VISUAL IMPACT ASSESSMENT

Prepared for Robertstown East Solar

Prepared by EPS Energy

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QUALITY ASSURANCE AND DECLARATION

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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.*	
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1. INTRODUCTION

EPS Energy prepared this Visual Impact Assessment (VIA) for the Robertstown East Solar Photovoltaic Energy Generation System (PVS) of approximately 300MW (AC) generation capacity that will feed into the National Electricity Market via ElectraNet's Robertstown Substation. The PVS element and associated infrastructure together are "the Project".

The Project land currently supports grazing and cropping agricultural activities, consistent with the surrounding land use. Various forms of existing infrastructure are present within the Project area including SA Power Networks (SAPN) and ElectraNet's Robertstown and Bundey Substations, and numerous high voltage transmission lines surrounding the Project land.

The Project land is zoned Rural under the Planning & Design Code (P&D Code). The P&D code provisions contemplates that Renewable Energy Projects such as Robertstown East Solar will be established in the Goyder Council area on land within the Rural Zone subject to implementation of management techniques set out in the P&D Code.

Due to site constraints realised from pre-construction investigation works, post development approval on the Robertstown Solar project site, located to the west of Robertstown East Solar, approximately 200MW of PVS solar generation is 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 project 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 East Solar" and is presented as a new development application.

This VIA has been prepared to support the new development application for the Project. The intent of this VIA is to provide an assessment of 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 construction and operational phases. EPS Energy understands that the assessment of visual impact is subjective, and the individual consideration of visual and landscape effects and the significance of these effects may differ between receptors depending on personal values attached to the landscape.

1.1. OBJECTIVES

The objectives of this VIA are to:

- Identify and analyse the landscape character within and around the surrounding Project area;
- Identify and assess potential visual receptors and viewpoints from which the Project may have a visual effect, within the Visual Catchment;
- Assess the visual significance of the viewpoints and the sensitivity of the potential visual receptors;
- Assess the suitability of the Project within its location; and
- Recommend mitigation measures where appropriate.

1.2. KEY TERMS

Key terms used throughout this VIA are defined in Table 1-1 below:

Table 1-1: Key Terms

Term	Definition
Background	Defined by exceeding the extent of the Visual Catchment and/or features and elements in the horizon.
Effect	The landscape or visual outcome of a proposed change. It may be the combined result of sensitivity together with the magnitude of the change.
Foreground	Within 100m of the Visual Catchment where details are easily discernible and/or occupy a large proportion of the field of view.
Impact	The effect of a proposal, which can be adverse or beneficial, when measured against an existing condition.
Landscape Values	The relative value that is attached to different landscapes by present or future generations. Landscape values may include biodiversity, geo-diversity, historic, and aesthetic values, as well as more personal values such as a person's associations, memories, knowledge or experiences of that landscape.
Landscape Character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Effect	A change to landscape values because of development, which can be either positive or negative.
Landscape Receptors	Defined aspects of the landscape resource that have the potential to be affected by a proposal.
Midground	Within the 1-2km Visual Catchment, where details are less distinguishable, but the features occupy a moderate proportion of the field of view.
Perception	Combines the sensory (that we receive through our senses) with the cognitive (our knowledge and understanding gained from many sources and experiences).

Term	Definition
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor.
Significance	A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.
Surrounding Area	Those areas outside the Project area that have been identified as relevant for investigation of landscape values and potential effects.
View	Any sight, prospect or field of vision as seen from a place, and may be wide or narrow, partial or full, pleasant or unattractive, distinctive or nondescript, and may include background, midground and/or foreground elements or features.
Visual Amenity	The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area.
Visual Catchment	Areas visible from a combination of locations within a defined setting (may be modelled or field-validated).
Visual Effect	Effects on specific views and on the general visual amenity experienced by people.
Visual Receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Visual Significance	Used in this instance to describe the weighting that is given to the relative importance of identified landscape values. The landscape values of an area likely to be significant are those that help understand the past, enrich the present, and which will be of value to future generations.
Zone of Theoretical Visibility (ZTV)	A map, usually digitally produced, showing areas of land within which, a development is theoretically visible. The ZTV does not account for any vegetation or built environment. Therefore, the actual view of the project is likely to be less than indicated on the ZTV plan.
(Landscape Institute and IEMA, 2013; Australian Institution of Landscape Architects, 2018; Roads and Maritime Services, 2013)	

