the Mid North Region Plan (May 2011) and Yorke Peninsula Regional Land Use Framework (December 2007).

On the 28/10/22 the State Planning Commission (SPC) initiated the preparation of new regional plans for all seven planning regions of the State pursuant to section 73(1)(a) of the Act. The current regional plan for this region is the Mid North Region Plan (May 2011) and Yorke Peninsula Regional Land Use Framework (December 2007). This plan remains in operation under the current Act until the new plan has been prepared by the Commission.

Visioning workshops for the new Yorke Peninsula and Mid North regional plan were conducted in February 2023 and a document titled “What We Heard” captured a summary of issues raised at the visioning workshops. Once the statutory engagement period has been completed, the SPC will prepare an engagement report for the regional plan and make it publicly available via the PlanSA portal. The reports, in conjunction with the regional plan, will be provided to the Minister for approval from Q3-2024.

For the purpose of this assessment the Project is located in the Mid North area of the planning region therefore the current relevant regional plan is the Mid North Region Plan (May 2011).

The Mid North Region Plan provides a link between broad, state wide planning aims and local, council-specific planning needs, and they work in tandem with key state policies, leading to a consistent approach to land use and development across the state.

The Mid North Region Plan includes the following vision, principle and policies for renewable and clean energy:

- *In addition, state and local governments continue to investigate ways to organise land use such that it supports renewable and clean energy technologies. These*

opportunities will give South Australia a competitive advantage in a carbon-constrained economy. Investment in infrastructure will be critical to realise such opportunities. These initiatives will extend the life and reliability of our water and energy supplies and allow the population and the economy to grow without placing unsustainable demands on our natural resources (P8);

- *Expanding local electricity generation through renewable energy sources, such as wind farms and gas-fired peak demand plants, which will provide greater capacity for economic activity. This will require expansion of the transmission infrastructure to service this growth (P12);*
- *Enhance development of renewable energy (P14);*
- *Energy supply is limited in many parts of the region. Building design and innovative local solutions (for example, solar, wind and co-generation) can make the best use of energy supplies. There are opportunities to further develop wind farms in several locations across the central and southern parts of the region, which would facilitate the achievement of SASP targets related to renewable energy development (P30);*
- *Provide for the development of alternative and innovative energy generation (for example, wind, solar, marine, biomass and geothermal technologies) and water supply facilities, as well as guidance on environmental assessment requirements (P30).*
- *South Australia has the potential to be a 'green' energy hub and to help other states achieve the Federal Government's target of 20 per cent renewable energy by 2020 (P32);*
- *Identify land suitable to accommodate renewable energy development, such as wind farms (P36);*
- *Support the development of wind farms in appropriate locations, including the collocation of wind farms and existing agricultural land (P38); and*
- *increasing renewable and low emission energy generation (for example, wind farms) (P62).*

The Project supports the Mid North Region Plan's vision and objectives for renewable and clean energy.

4.4. ALIGNMENT WITH GOYDER COUNCIL STRATEGY

Pursuant to the South Australian Local Government Act 1999, part 1, section 122 - Strategic management plans, Goyder Council, on the 16 August 2022, endorsed the Goyder Master Plan 2022 - 2037 V1 (GMP). The GMP sets out a vision, objectives, strategies, and actions for the Goyder Council area.

The GMP includes vision, objectives and strategies for renewable and clean energy including:

- The GMP Pillars and Objectives include Renewable Energy: *Goyder is a significant renewable energy resource which to date, is yet to be fully developed. Clean energy investments create jobs in regional Australia, where the best renewable energy resources are located.*

  Based on estimates close to 5,000 new jobs will be created in South Australia's electricity sector by 2030, most of these jobs will be in renewable energy. Strong government policies to cut pollution and make clean energy cheaper has the potential to drive significant renewable energy investments in South Australia over the coming decade.

- One of the six pillars for delivering the GMP's visions is Economic Resilience i.e. *to create a strong economy that supports job growth, opportunities for community and business development for a diverse community*.
  Objective 19 is to *facilitate the provision of essential infrastructure to support economic development in partnership with the private sector and other spheres of government where applicable*.
  Projects identified to support objective 19 include a *Centre for Renewable Excellence*.

- Council wants to create a *Centre for Renewable Excellence* where both heritage and technology meet and engender economic growth and resilience within the region. Encourage future renewable energy projects to the region, education and research, conservation and preservation of heritage assets and infrastructure, incorporating unique industries and a world heritage bid in 2027.

- Council established the Goyder Economic Development & Resilience Taskforce in 2019 and met with its partners in February 2020 to discuss key outcomes including a concept plan for the *Centre for Renewable Excellence*.

  Council is working with the South Australian Government Department for Environment and Water to create a climate smart South Australia economy, particularly regional areas that can prosper by further developing low emissions and climate resilient technologies, industries and businesses.

The Project supports the GMP's vision and objective for renewable energy to contribute to creating a strong economy that supports job growth, opportunities for community and business development for a diverse community.

5. STATUTORY CONTEXT

5.1. DEVELOPMENT APPROVAL

The development application is submitted pursuant to Section 131 of the Planning, Development and Infrastructure Act 2016 (the Act).

The Department of Energy and Mining's endorsement of the Project is provided in Appendix 1.

5.1.1. Public Notification

The Capital Expenditure will be greater than $10M. Accordingly, public notification and community consultation may be required pursuant to Subsection 131(12) of the Act.

5.1.2. Statutory Referrals

The Project will be referred to Regional Council of Goyder and statutory agencies for advice in accordance with subsections 131 (5) & (6) of the Act, and Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017 (the Regulations).

5.2. ADDITIONAL APPROVALS

Additional statutory approvals will be required for the construction and operation of the Project.

5.3. PLANNING AND DESIGN CODE ASSESSMENT

The Planning and Design Code (P&D Code) is the statutory instrument under the Act for the purposes of development assessment and related matters. The P&D Code contains overlays, zones, sub-zones and general development policies which together provide all the rules that apply to the Project area. The spatial boundaries of zones, subzones and overlays are specified, accessed and applied through the South Australian Property and Planning Atlas (SAPPA) and other related databases and systems and services.

The Project is defined as renewable energy facility under Part 7 of the P&D Code:

> *Means land and/or water used to generate electricity from a renewable source such as wind, solar, tidal, hydropower, biomass and/or geothermal. The use may also include: (a) any associated facility for storage and/or transmission of the generated electricity; (b) any building or structure used in connection with the generation of electricity.*

The definition includes *Battery storage facility; Hydropower or pumped hydropower facility; Solar power facility; Wave power generator; Wind farm.*

Assessment of the Project against the relevant provisions of the P&D Code is provided in Appendix 4.

The assessment of the Project against the relevant provisions of the P&D Code determined:

- The Project type of Renewable Energy Facility is contemplated for the Regional Council of Goyder area;
- The Project area is located on land zoned Rural. Renewable Energy Facilities are envisaged land uses;
- The P&D Code acknowledges that given the size of utility scale renewable energy facilities it is difficult to mitigate all impacts;
- Subject to implementation of management techniques set out by the P&D Code regarding renewable energy facilities, a level of impact from the Project is to be accepted in pursuit of benefits derived from increased generation of renewable energy;
- The key finding of the assessment is the Project is sufficiently in compliance with the applicable zoning, overlay and general development policies performance outcomes.

6. COMMUNITY AND OTHER STAKEHOLDERS

The following stakeholders were identified as key to the Project:

- Landowners and occupiers of the properties forming the proposed Project area and approved Robertstown Solar;
- Key government members;
- First Peoples of the River Murray and Mallee Region (FPRMMR); and
- The wider Robertstown community.

A comprehensive consultation process was undertaken for the Robertstown Solar project approved under Development Approval 422/V005/18. The Robertstown community supported the development and didn't lodge any objections to the approval of the Robertstown Solar project.

The Project is located adjacent to Robertstown Solar project and will be operationally integrated with the Robertstown Solar project to ameliorate the loss of generation potential from the Robertstown Solar project.

Consultation with the landowners and occupiers of the properties forming the proposed Project area and the FPRMMR has commenced. Consultation with key government members and the wider Robertstown community will be conducted in conjunction with the public exhibition of the Project.

Amp expects the response from the general community will be positive and supportive of the Project.

7. KEY ENVIRONMENTAL ISSUES

The following sections summarise the outcomes of investigations undertaken to identify, predict and analyse the potential impacts of the Project on the physical environment as well as social, cultural and health impacts and if necessary identify mitigation measures to reduce the potential impact of the Project.

7.1. VISUAL IMPACT AND LANDSCAPE

A Visual Impact Assessment (VIA) has been completed and is attached as Appendix 5. The VIA assesses the existing landscape within the Project Area, as well as the surrounding area, to determine the potential visual impact of the Project to the landscape and visual receptors during the operation phase.

7.1.1. Existing Environment

The landscape within and surrounding the Project area can be described as predominantly rural, typified by flat to undulating land that is sparsely vegetated or utilised for agricultural purposes.

There are potentially 2 residential receptors within a 2km Visual Catchment of the Project area, one (1) of which is owned by a Robertstown Solar Project landowner. Also assessed were potential viewpoint receptors who may view part of the Project area from other areas e.g. from the roads, within a 2km Visual Catchment and beyond of the Project area as well as two dwellings just outside the 2km catchment.

7.1.2. Potential Impacts

The VIA found the that the overall visual impact rating to residential and viewpoint receptors is “Low”. Further, that renewable energy facilities were contemplated by the P&D Code in the rural landscape.

Based on the Visual Impact Assessment the Project’s potential to adversely impact the existing and planned visual landscape is low.

7.1.1. Mitigation Measures

The VIA identifies the following mitigation measures for this potentially low impact during the construction and operation phases, where practicable:

- Stakeholder engagement activities will continue be undertaken to understand relevant landowner and community relationships with visual aspects of the Project;
- The development will occur on land previously cleared of vegetation and/or disturbed;
- Utility buildings or structures will be sited together, away from residences and constructed of materials that are muted in colour;
- The use of reflective materials in construction will be limited;
- A landscape screen is proposed along a portion of the western boundary of the site to ameliorate views of panels for House 1 (which is a Robertstown Solar participating landowner).
- Any landscaping that is completed as part of the Project will be selected and designed so it is sensitive to the landscape and visual receptors;
- Any signage will be designed and located so it is sensitive to the landscape and visual receptors;
- Fencing will be sited and designed appropriately to blend with the facility as much as possible; and
- Construction equipment and waste will be removed from the site in a timely manner.

7.2. LAND USE

7.2.1. Existing Environment

The Project area and surrounding properties are used for cropping and grazing. Crops change over time according to market prices, changing demand and water availability.

7.2.2. Potential Impact

The medium-term change of land-use affects approximately 420ha. The Project area is replacing some of the original generation potential lost to the Robertstown Solar Project due to site constraints. The medium-term change of agricultural land (still representing 0.27% of the Regional Council of Goyder area and 0.05% of the Mid North Region of South Australia) is considered very minor relative to the region's agricultural production potential.

The consistent income from the solar lease arrangements will assist each of the Project landowner's agricultural enterprises.

Investigations are being undertaken to assess agricultural co-location opportunities. Sheep grazing or cropping under or between the panels may be feasible during the operation phase. International and domestic examples of co-location have produced positive outcomes.

On decommissioning the Project, the land will be available for agricultural activities, consequently the Project will not have an adverse impact on the long-term agricultural use of the Project area.

7.2.3. Mitigation Measures

Following the Project's decommissioning the land will be available for agricultural uses.

7.3. BIODIVERSITY

7.3.1. Existing Environment

The Project area and surrounding properties are used for cropping and grazing. Crops change over time according to market prices, changing demand and water availability.

7.3.2. Potential Impact

The Project's area is predominately used for cropping and grazing livestock. Approximately 29% of the Project area is covered in native vegetation. The solar panel layout will utilise the existing cleared areas that have historically been used for cropping. This approach ensures the Project area's ecological values avoid any significant impact on the site native vegetation and ameliorates any potential to impact species of conservation significance (i.e. species protected under Commonwealth or State legislation) Mitigation Measures.

Further biodiversity investigations are underway and along with several other investigations will inform the Project's final layout and design.

A key criterion for selecting the Project area was most of the area used for cropping is cleared of native vegetation to allow efficient cropping practices. An aim of the Project's layout and design is to position as much of the Project's development footprint, as is technically possible, on the cropped land thereby avoiding the need to remove native vegetation.

The Project's development footprint (cabling) that cannot be located on cropped land has been designed to avoid significant areas of native vegetation.

Where scattered native paddock trees and/or small areas of native trees/vegetation will adversely impact the construction of the PVS element and cabling and/or the Project's effective operation the native vegetation will need removal.

7.3.3. Mitigation Measures

The Project's preliminary layout and design has endeavored to avoid the unnecessary clearance of native vegetation for the Project's construction and operation. Suitable mitigation measures for this potentially low impact typically include:

- Removal of large areas of vegetation be avoided and minimised, as far as practicable, as part of the final design;
- A targeted wombat survey be completed prior to construction to confirm the presence of Southern Hairy-nosed Wombats and burrows. The targeted survey will inform the appropriate management options if required;
- Hollows, coarse woody debris and litter to be translocated into native vegetation patches, as far as practicable, within the Project area as scattered trees are removed;
- Weed and pathogen hygiene measures will be employed as part of the removal process to ensure that no new weeds or other pathogens are introduced to existing native vegetation; and
- An Application for approval to clear native vegetation under Division 5 of the Native Vegetation Regulations 2017 be submitted to Native Vegetation Council based on the Project's final design.

7.4. SOILS AND SALINITY

7.4.1. Existing Environment

Preliminary geotechnical investigations indicate that the Project area has a calcareous loam on clay surface, underlain by a number of geological units. The subsurface conditions can be generally described as silty gravel, silty clay, siltstone, clayey sand, clay, gravel and calcrete.

The South Australian Resource Information Gateway (SARIG) Salinity non-watertable (soil salinity) mapping layer identifies the Project area as having moderate salinity. The SARIG Salinity watertable induced (soil salinity) mapping layer identifies the Project area as having negligible salinity. The SARIG Terrestrial – BoM Groundwater Dependent Atlas layer lists the vegetation stands on site as low potential GDE (from national assessment).

7.4.2. Potential Impact

The potential for the Project to exacerbate soil erosion is considered in Section 7.5, while this section addresses the potential impacts of the Project on soil physical and chemical attributes.