2. METHODOLOGY

The Project's potential visual impact on the landscape and visual receptors is derived from changes in the landscape, its character and how this is experienced. Effects may arise at different scales (local, regional and national) and have different levels of significance (high, moderate and low) depending on the sensitivity of the visual receptors and the magnitude of change. Changes to the landscape are more than visual and include a range of physical and perceptual factors. Determining the overall visual impact therefore requires a combination of qualitative and quantitative assessment measures and acknowledgement of limitations.

2.1. ASSESSMENT FRAMEWORK & CRITERIA

Specific guidelines for assessing the visual impact of utility-scale solar projects in South Australia are unavailable. This is a recognised limitation to this VIA. To mitigate this, the methodology used throughout this VIA is based on several existing national and international landscape and VIA guidelines. These resources are consistently used for VIAs across Australia, in place of available specific guidelines, and are generally considered industry standard and appropriate. The key resources this methodology is based on includes:

- *Guidelines for Landscape and Visual Impact Assessment* (Landscape Institute and Institute of Environmental Management & Assessment (IEMA), 2013);
- *Guidance Note for Landscape and Visual Assessment* (Australian Institute of Landscape Architects (AILA), 2018);
- *Environmental Impact Assessment Practice Note: Guidelines for Landscape Character and Visual Impact Assessment* (Roads and Maritime Services (RMS), 2013); and
- *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design* (Department for Planning and Infrastructure, 2007).

Further to the above-mentioned resources, the P&D Code performance, and desired outcomes for visual impacts of a renewable energy facility are also considered as part of this methodology.

The methodology, and therefore the subsequent Sections of this VIA, follows the process outlined in Figure 2-1 below.

Report Section	VIA Process
Section 3	**1.** Describe and assess the existing landscape character: • Landform/topography, vegetation, water form, land use, texture and colour; • Condition (physical state); • Settlement pattern (farms, towns, cities); • Rarity/ significance/ sensitivity; and • Desired character.
Section 4	**2.** Describe the proposed development: • Project area particulars; • Siting (within the landscape context); • Technical summary; • Layout; and • Key visual components during the Project's life.
Section 5	**3.** Identify and assess potential effects on landscape and visual receptors: • Change to elements, features or character; • Magnitude of effects (size and scale, exposure, geographical extent, duration and reversibility); • Sensitivity of receptors; • Significance of effects; and • Cumulative visual effects.
Section 6	**4.** Identify measures to mitigate adverse effects: • Primary measures (integrated into the Project design); • Standard construction and operational management practices
Section 7	**5.** Identify and categorise residual impacts i.e. with mitigation measures incorporated into the proposed conditions (if required).

Feedback and refine design (if required)

Figure 2-1: Visual Impact Assessment Process and Report Structure

2.1.1. Landscape Character Assessment Criteria

Landscape character is determined by the way the physical, natural and cultural components within a landscape interact, which together create a distinctive area, or character (Landscape Institute & IEMA, 2013). Although some of these components are relatively objective and can be assessed against a standardised set of criteria, landscape character is also defined by aesthetic, perceptual and experiential aspects (landscape values), which are subjective, and based on personal associations and opinions which vary between individuals.

This is a recognised limitation affecting many components of this VIA. To mitigate the subjectivity concerning perceptions and values, this VIA utilises commonly accepted landscape characteristics for various landscape characters that are generally preferred and valued. These will underpin the landscape character assessment criteria outlined in Table 2-1 as well as other assessments throughout this VIA.

It is noted that preferences and values will also differ depending on the context of the landscape (i.e. urban, rural, natural) (Landscape Institute and IEMA, 2013; Department for Planning and Infrastructure, 2007). To ensure the criteria is appropriate to the local context in which the Project is proposed to be located, the general planning designation (i.e. land zoning) has been used as the indicator to the general landscape type.