Agricultural soils are commonly detrimentally affected by compaction, acidification, structural decline, loss of organic matter and fertility, and salinity. These can be due to a combination of factors such as removal of native vegetation, cultivation, the type of crop or pasture grown, irrigation and specific farming practices.

The Project area soils are understood not to be adversely impacted by the listed impacts. Nonetheless, it is likely that when compared to native soils in their pre-farming condition, there have been changes due to cultivation.

The Project will involve short-term construction, followed by possibly decades of the land being inactive. The limited or no cropping and consequently limited use of farm machinery on the Project area will be beneficial for the soils. While constructing the Project will require removal of some vegetation and the Project's operations will require water to clean the PVS panels from time to time these activities will not lead to an increase in the Project area's typical groundwater levels and/or the leaching of salts, consequently the Project will not contribute to an increase in salinity levels.

7.4.3. Mitigation Measures

No specific mitigation measures are required because the Project is not expected to adversely impact the existing soil and salinity environments.

7.5. SURFACE WATER AND EROSION

7.5.1. Existing Environment

The Project's area is relatively flat varying in elevation between 242m above sea level (asl) and 216m asl comprising cleared land historically used for cropping and vegetated land used for grazing. Rainfall on the Project area predominately infiltrates and during high rainfall some of the rain is captured by ephemeral watercourses and drainage lines on the Project area that flow into the areas water system including small dams on the Project area.

The Project is located within the Murray Darling Basin Water Management Area and Rangelands Natural Resource Management District. The Rangelands sub-region lies outside the South Australian agricultural zone, due to the landscape's low and variable rainfall. Mean annual rainfall in the landscape can be greater than 500mm in the north-eastern Mt Lofty

Ranges, but typically annual rainfall is less than 250mm. The Project area is not located in the Murray Floodplain or within the River Murray protected area.

The major waterway in the area is the Burra Creek and its associated catchment approximately 10km north from the Project area. The Project area is not located in the Burra Creek Catchment area. The second most important waterway in the area is the Spring Hut Creek approximately 1km south of the Project area. No mapped ephemeral watercourse run through the Project area.

Figure 2-3 shows the ephemeral watercourses and drainage lines around the Project area. As ephemeral watercourses are drainage lines or overland flow paths they do not hold permanent water and only run during high rainfall.

The Project area may be subject to minor water erosion caused from the flow of water during high rainfall and minor wind erosion. The potential for water or wind erosion is partly reduced by existing cropping practices and pasture management which is dependent on rainfall frequency.

7.5.2. Potential Impacts

The largest component of the Project's operation is the PVS solar array layout, including the spacing between the arrays. The areas underneath and surrounding the solar modules will not be impervious and will allow infiltration of rainfall.

Construction of the Project will require earthmoving activities (topsoil stripping and contouring) for the internal access roads, parts of the PVS area, hardstands, laydown and site infrastructure (inverters, demountable buildings, etc.). These activities will remove ground vegetation in areas, if existing, exposing soils to erosive forces (e.g. wind and rain). The earthmoving activities can result in erosion and sediment release, deterioration of water quality and changes to surface runoff volume and overland flow paths.

Erosion control measures to be adopted during construction will be further detailed and implemented as part of the Environmental Management Plan suite to be prepared as indicated at Section 7.5.3 and Section 9 of this report.

The use and storage of fuels and chemicals for light vehicles, plant and construction equipment may potentially result in surface water or groundwater contamination through spills, leaks or other uncontrolled releases.

Surface water and Ground water pollution control measures to be adopted during construction will be further detailed and implemented as part of the Environmental Management Plan suite to be prepared as indicated at Section 7.5.3 and Section 9 of this report.

Approximately 1ha of the Project area could be occupied by the switchyard.

These areas could potentially increase the runoff volumes and velocities and consequently erosion and migration of sediment, though given the small size of this part of the development footprint any adverse impact is considered low.

Surface water, erosion and sediment management control measures to be adopted during construction and operation will be further detailed and implemented as part of the Environmental Management Plan suite to be prepared as indicated at Section 7.5.3 and Section 9 of this report.

The Project will include a wastewater treatment system for workforce. Discharge of treated sewage from the ablution block has the potential to decrease groundwater quality (e.g. through increased biological oxygen demands) if the sewage is not adequately treated or if the lining has not been appropriately designed the evapotranspiration bed could seep into the surrounding area.

Wastewater control measures to be adopted during construction and operation will be further detailed and implemented as part of the Environmental Management Plan suite to be prepared as indicated at Section 7.5.3 and Section 9 of this report.

The Project's potential to adversely impact the existing surface water and erosion environments is low.

7.5.3. Mitigation Measures

Suitable mitigation measures for this potentially low impact typically include:

- During construction, main access tracks will be permanently gravelled where required;
- Rows of PV panels rotate and will be separated from the next row, so providing an infiltration area and sunlight to potential co-located agricultural activities or pasture;
- If practicable the ground under and adjacent the PV panels will be used for co-located agricultural activities and may be sown with a permanent pasture mix;

- If practicable the Project area will include co-located agricultural activities such as pasture managed by controlled grazed (most likely with sheep) to maintain ground cover density and manage the sward length;
- During the construction and operation phases an erosion and sediment control plan for each phase will be developed detailing the control measures to be implemented;
- Sewage treatment and disposal to be conducted in accordance with relevant Australian Standards and local regulations/approval; and
- During the construction and operation phases a storage and handling of chemical and hazardous materials management plan for each phase will be developed detailing the control measures to be implemented.

7.6. FLOODING

7.6.1. Existing Environment

The Project area is not mapped as subject to inundation and is not located in the Murray Floodplain or within the River Murray protected area or within a local Catchment area.

7.6.2. Potential Impacts

The Project will not have a demonstrable impact on local flooding.

7.6.3. Mitigation Measures

No specific mitigation measures are required because the Project is not expected to adversely impact the existing flooding environment.

7.7. GROUNDWATER

7.7.1. Existing Environment

The 1:100,000 Florieton sheet of SARIG shows the area in which the Project is located to be underlain by several geological units. The following units are expected on the Project area:

- Qha – Undifferentiated Holocene Alluvial/Fluvial Sediments;
- Qp/Ca – Calcrete – Pleistocene;
- Qa – Undifferentiated Quaternary Alluvial/Fluvial Sediments;

The alluvial soils within the Project area were likely deposited as alluvial fans, with soils deposited gradually by small streams/ drainage lines originating from the ranges to the west. The soil therefore is expected to be a mixture of sandy/ silty clays with occasional bands of gravel (transported fragments of the bedrock) representing variability in the depositional environment.

The SARIG groundwater well mapping layer indicates the Shallow Standing Water Level at ~20m Below Ground Level (BGL). The Shallow Standing Water Level represents the depth to standing water of the shallowest aquifer only. Other aquifers may well give rise to standing water at significantly different depths.

7.7.2. Potential Impacts

Construction works will involve earthworks and limited vegetation clearing for the erection of the PVS solar panels, cabling, switchyard/substation, buildings, internal access roads and other infrastructure. During operation, the primary land management activities will likely relate to erosion and sediment control.

Potential geology, topography and soil impacts on the environment due to site activities include:

- Increased risk of erosion and sediment mobilisation due to alterations to drainage patterns and stormwater flows during high rainfall events;
- Exposure of soil to erosive forces (wind and rain) causing soil erosion and sediment transport that can result in:
    - Deterioration of the receiving environments water quality during ephemeral flows;
    - Sedimentation of vegetated areas resulting in reduced vegetation growth/health; and
    - Reduced air quality (dust impacts) of neighbouring agricultural operations.
- Loss of topsoil integrity from improper removal or storage;
- Entrainment of soils off-site by construction vehicles and machinery leading to sedimentation external to the Project area;
- Physical degradation of soil as a result of the use of heavy construction machinery; and
- Soil contamination as a result of hazardous and other chemicals spills.

Based on the information in regional groundwater maps (SARIG) groundwater is not expected within the upper 20 BGL. While the Project is not expected to directly interfere with groundwater, activities have the potential to impact groundwater quality through the accidental release of contaminants to the environment. These water affecting activities associated with the Project may include:

- Construction activities (e.g. operation of heavy machinery);
- Waste storage;
- Ablutions;
- Sewerage systems;
- Operation of the substation and inverters;
- Operation of heavy vehicles; and
- Storage of oils, hydraulic fluids, greases, coolants and other maintenance items including minor amounts of cleaning solvents, paints and thinners.

Contaminants, if released, have the potential to reach the water table via infiltration and recharge from the point of release or via stormwater mobilisation and subsequent infiltration.

The Project's potential to adversely impact the existing groundwater environment is low.

7.7.3. Mitigation Measures

Suitable mitigation measures for this potentially low impact typically include:

- Erosion and sediment control devices will be installed where necessary and monitored to assess efficacy of erosion and sediment control measures;
- No unnecessary clearing or earthworks;
- Measures implemented to control flow velocities in such a manner that prevents soil erosion along drainage paths;
- Ensure the use of appropriately designed laydown areas for vehicles and machinery and storage areas for chemicals, oils and fuels;
- Make available spill kit(s) within the operational and maintenance area;
- Ensure all staff to be made aware of spill response procedures and the requirement to report any spills or leaks;
- Ensure regular maintenance and checks of heavy vehicles, machinery and equipment to identify potential leaks; and
- All chemical storage vessels are to be bunded and/or constructed on impermeable surfaces in compliance with relevant Australian Standards.

7.8. CLIMATE

7.8.1. Existing Environment

South Australia's *Climate Change and Greenhouse Emissions Reduction Act 2007* provides emissions reduction targets to be achieved by 2050.

7.8.2. Potential Impacts

The Project will deliver clean and renewable energy to the South Australian people in the face of climate change, assist in meeting renewable energy targets for the State and the nation and displace greenhouse gas emissions for the Project's life. The Project (as part of the original Robertstown Solar project) will make a significant contribution to achieving the State emission reduction targets.

The potential for micro climate influences from large scale solar development can result in temperatures slightly higher in the centre of the solar farm compared to ambient. Temperatures generally return to ambient within several metres above the to the side of panels.

7.8.3. Mitigation Measures

The Project is a mitigation measure, contributing to lower GHG. Other measurable GHG mitigation measures could include where practicable:

- Incorporate a 30m setback for solar panels from property boundaries not associated with the Project to avoid any impacts for micro climate influences outside of the Project site.
- Efficient PV components and Project design to maximise electricity production;
- Components updated as they become obsolete or superseded by more efficient technologies, as required; and
- Panels will be maintained to maximise solar collection.

7.9. NOISE

7.9.1. Existing Environment

The Project area is located within an agricultural area, which generally has a low levels of existing background noise. Agricultural noise emissions primarily occur when farm machinery is used to prepare the land for cropping, sow crops, harvest crops and move stock.

The Robertstown Substation and associated transmission lines owned and operated by ElectraNet near the Project area emit a crackling or buzzing noise named 'Corona', which is the leakage of electricity into the air (which is a natural insulator). Often hard to hear, damp weather increases its audibility.

7.9.2. Potential Impacts

The Project's noise emissions will be generated primarily during some of the construction phase from construction vehicles and machinery.

The Project's construction noise emissions have the potential to impact sensitive receivers some of the time during the construction phase.

The Project will not be a significant source of noise once operational. As such, no noise impacts to sensitive receivers are anticipated during the operation phase of the Project.

The Project's potential to adversely impact the existing noise environment during the construction phase is moderate.

7.9.3. Mitigation Measures

Suitable mitigation measures for construction noise typically include compliance with the Environment Protection (Noise) Policy 2007 i.e.:

- Work on-site will occur within the standard work hours of 7.00a.m. and 7.00p.m. Monday to Saturday;
- Particularly noisy activities will be commenced after 9.00am where the noise exceeds industry guidelines;
- Noisy equipment and processes will be located so that their impact on neighbouring properties is minimised whether by maximising the distance to the premises, using structures or elevations to create barriers or otherwise;
- Equipment will be shut down or throttled down whenever it is not in use;
- Equipment will be equipped with feasible noise control (e.g. mufflers, silenced exhausts, acoustic enclosures);
- Equipment will be properly maintained so as to eliminate or reduce noise as far as practicable;
- Equipment shall be handled so as to minimise impact of noise;
- As far as practicable, off-site or alternative processes that eliminate or lessen noise will be utilised; and
- A complaints hotline will be established and advertised for the receipt of feedback on the Project, including any complaints regarding noise.

Subject to approval from the relevant authority, circumstances, such as extreme summer heat, may warrant construction activity to be permitted outside of the hours of 7.00am and 7.00pm Monday to Saturday or on a Sunday or Public Holiday.

7.10. ARCHAEOLOGY

7.10.1. Existing Environment

The Project area and surrounding properties are used for cropping and grazing. Crops change over time according to market prices, changing demand and water availability. There are no mapped waterways or areas of known Aboriginal or European cultural significance.

7.10.2. Potential Impacts

The Project, especially during the construction phase, could result in damaging heritage significant Aboriginal artefacts within the Project area.

The Project's potential to adversely impact the existing archaeological environment during the construction phase is low

A key criterion for selecting the Project area was most of the area used for cropping is cleared of native vegetation to allow efficient cropping practices. An aim of the Project's layout and design is to position as much of the Project's development footprint, as is technically possible, on the cropped land thereby ameliorating the possibility of disturbing Aboriginal and/or European cultural heritage items. There are no known Aboriginal and/or European cultural heritage items on the site.

The Project's development footprint (some cable routes & access ways) that cannot be located on cropped land has been designed to result in as small a development impact footprint as possible.

Robertstown Solar has an existing Aboriginal Heritage Agreement and Cultural Heritage Management Plan already in place with FPRMMR. FPRMMR have approved the extension of this agreement to also cover the Robertstown East Solar project area.

Discussions have commenced with the FPRMMR regarding the presence of Aboriginal archaeological value within the Project area. A FPRMMR walkover inspection will be undertaken prior to any construction works in accordance with the Aboriginal Heritage Agreement and Cultural Heritage Management Plan already in place with FPRMMR.

The cultural heritage works with the FPRMMR will inform the final layout plans.

The Project's preliminary layout and design has endeavored to avoid the disturbance of Aboriginal and/or European heritage sites.