Table 2-1 includes the most and least preferred (generally) landscape characteristics indicated by the literature specifically regarding rural landscapes.

The P&D Code envision renewable energy facilities in a Rural zone in the form of solar farms and ancillary developments such as substations, maintenance sheds, access roads and connecting power-lines. The P&D Code notes that these facilities need to be in areas where they can take advantage of the natural resource upon which they rely.

The P&D Code also sets out that, subject to the implementation of management techniques renewable energy facilities visual impacts are to be accepted in pursuit of benefits derived from increased generation of renewable energy.

Nonetheless, this VIA provides a comprehensive assessment of the potential landscape and visual effects in accordance with the process outlined in Figure 2-1 above. Accordingly, once the existing landscape character has been identified, this will be reviewed alongside the description of the Project to identify the potential landscape and visual receptors and effects. The method for identifying and assessing these are outlined in Section 2.1.2.

Table 2-1: Landscape Character Assessment Criteria

Landscape Characteristic	Higher preference/value	Lower preference/value
Landform/ topography	• Topographic variety and ruggedness • Significant landscape features (trees, tree stands, historic relics, windmills)	• Uniform or flat with little to no vertical relief • Absence of landscape features • Eroded areas • Unmanaged roads and access tracks
Landcover/ vegetation	• Areas or sites frequently prone to ephemeral features (presence of fauna, distinctive crop rotations, water conditions and climatic conditions) • Distinctive remnant vegetation located along stream sides, roadsides and in paddocks	• Areas of soil salinity/salt scalds or dead, dying or diseased vegetation • Areas of extensive weed infestation • Recently harvested areas (stumps, debris, abandoned off-cuts)
Water form	• Presence of water bodies (dams, lakes, inundated areas)	• Absence of or eutrophic water bodies
Land use	• Gradual transition zones between agricultural land and natural landscape • Historic features and land use patterns that strengthen local rural character (historic farm machinery, old shearing sheds, windmills and historic buildings) • Well maintained buildings and/or structures that support the rural character (including building materials/finishes)	• Tips, dumps and landfill areas • Land use areas that contrast significantly from local rural landscape characteristics (plantations, mines, housing, utility towers, roads and fencing) • Abandoned structures (including farm structures) in a state of disrepair or destruction
Texture and colour	• Diverse colour and contrast or species diversity of cropping • Agricultural patterns, colours and textures that complement natural features	• Lack of diversity in colour and texture • Difficult to distinguish details in the midground • No discernible focal points on the horizon
Settlement pattern	• Scattered settlement pattern and individual structures (silos, windmills, water tanks, historic buildings, bridges, hay bales and dams) • Large allotments	• Concentrated settlements with uncharacteristic structures (industrial structures; modern housing) • Subdivided allotments
Rarity	• Presence of rare elements or features in the landscape or presence of a rare landscape character type	• Common elements or features within the region
(Landscape Institute & IEMA, 2013, Department for Planning and Infrastructure, 2007; AILA, 2018; RMS, 2013; Government of South Australia, 2024 P&D Code).		

2.1.2. Landscape and Visual Effects Assessment Criteria

The overall visual impact of a proposed development is determined by combining the separate assessments of landscape and visual effects as perceived by receptors. Landscape effects are changes within or to the landscape because of interactions between a proposed development and elements within the landscape or the landscape character itself (landscape receptors), while visual effects are the changes of views or visual amenity of the landscape as perceived by people (visual receptors) (Landscape Institute & IEMA, 2013).

As discussed in Section 2.1.1, the significance of landscape and visual effects are also perceived differently by individuals based on personal preferences and values associated to the landscape and views. As with landscape character, these values and the perceived significance of changes can be difficult to quantify and is a recognised limitation of this VIA. In accordance with the landscape character assessment, the landscape and visual effects assessment will also utilise the preferred and valued landscape characteristics identified in the literature (Table 2-1) when assessing value-based criteria. The remaining criteria used in the landscape and visual effects assessment are outlined in Table 2-2 along with specifications of the category scale (high, moderate, and low) used for measuring each criterion.

It is recognised that relationships can exist between criteria (i.e. the size and scale, distance and visibility of the effect all influence the susceptibility of the receptor) and must be considered concurrently when determining the most appropriate category scale for the effect being assessed. Similarly, some of the specifications of category scales for landscape and visual effects can overlap (i.e. the defined measurable distance in metres or kilometres between an effect and the receptor), while others are specific to either landscape or visual effects (i.e. a change to a view does not consequentially change the overall landscape character). These distinctions are clearly defined in Table 2-2 to ensure transparency in the assessment, as far as practicable. Any necessary explanation of influences between criteria will be discussed in Section 5.

Although the criteria for assessing landscape and visual effects can differ, the process is inherently the same; using the predetermined landscape character alongside the description of a proposed development to identify potential receptors and effects. Subsequently, assessing each effect against the established criteria to determine the ***sensitivity*** of the receptor and the ***magnitude*** of the effect. This is an iterative process that is undertaken for each effect and is depicted in Table 2-2 below. Finally, the sensitivity of the receptors and the magnitude of the effects are successively combined to determine the overall ***significance*** of the effect, depicted in Table 2-3.

Although considerable efforts have been made to avoid subjectivity within this assessment process, it is important to note that a level of professional judgement must still be utilised (Landscape Institute & IEMA, 2013). For example, a receptor may collectively score a “Moderate” level of sensitivity and a “Moderate” level for the magnitude of the effect, which according to Table 2-3 should result in an overall “Moderate” significance of the effect. However, if the constructed Project is not visible or does not change the view from the receptor, logical reasoning should indicate a “Low” or negligible significance of the effect as there is no change to the landscape in this instance. Where this professional judgement has been employed it is clearly disclosed during the associated assessment.

Table 2-2: Category Scale to Assess Landscape and Visual Effect Criteria

(Landscape Institute & IEMA, 2013)

Criteria	High	Moderate	Low
Sensitivity of Receptors			
Susceptibility			
Landscape effect	The degree to which the landscape may accommodate the Project would potentially result in several perceived uncharacteristic and significant changes.	The degree to which the landscape may accommodate the Project would potentially result in the introduction of prominent elements but may be accommodated to some degree.	The degree to which the landscape may accommodate the Project would not significantly alter existing landscape character.
Visual effect	Residents at home in high proximity and visibility to the Project; visitors to heritage assets or other areas where the views are an important factor to the experience (i.e. lookouts).	People engaged in activities whose attention is likely to be focused on the landscape and on views (i.e. scouts/camping groups); people at their place of work whose attention is not focused on their surroundings and where the setting is not important to the quality of working life.	Pedestrians and motorists that would typically have less vested interest and emotional connection to the landscape i.e. view the Project infrequently, intermittently and/or over a short timeframe.
Value ***(also refer to Table 2-1)**			
Landscape effect	The effect may compromise the specific basis for the value attached to the landscape, for example if the landscape character is valued on an international, national or local scale (i.e. World Heritage Sites, National Parks).	The effect does not compromise the specific basis for the value attached to the landscape.	The existing landscape characteristics are not considered to be generally preferred or valued and therefore the effect does not negatively affect the value attached to the landscape.
Visual effect	The view appears in guidebooks or on tourist maps, there is a provision of facilities for visitor's enjoyment of the view (i.e. parking places, sign boards and interpretive material); or the local planning designations	The effect does not compromise the specific basis for the value attached to the view.	The view is not considered to be generally preferred or valued and therefore the effect does not negatively affect the value attached to the view.