7.10.3. Mitigation Measures

Suitable mitigation measures for this potentially moderate impact typically include:

- Further cultural heritage works with the FPRMMR will inform the final detailed Project layout plans;
- Any Aboriginal sites and artefacts will be taken into consideration for the final detailed Project layout plans;
- Compliance with the relevant provisions of the *Aboriginal Heritage Act 1988*;
- Construction personnel will receive a heritage induction prior to work on-site;
- A stop work/site discovery procedure for both Aboriginal and European heritage will be developed prior to the commencement of construction to manage the event of an unexpected find; and
- The Construction Management Plan will include information on avoidance of items should heritage items be discovered on site during pre-construction work walkovers.

7.11. BUSHFIRE

7.11.1. Existing Environment

The Project area is not located within a mapped Bushfire Protection Area.

The Project area contains dry pastures and crop stubble, sparse woody vegetation in areas, and dense stands of woody vegetation in other areas.

Potential ignition that exists in and around the Project area include: stubble burning, littered cigarettes, short circuiting electrical equipment, and lightning strikes.

7.11.2. Potential Impacts

Fires that might spread to the Project area would cause significant damage to wiring, panels and other components. Conversely, fires ignited on Project area could spread to neighbouring land and infrastructure.

To prevent the invasion of stubble or grass fires onto the Project area, the design will incorporate an appropriate Asset Protection Zones (APZ). Ongoing, long-term liaison with adjacent landholders should ensure that the Project area is staffed in the event of neighbouring stubble burns.

The risk of initiating fire from commercial solar panels and inverters is very low due to their high quality and remote sensing/operating systems.

The Project's potential to adversely impact the existing bushfire environment is low.

7.11.3. Mitigation Measures

Suitable mitigation measures for this potentially low impact typically include:

- Layout and emergency access design coordinated in consultation with South Australia Country Fire Service;
- Installation of only Standard compliant components;
- Ongoing monitoring and review of the solar system performance;
- Installation of thermal overload protection on inverters;
- Controlled grazing or machinery maintenance of pastures under panel arrays; and
- Maintenance of firebreaks.

7.12. TRAFFIC AND TRANSPORT

Stantec's 2024 Transport Assessment Impact Assessment (TIA) is attached as Appendix 6.

7.12.1. Existing Environment

Anticipated traffic volumes will be highest during the Project's construction while operational traffic volumes are expected to be minimal.

The Stantec 2024 TIA report includes assessing the potential impact of the Project's construction traffic movements on transport routes and other road users and assessed the potential impact on transport routes and other road users based on the Project being completely operational.

The TIA's defined the existing environment as the component delivery route to the Project area. Consequently, the environment includes other road users and the road infrastructure.

While the component delivery route will be finalised as part of the Traffic Management Plan, preliminary analysis indicates the feasible trucking option is that components are shipped to Flinders Port Adelaide and trucked direct to the Project area via National Highway A9 (Port River Expressway, Salisbury Highway) and National Highway A1, National Highway M20, Thiele Highway (B81), Worlds End Highway, Powerline Road and Lower Bright Road.

The National Highway A9 (Port River Expressway, Salisbury Highway) and National Highway A1, National Highway M20, Thiele Highway (B81) and Worlds End Highway are under the care and control of the Department of Transport and Infrastructure (DTI).

Powerline Road, Lower Bright Road, Eagle Hawke Gate Road, and Junction Road are under the care and control of Goyder Council.

The existing DTI approved restricted access vehicle routes detailed on the National Heavy Regulator's National Map website and reproduced in the TIA shows the existing 26m B-Double approved route for the Port Adelaide to Gawler section of the indicative heavy vehicle route and the existing 26m B-Double approved route for the Gawler to the Project area section of the indicative heavy vehicle route.

Powerline Road, Lower Bright Road, Eagle Hawke Gate Road, and Junction Road are not currently gazetted for 26m B-Double (PBS Level 2) access.

7.12.2. Potential Impacts

The majority of construction works are associated with the PVS element. The TIA IS based on a construction scenario of approximately 28 months.

Other road users and key stakeholders including the DTI and Goyder Regional Council are considered the potential sensitive receivers for the purposes of construction traffic.

Operational vehicle movements are expected to be minimal, and not have any significant impact on the local road network. During the operational phase, staff attendance on site will be up to approximately 10 personnel employed on a full time, on site basis. Additional staff are expected to be employed on part-time and contract basis, for specialist electrical skills, module cleaning and other maintenance requirements associated with the Project. Operational vehicle movements are not expected to significantly impact other road users and the local road network.

Anticipated traffic volumes will be highest during the construction phase. The types of vehicles anticipated to be used during the construction phase include buses to transport workers to and from the Project area (if a temporary construction workers camp on the Robertstown Solar site is not used), light vehicles, heavy construction vehicles and oversized vehicles. A summary of the estimated number of construction vehicle traffic two-way movements estimated to take place during the indicative construction phase is presented in Table 7-1.

Table 7-1: Estimated Construction Traffic

Construction Phase	Light Vehicles	Heavy Vehicles	OD Heavy Vehicles	Total
Months 1-2	10	9	N/A	19
Months 3-4	15	11	N/A	26
Months 5-6	23	17	N/A	40
Months 7-8	34	26	N/A	60
Months 9-10	32	20	N/A	52
Months 11-12	27	21	2	50
Months 13-14	30	21	N/A	51
Months 15-16	32	19	N/A	51
Months 17-18	26	20	N/A	46
Months 19-20	27	21	N/A	48
Months 21-22	30	19	N/A	49
Months 23-24	29	18	N/A	47
Months 25-26	22	11	N/A	33
Months 27-28	17	1	N/A	18

It is important to note both the Project phasing and the construction company's construction methodology, based on the Project's final design, may vary these predicted Project traffic volume estimates.

The TIA finds the traffic generated by the proposed Project area during the construction and operational phases is very low in comparison to existing traffic volumes for the National Highway A9 (Port River Expressway, Salisbury Highway) and National Highway A1, National Highway M20, Thiele Highway (B81) and Worlds End Highway section of the indicative heavy vehicle route under the care and control of DTI, and therefore is not expected to compromise the safety or function of this road network.

Powerline Road, Lower Bright Road, Eagle Hawke Gate Road, and Junction Road are under the care and control of the Regional Council of Goyder. While the TIA was unable to source traffic volume data for Powerline Road and Lower Bright Road, the existing traffic volumes are expected to be less than 170 vehicles per day based on data obtained from DTI that shows

Worlds End Highway, within the vicinity of the Project Area, has an annual average daily traffic volume (AADT) of approximately 170 vehicles per day (Location SA – Traffic Volume Estimates, base year 2019). Based on the TIA findings the traffic generated by the proposed Project area during the construction and operational phases is very low and therefore is not expected to compromise the safety or function of the local roads that experience low volumes of traffic.

The other potential impact is the potential deterioration of local road conditions from construction traffic. Although the construction traffic will be for a short time it will possibly contribute to the wear and tear on the approved local road access routes.

The Project's potential to adversely impact the existing State road traffic and transport environment during the construction phase is low. The Project's potential to adversely impact the existing Local road traffic and transport environments during some of the construction phase is low-moderate.

7.12.3. Mitigation Measures

Suitable mitigation measures for the potentially low-moderate impacts will be addressed in the following documents:

- A Traffic Management Plan prepared prior to commencement of construction works in consultation with DTI and Goyder Regional Council; and
- A dilapidation report or equivalent report, of the road conditions along the nominated local access roads, prepared prior to commencement of construction in consultation with the Goyder Regional Council.