Criteria	High	Moderate	Low
	restrict the introduction of effects that compromise the value of a particular view.		
Magnitude of Effects			
Size and scale			
Landscape effect	The Project may adversely impact key characteristics of the landscape character that may result in major alterations to perceived characteristics of the landscape character.	Some characteristics of the landscape character may be altered by the Project, although the landscape has the capability to absorb these changes without compromising the overall landscape character.	The characteristics of the landscape character are generally robust (evidenced by the existence of artificial elements) and would be minimally affected by the Project.
Visual effect	Large proportion of the view occupied by the Project; high degree of contrast or integration of new features/ changes in terms of form, scale and mass, height, colour and texture.	Some change to the view due to loss of existing features and addition of new features in the view without significant change in its composition.	No obvious change to the view due to loss of existing features or addition of new features.
Frequency of use			
Landscape effect	Frequently visited or populated areas often used for appreciating the view of the landscape for prolonged periods of time (e.g. residences, lookouts, townships).	Less visited areas with intermittent visitation (e.g. major/secondary roads) with partial visibility from the receptor (i.e. unobstructed features of the Project from a vehicle while passing within the Visual Catchment of the Project).	Infrequent visitation; brief glimpses of the Project not in the direct line of sight. (e.g. secondary/local roads, screened visibility).
Visual effect	As above.	As above.	As above.
Distance/ Geographical extent			
Landscape effect	The Project is a very prominent element in the view from the receptor (i.e. in the foreground) in the receptor's direct line of sight.	The Project is a noticeable element in the view from the receptor (i.e. in the midground or within the 1-2km Visual Catchment) but not in the direct line of sight.	The Project is difficult to distinguish from the receptor (i.e. in the background or beyond the 2km Visual Catchment) not in the direct line of sight.

Criteria	High	Moderate	Low
Visual effect	As above.	As above.	As above.
Duration			
Landscape effect	The effect is a permanent feature or lasting over a generation (excess of 30 years).	The effect is a temporary but lasting a significant period of time (i.e. 5 to 30 years).	The effect is temporary lasting a short period of time (i.e. less than 5 years).
Visual effect	As above.	As above.	As above.
Reversibility			
Landscape effect	The effect has irreversible changes to the landscape character or view.	The effect is reversible but may result in some lasting changes to the Landscape character or view.	The effect is reversible, and the landscape or view can be returned to the state prior to introduction of the effect.
Visual effect	As above.	As above.	As above.

Table 2-3: Matrix of Significance of Effects

(Landscape Institute & IEMA, 2002)

		Magnitude of Effects		
		High	**Moderate**	**Low**
Sensitivity of Receptors	**High**	High Significance	High-Moderate Significance	Moderate Significance
	Moderate	High-Moderate Significance	Moderate Significance	Moderate-Low Significance
	Low	Moderate Significance	Moderate-Low Significance	Low Significance