7.13. AIR QUALITY

7.13.1. Existing Environment

It is expected that the local air quality is typical of rural areas, with irregular peaks due to dust storms, regional fires, local stubble burns, cultivation and crop stripping.

7.13.2. Potential Impacts

Installation of the Project will involve trenching, plant and vehicular movements over soil and local unsealed roads and general movement of construction vehicles. This limited activity is not expected to generate more dust than the regular cultivation and crop stripping that currently occurs on the Project area and adjacent paddocks.

The Project is not expected to generate measurable dust during operations, and natural ground cover or sown pasture (if practicable), on what is now a series of cropping paddocks, will reduce the dust generation potential of the Project area.

The Project's potential to adversely impact the existing air quality environment is low.

7.13.3. Mitigation Measures

Suitable mitigation measures for this potentially low impact typically include:

- Dust management measures will be included in the Construction Management Plan;
- During construction, dust raised on site will be monitored and, if dust is creating a nuisance, a water cart will be used to manage problem areas;
- Dust generation from construction traffic will be monitored and dust suppression activities will be undertaken to minimise dust emissions, if required;
- Wind speed and direction will be monitored, and dust generating activities will be adapted to the wind conditions; and
- Properly maintained equipment will be used to minimise emissions.

7.14. ELECTRIC AND MAGNETIC FIELDS, AND RADIO FREQUENCY INTERFERENCE

7.14.1. Existing Environment

A brief discussion of electrical terminology is useful to aid an understanding of electric and magnetic fields (EMF) and the separate question of radio frequency interference (RFI).

EMF are produced by all electrical equipment, from high voltage power lines to hair dryers, with fields increasing with voltage and current respectively. Both fields drop away rapidly with distance from the source, or due to shielding by insulation or earth (in the case of buried installations). For comparative purposes, in unshielded overhead high voltage transmission wiring, both electrical and magnetic fields would drop to approximately zero within 60 metres from the centreline of the transmission line's conductor bundles.

Radio Frequency Interference (RFI) can be generated by a range of electrical apparatus. The Australian Communications and Media Authority (ACMA) is the Australian regulator of radio communications, telecommunications, broadcasting and the internet, responsible for

ensuring compliance with the *Radio Communications Act, 1992*. Part of ACMA's role is to regulate the use of equipment that might affect important telecommunications.

There have been reports of household solar installations detrimentally affecting television reception. It appears that this reported interference is not strictly due to RFI affecting reception but are generally due to poor quality domestic inverters inserting RFI into the household wiring system that disturbs the television set power supply, which in turn cause screen distortion.

The area adjacent to the Project land incudes utility scale electricity infrastructure comprising a substation and powerlines. The ElectraNet transmission network 275/132kV Robertstown substation is located on Lower Bright Road and Bundey Substation located on Power Line Road.

7.14.2. Potential Impacts

Substantial EMF's have the potential to interrupt electrical equipment and impact human health.

The Project's various EMF generating components include the PVS panels, the interconnecting buried cables, the direct to alternating current inverters, overhead transmission lines, step up transformers and overhead or underground connection to the Robertstown Solar or Bundey substation.

Essentially EMF increases with voltage and proximity to the apparatus producing, transmitting or consuming electricity. EMF does vary according to specific design and construction parameters such as conductor height, electrical load and phasing, and most importantly, whether the conductors are overhead or buried.

The Project's components that will generate the highest EMF are the Project's substation together with the possible overhead line connection to the Robertstown Solar or Bundey substation.

With regards to RFI, solar inverters do emit harmonics but not radio frequency waves and so will not directly affect television transmissions. As discussed previously, poor quality household solar inverters can insert undesirable interference into wiring systems and so indirectly reduce picture quality. Inverters should be tested according to International Electrotechnical Commission (of which Australia is a full member) standards for radio interference, and, depending on the make and model may emit some radiation within acceptable limits. The commercial Inverters being considered for the Project, have been

tested to international standards and have proven to not disturb radio signals except in the immediate area around the inverter (approximately <5m).

The Project's potential to adversely impact the existing EMF and RFI environment is low.

7.14.3. Mitigation Measures

Suitable mitigation measures for this potentially low impact typically include:

- Installing electricals to the relevant Australian Standards and guidelines;
- Use of International Electrotechnical Commission compliant commercial inverters;
- Locating the high voltage electrical equipment such as switchyard and substation appropriately on the Project area; and
- Restriction of access to areas of high voltage electrical equipment such as switchyard, and substation.

7.15. WATER RESOURCES

7.15.1. Existing Environment

An Australian Conservation Foundation research paper notes that every megawatt hour of electricity generated by coal consumes about 1,245 litres of water, compared to around 10 litres for solar generation. In the 2022-2023 financial year, The department of Climate Change, Energy, the Environment and Water noted Australian's have consumed 188 terrawatt hours of electricity. About 47 per cent of the generation comes from coal, which based on the Australian Conservation Foundation research paper equates to around 110 billion litres of water.

7.15.2. Potential Impacts

The Project's general use of water to produce electricity is limited to cleaning the solar panels during the operational phase. Continual improvements in panel cleaning technology is reducing the small amount of water currently required to produce electricity.

The World Resources Industry report notes "*the potential for cheap renewable energy, solar and wind as opposed to fossil fuels, could reduce water consumption country-wide as these technologies use minimal water*".

The Project will contribute to reducing the current amount of water required to generate electricity in Australia.

7.15.3. Mitigation Measures

The Project is a mitigation measure, contributing to lower use of water for electricity generation.

7.16. SOCIO-ECONOMIC

7.16.1. Socio-Economic Benefits

The Project will:

- Deliver clean and renewable energy for Australia in the face of climate change;
- Assist in meeting renewable energy targets for the State and the Nation;
- For each year of its 30-year operational life, displace the equivalent of 489,000 tonnes of greenhouse gas emissions per annum;
- Provide clean energy to power an equivalent of 86,400 homes for the Project's life;
- Create industry diversity for the Goyder region;
- Create substantial employment opportunities during Project construction phases;
- Be located in a suitable area with access to existing infrastructure;
- Provide a flexible, low-impact alternative to the existing agricultural land use;
- Along with Robertstown Solar will generate:
    - an estimated economic benefit in the order of $315.9 million for the broader economy and approximately $77.3 million as direct domestic expenditure;
    - up to an estimated 275 equivalent full-time jobs during construction, and a further 410 indirect full-time equivalent jobs; and
    - up to an estimated 10 equivalent full-time jobs during operations.

7.17. GLINT AND GLARE

A Glint and Glare Analysis is attached as Appendix 7.

7.17.1. Existing Environment

The landscape within and surrounding the Project area can be described as predominantly rural, typified by flat to undulating land that is sparsely vegetated or utilised for agricultural purposes.

7.17.2. Potential Impacts

The PVS solar panels can potentially cause a glint and/or glare impact beyond the Project area. The Glint and Glare Analysis key findings are:

Air Traffic:

The Project area is more than 50 km from any commercial airport. The Australian Civil Aviation Safety Authority (CASA) only requires an assessment for any solar farm within a distance of around 5 nautical miles from an airport and therefore no calculation for potential Glint and Glare issues was performed.

Houses:

The visual impact assessment confirmed only one dwelling has any view of the project area – House 1. This residential receiver is shown as Op01 in Figure 10 in the Glint and Glare Report. All dwellings identified in the visual impact assessment are also shown in Figure 10 to assess the potential for residences to experience Glint and Glare when looking towards the PVS solar Panels.