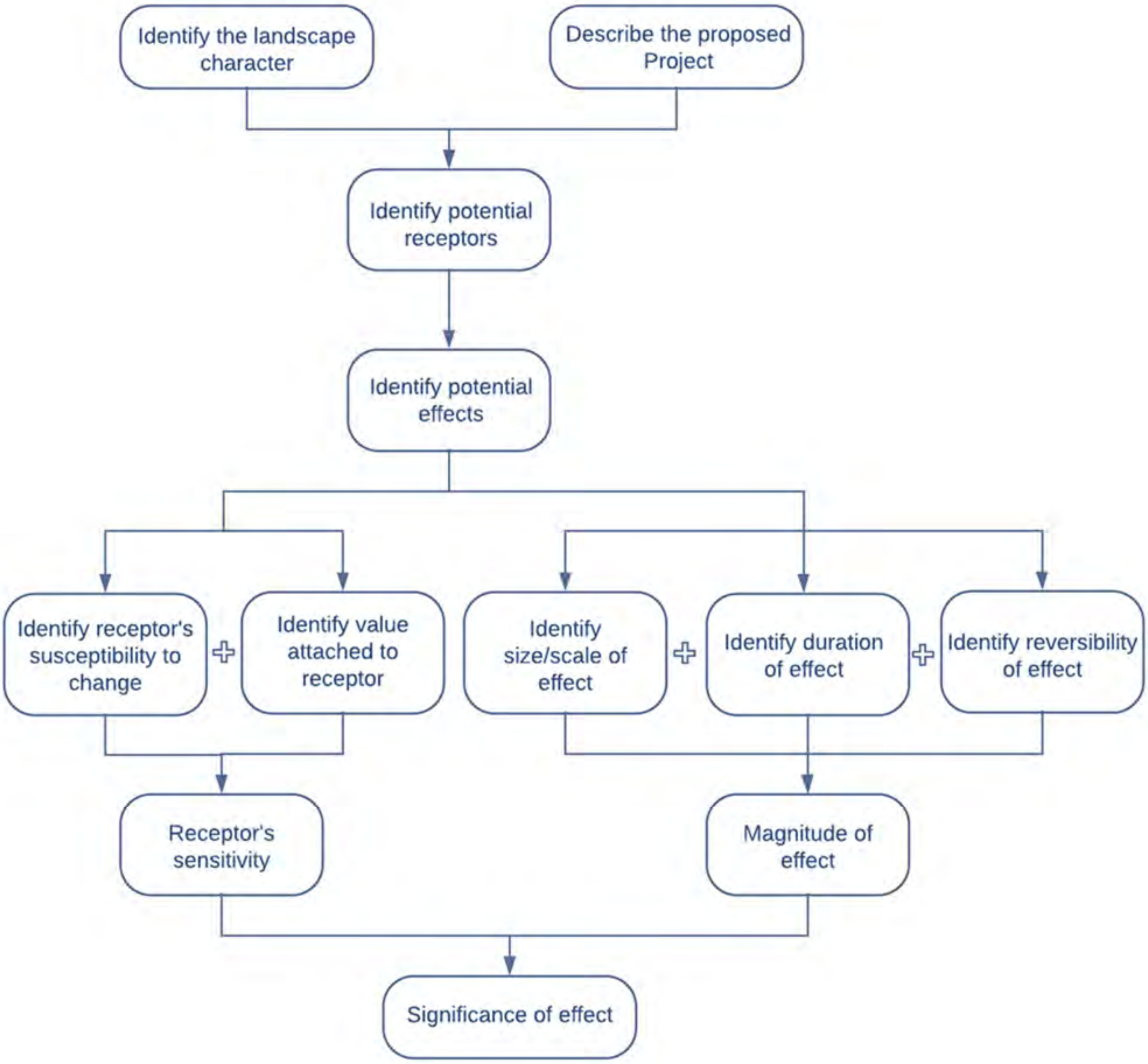

Figure 2-2: Processing for Assessing Landscape and Visual Effects
(*Landscape Institute & IEMA, 2013*)

2.2. SCOPE OF VIA

In defining the scope of this VIA, a one (1) km and two (2) km varied distance buffer of the Project area was created using Geographical Information System (GIS) technology. These buffers are referred to as Visual Catchments throughout this VIA and are used to define the extent of the assessments on both the landscape character and the landscape and visual receptors/effects.

2.3. DATA COLLECTION

The following specific data has been collected and relied upon for this VIA:

- Photographs and associated data provided/sourced by EPS Energy;
- Preliminary concept plans of the Project;
- Survey data including contours of the existing site;
- Topographic maps and aerial photographs;
- Computer-generated (GIS) areas of theoretical visibility; and
- Other investigations undertaken for the Project, including a glint and glare assessment, and heritage and environmental studies.

In preparing this VIA, key EPS Energy personnel attended the Project land on three (3) separate occasions to photograph and record the existing landscape, liaise with relevant landowners, and collect other data pertinent to the VIA. Data collected on the following dates has been included in this VIA:

- 23-24 Nov 2022;
- 10-11 May 2023; and
- 7 May 2024.

2.4. RENEWABLE ENERGY AND LANDSCAPE CHARACTER

Landscapes are an important consideration because of the value that individuals, communities and public bodies attach to them. Landscapes are a shared resource for the public good. Certain landscapes also provide economic benefits, either directly such as through agriculture or indirectly through health and wellbeing improvements.

Landscapes are not static but continue to evolve and change with communities. Landscape changes are driven by changing requirements for development to meet the needs of a growing population and economy. This includes new forms of energy generation, such as renewable energy.

Emerging modern perspectives are placing increasing emphasis on the importance of sustainable development. Sustainable development is development which can meet the needs of the present generation without compromising the ability of future generations to meet their own needs. A key component of sustainable development is that this type of development balances economic, social and environmental matters. Sustainable developments do not rely upon depleting limited or finite resources. Renewable energy is an example of a type of sustainable development, compared with traditional energy-generation methods. In considering our shift towards more sustainable developments, authorities must balance big-picture policy considerations against small-scale local impacts, including visual impacts.