The assessment identified one residence (House 1) as potentially where the residents of the houses may experience low-level glare when looking towards the PVS solar Panels.

Roads:

Sections of Lower Bright Rd and Junction Rd experience some low-level glare during the early morning. The roads experience very limited local traffic.

7.17.3. Mitigation Measures

Houses:

The assessment identified only one residence where the residents of the house may potentially view low-level glare for a small amount of time when looking towards the PVS solar panels early in the morning.

Based on observations, existing obstacles (including existing vegetation, topography, and structures) between the residents of the identified house and the PVS panel arrays obstruct and ameliorate the low-level glare identified in the Glint and Glare report. This outcome would

also be further ameliorated through the proposed landscape screening along the southern section of Junction Road.

Based on these observations no further mitigation measures beyond the the proposed landscape screening are required.

Roads:

The assessment concluded almost all instances of potential glare occur for early morning conditions. Lower Bright Road can experience reflections morning and afternoon (depending on the direction of traffic).

The roads experience very limited local traffic and observations of existing obstacles (including existing vegetation, topography and structures) between the relevant sections of roads and the PVS panel arrays partially obstruct and ameliorate the low-level glare identified in the Glint and Glare report.

Based on these factors no additional mitigation measures beyond the proposed landscape screening listed in the visual impact assessment (along part of Junction Road) are required.

8. SUMMARY OF MITIGATION MEASURES

8.1. PVS ELEMENT AND ANCILLARY COMPONENTS

Table 8-1 provides a summary of mitigation measures for the PVS element and ancillary components of the Project.

Table 8-1: Summary of Mitigation Measures for the PVS Element of the Project

Issue	Mitigation Measure	Section of Planning Report
Visual Impact and Landscape	• A landscape screen is proposed along a portion of the western boundary of the site to ameliorate views of panels for House 1 (which is a Robertstown Solar participating landowner). • Stakeholder engagement activities will continue to be undertaken to understand relevant landowner and community relationships with visual aspects of the Project; • As far as practicable, the development will occur on land previously cleared of vegetation and disturbed; • Utility buildings or structures will be sited together, away from residences and constructed of materials that are muted in colour; • The use of reflective materials in construction will be limited, as far as practicable; • Any landscaping that is completed as part of the Project will be selected and designed so it is sensitive to the landscape and visual receptors; • Any signage will be designed and located so it is sensitive to the landscape and visual receptors; • Fencing will be sited and designed appropriately to blend with the facility; and • Construction equipment and waste will be removed from the Project area in a timely manner.	7.1
Land Use	• Following the Project's decommissioning the land will be available for current agricultural uses.	7.2
Biodiversity	• Removal of large areas of vegetation will be avoided and minimised, as far as practicable, as part of the final Project design; • A targeted wombat survey will be completed prior to construction to confirm the presence of Southern Hairy-nosed Wombats and burrows. The targeted survey will inform the appropriate management options if required; • Hollows, coarse woody debris and litter to be translocated into native vegetation patches, as far as	7.3

	practicable, within the Project area as scattered trees are removed; • Weed and pathogen hygiene measures will be employed as part of the removal process to ensure that no new weeds or other pathogens are introduced to existing native vegetation; and • An Application for approval to clear native vegetation under Division 5 of the Native Vegetation Regulations 2017 be submitted to Native Vegetation Council based on the final Project design and the consequently clearing requirements are known.	
Surface Water and Erosion	• During construction main access tracks will be permanently gravelled where required; • Rows of PV panels will rotate and be separated from the next row, so providing an infiltration area and sunlight to potential pasture; • If practicable the ground under and adjacent the PV panels will be sown with a permanent pasture mix, suitable to the region and long - term stock grazing; • If practicable the Project area will be controlled grazed (most likely with sheep) to maintain ground cover density and manage the sward length; • During the construction and operation phases an erosion and sediment control plan for each phase will be developed detailing the control measures to be implemented; • Sewage treatment and disposal to be conducted in accordance with relevant Australian Standards and local regulations/approval; and • During the construction and operation phases a storage and handling of chemical and hazardous materials management plan for each phase will be developed detailing the control measures to be implemented.	7.5
Groundwater	• Erosion and sediment control devices will be installed where necessary and monitored to assess efficacy of erosion and sediment control measures; • No unnecessary clearing or earthworks; • Measures implemented to control flow velocities in such a manner that prevents soil erosion along drainage paths; • Ensure the use of appropriately designed laydown areas for vehicles and machinery and storage areas for chemicals, oils and fuels; • Make available spill kit(s) within the operational and maintenance area; • Ensure all staff to be made aware of spill response procedures and the requirement to report any spills or leaks; • Ensure regular maintenance and checks of heavy vehicles, machinery and equipment to identify potential leaks; and	7.7

	• All chemical storage vessels are to be bunded and/or constructed on impermeable surfaces in compliance with relevant Australian Standards.	
Climate	• Incorporate a 30m setback for solar panels from property boundaries not associated with the Project to avoid any impacts for micro climate influences outside of the Project site; • Efficient PV components and Project design to maximise electricity production; • Components updated as they become obsolete or superseded by more efficient technologies, as required; and • Panels will be maintained to maximise solar collection.	7.8
Noise	• Work on-site will occur within the standard work hours of 7.00a.m. and 7.00p.m. Monday to Saturday; • Particularly noisy activities will be commenced after 9.00am if they exceed noise guidelines; • Noisy equipment and processes will be located so that their impact on neighbouring properties is minimised whether by maximising the distance to the premises, using structures or elevations to create barriers or otherwise; • Equipment will be shut down or throttled down whenever it is not in use; • Equipment will be equipped with feasible noise control (e.g. mufflers, silenced exhausts, acoustic enclosures); • Equipment will be properly maintained so as to eliminate or reduce noise as far as practicable; • Equipment shall be handled so as to minimise impact of noise; • As far as practicable, off-site or alternative processes that eliminate or lessen noise will be utilised; • A complaints hotline will be established and advertised for the receipt of feedback on the Project, including any complaints regarding noise nuisance; and • Subject to approval from the relevant authority, circumstances, such as extreme summer heat, may warrant construction activity to be permitted outside of the hours of 7.00am and 7.00pm Monday to Saturday or on a Sunday or Public Holiday.	7.9
Archaeology	• Further cultural heritage works with the FPRMMR will inform the final detailed Project layout plans; • Any Aboriginal sites and artefacts will be taken into consideration for the final detailed Project layout plans; • Compliance with the relevant provisions of the *Aboriginal Heritage Act 1988*; • Construction personnel will receive a heritage induction prior to work on-site;	7.10