2.4.1. Australian Context

As a signatory to the Paris Agreement, Australia has international obligations in response to climate change to reduce greenhouse gas emissions. Australia's goal is to reduce emissions by 26-28 per cent below 2005 levels by 2030. To meet this goal, Australia has set a Renewable Energy Target aiming towards 82 per cent of Australia's electricity to be from renewable sources by 2030. This target sees energy production move away from the development of traditional fossil fuels, to low carbon technologies. Whilst traditional fossil fuel energy sources tended to be large and centralised, renewable energy technologies are available at different scales with different distribution models. Renewable energy developments can produce energy close to the point of use, with different ownership models that depend upon the scale of the development.

The transition to renewable energies will have a profound shift on our landscapes, places, communities and economies. Renewable energies offer an opportunity to consider how these new technologies will best fit into our existing environment. A potential challenge for new renewable energy developments is the competition for land use with existing land uses. A balance needs to be struck against the production of both food and energy. Treasured landscapes, unique biodiversity and valuable heritage assets need to be respected and preserved. Site selection for renewable energy developments presents a unique challenge to minimise impacts on existing environments, with the opportunity to create positive change in communities with untapped potential.

Appropriate site selection is vital to the success or failure of any renewable energy project, including solar farms. Availability of solar resources, land use for both the site and the surrounding area, environmental constraints of the site, community attitudes towards the development and the ability to provide unconstrained energy into the electrical grid are all important considerations for any solar energy project. Examples of existing renewable energy infrastructure throughout Australia is shown in Figure 2-3.

Figure 2-3: Existing Renewable Infrastructure in Australia

2.4.2. South Australian Context

Investment in solar energy projects has been rapidly increasing in recent years throughout South Australia. South Australia is currently on track to have 100% of its electricity generated from renewable sources by 2030. SA Department for Energy and Mining is committed to facilitating investment into renewable energy and energy storage projects to meet the state's future energy needs as well as Australia's Paris climate emission agreements. South Australia is a world leader in renewable energy production, with the state currently undergoing a renewable energy boom. South Australia is home to several of Australia's largest Lithium-Ion Batteries and is the leading producer of wind power in Australia.

The impact of this rapid uptake of renewable energy projects results in an ever-changing landscape to accommodate this infrastructure. Despite the fast-paced changing landscape, adequate consideration of appropriate bulk and scale within the existing landscape is an important consideration for renewable energy developers. Examples of existing renewable energy infrastructure in South Australia is shown in Figure 2-4.