	• A stop work/site discovery procedure for both Aboriginal and European heritage will be developed prior to the commencement of construction to manage the event of an unexpected find; and • The Construction Management Plan will include information on recorded heritage items.	
Bushfire	• Layout and emergency access design coordinated in consultation with South Australia Country Fire Service; • Installation of only Standard compliant components; • Ongoing monitoring and review of the solar system performance; • Installation of thermal overload protection on inverters; • Controlled grazing or machinery maintenance of pastures under panel arrays; and • Maintenance of firebreaks.	7.11
Traffic and Transport	• A Traffic Management Plan will be prepared, prior to commencement of construction works in consultation with DPTI and Goyder Regional Council; and • A dilapidation report or equivalent report, of the road conditions along the nominated local access roads will be undertaken prior to the commencement of construction in consultation with the Goyder Regional Council.	7.12
Air Quality	• Dust management measures will be included in the Construction Management Plan; • During construction, dust raised on site will be monitored and, if dust is creating a nuisance, a water cart will be used to manage problem areas; • Dust generation from construction traffic will be monitored and dust suppression activities will be undertaken to minimise dust emissions, if required; • Wind speed and direction will be monitored, and dust generating activities will be adapted to the wind conditions; and • Properly maintained equipment will be used to minimise emissions.	7.13
Electric and Magnetic Fields	• Installing electrical componentry to the relevant Australian Standards and guidelines; • Use of International Electrotechnical Commission compliant commercial inverters; • Locating the high voltage electrical equipment such as switchyard and substation and appropriately on the Project area; and • Restriction of access to areas of high voltage electrical equipment such as switchyard and substation.	7.14

9. ENVIRONMENTAL MANAGEMENT AND MONITORING

While the purpose of reviewing the key environmental issues is to consider the potential environmental impacts resulting from the Project, the role of an ongoing environmental management system is to ensure that the identified controls and commitments are maintained throughout the construction and operational phases of the Project. Further, a formal environmental management system will implement and monitor the objectives and measures outlined in the development consent, relevant licenses and legislation. Accordingly, this section outlines an overall environmental management framework to guide the development and management of the Project.

Following a development approval, an Environmental Management Plan (EMP) for the construction and operational phases of the development will be prepared taking into account the following documents:

- This Planning Report;
- Conditions of Approval; and
- Any other approval, licence or permit required, including but not limited to grid connection to the ElectraNet Robertstown Substation and/or ElectraNet's Bundey Substation.

It is intended to prepare a suite of EMPs including a Construction Management Plan and Operational Management Plan. These EMPs will be drafted and finalised following development approval. Notwithstanding, the EMPs are expected to specify all environmental management activities and measures used to control, prevent or minimise environmental impacts. In addition, the plan will assign responsibility for mitigation measures to specific personnel and allocate quantitative or qualitative criteria to the performance of each measure where applicable. The following matters are likely to be addressed in the suite of EMPs:

- Project description;
- Environmental management structure and responsibilities;
- Approval and licensing requirements;
- Environmental training requirements;
- Emergency contacts and responsible procedures;
- Risk assessment;
- Environmental management measures;
- Environmental management maps, as required;
- Environmental monitoring requirements;
- Environmental auditing, as required;
- Corrective action; and
- Review.

The nature of the Project means that environmental monitoring required by more intrusive project (mines, quarries, roads, etc.) is likely not required.

Following development approval, environmental management will be implemented in accordance with the following environmental objectives:

- Implement a standard of environmental management that reflects proactive planning and recognition of environmental impact;
- Comply with applicable Commonwealth and South Australian legislative requirements;
- Comply with applicable environmental standards and approvals throughout all phases of the Project; and
- Commit to undertake all environmental management practices in accordance with best-practice.

Management procedures may be adjusted in the event of an environmental incident or the receipt of complaints.

10. CONCLUSION

The Project area selection, assessment and design has been a considered and iterative process influenced by a number of factors including legislative and technical requirements, on-ground environmental attributes, financial feasibility and potential for economic, social and environmental benefits.

Detailed and measured investigations have allowed the Project to achieve its intent of maximising the benefits derived from increased production of renewable energy, while being sustainable for the needs of the present generation without compromising the ability of future generations to meet their future economic, social and environmental needs.

This Planning Report has considered the details of the Project, the strategic and statutory context, and identified key environmental, social and economic issues. Where potential impacts have been identified, mitigation measures have been proposed for incorporation in the Project design and future management plans.

Assessment of the Project against the relevant sections of the P&D Code has demonstrated its compatibility and appropriateness for the Project area and locality. Specifically, the land selected is predominantly cleared and previously disturbed, and is located in close proximity to existing electricity network infrastructure.

The provision of appropriately designed new generating facilities, such as the Project, is critical for the future of South Australia's energy security. Further, it is considered that the Project will have positive socio-economic and environmental impacts on the local, state and national scales.

The Planning Report concludes the Project:

- Is consistent with the relevant strategic and statutory provisions;
- Will not result in significant environmental impacts;
- Is suitable at the proposed site; and
- Is in the public interest.

Therefore, it is respectively requested the Project be approved subject to final Project documents and plans being approved by relevant Government authorities prior to the commencement of construction and operation.

11. REFERENCES

B V Consulting (2018) *Glint and Glare Analysis Robertstown Solar South Australia,* Version 2, Author Bernhard Voll

CMW Geosciences (2018) *Robertstown Solar Geotechnical Investigation,* ADL2018-0004AD Rev2. 06/07/2018

Department of Planning Transport and Infrastructure (DPTI) (2018) Annual Average Daily Traffic (AADT) estimates and Heavy Vehicle Estimates accessed at https://dpti.sa.gov.au/traffic_volumes

EBS Heritage (2018) *Robertstown Solar Desktop Heritage Assessment*, Version 2, Project Number: G80903, Author Shannon Smith, 05/10/2018.

EBS Heritage (2018) *Robertstown Solar Archaeological Survey Report*, Version 2, Project Number: G80401, Author Shannon Smith, 25/07/2018.

EBS Ecology (2018) *Robertstown Solar Desktop Ecological Assessment*, Version 3, Project Number: G80401, Authors M. Laws, G. Oeman 13/09/2018.

EBS Ecology (2018) *Native Vegetation Clearance Proposal Robertstown Solar*, Version 2, Project Number: G80401, Author Dr M. Louter, 25/07/2018.

Engel, Z., Wszołe, T. (1996) *Audible noise of transmission lines caused by the corona effect: Analysis, modelling, prediction*, Applied Acoustics, Volume 47, Issue 2, Pages 149-163, ISSN 0003-682X, https://doi.org/10.1016/0003-682X(95)00041-7, accessed at: http://www.sciencedirect.com/science/article/pii/0003682X95000417)

EPA South Australia (2013) *EPA 424/13 General Environmental Noise Information Sheet*

EPA South Australia (2009) *Wind farms environmental noise guidelines* ISBN 978-1-876562-43-9

Government of South Australia, *Environment Protection (Noise) Policy 2007* accessed at https://www.legislation.sa.gov.au/LZ/C/POL/Environment%20Protection%20(Noise)%20Policy%202007.aspx

South Australian Resource Information Gateway (SARIG) (2018) 1:100,000 Florieton sheet and geoscientific and geospatial data accessed at: http://minerals.statedevelopment.sa.gov.au/online_tools/free_data_delivery_and_publication_downloads/sarig

World Resources Institute (2018) *These 20 Water-Stressed Countries Have the Most Solar and Wind Potential*

APPENDIX 1

Regulatory Endorsement

1.1 Department of Energy and Mining's S131 Endorsement

1.2 Office of Technical Regulator Certificate

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APPENDIX 2

Certificates of Title

APPENDIX 3

Indicative Project Layout

APPENDIX 4

P&D Code Assessment

APPENDIX 5

Visual Impact Assessment

APPENDIX 6

Transport Impact Assessment

APPENDIX 7

Glint & Glare Assessment