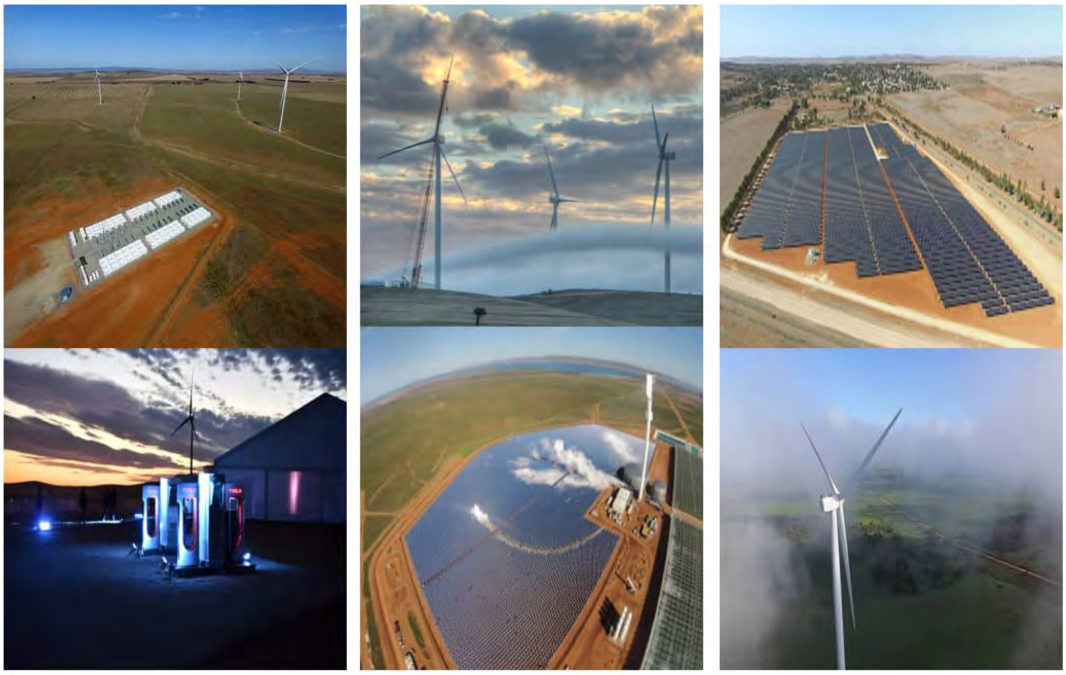

Figure 2-4: Existing Renewable Infrastructure in South Australia

2.4.3. Local Character

Local Character is what makes a neighbourhood distinct. Local Character contributes to the identity of an area, and is created by the landscape, both private and public places as well as natural and human elements. In considering the appropriateness of locating a proposed development, attention needs to be paid to the distinctive character of the area. An important component of this is how the community sees the insertion of specific development types, such as renewable energy developments, into their existing landscape.

The P&D Code is the on-ground development assessment document that sets out the rules about what can be done on any piece of land in the Regional Council of Goyder and the detailed criteria against which development applications will be assessed.

This P&D Code outlines the Desired Outcomes for the Rural Zone. Renewable energy facilities are envisioned for this zone in the form of solar farms and ancillary developments such as substations, maintenance sheds, access roads and connecting power-lines. The P&D Code indicates these renewable energy facilities need to be in areas where they can take advantage of the natural resource upon which they rely.

The P&D Code acknowledges that it is difficult to mitigate the visual impacts of solar farms to the degree expected of other types of development due to the large scale of these facilities.

Appropriate solar farm locations include sites with the opportunity for harvesting of the sun and efficient generation of electricity and therefore these types of developments can be visible in appropriate solar farm locations. The P&D Code Desired Outcomes for Rural zones and renewable energy facilities such as solar farms indicate that, subject to the implementation of management techniques visual impacts are to be accepted in pursuit of benefits derived from increased generation of renewable energy.

One of the key design elements in determining whether a development proposal is in accordance with the Desired Character of a landscape, is considering the visual impact on the character of a landscape. The visual impact on the character of rural landscapes is considered in the section below.

2.4.4. Visual Impact on Rural Landscapes

Rural environments have historically been the preferred location for large electrical infrastructure. Electrical infrastructure, including substations and transmission lines are already prevalent in rural landscapes across Australia. Examples of electrical infrastructure in rural Australian landscapes are shown in Figure 2-5.

Figure 2-5: Existing Electrical Infrastructure in Australia

Rural landscapes are the preferred landscape type for the development of new electrical infrastructure, including renewable energy developments for several reasons including:

- **Proximity to Electrical Infrastructure** - Rural land use is typically the land use surrounding existing electrical infrastructure. Proximity to substations and 275kV transmission lines are key requirements for utility-scale solar projects;
- **Large Land Areas** - Rural land offers large areas which can satisfy the requirements for economically viable renewable energy projects. An area of about two hectares is required in order to generate 1MW of utility-scale solar, with projects typically requiring between 200-2,000 hectares of land;
- **Large Allotments and Land Tenure** - Rural landholdings typically have large allotments and land tenure, which ease project inception, as far less allotments are required than in urban environments;
- **Regional Economic Benefits** - New infrastructure in a regional area, including rural landscapes has the positive flow on effect of stimulating local business;
- **Income Diversification** - Co-benefits can be produced where agricultural land is used for renewable energy production, as rural landowners can diversify their income. Energy production offers an excellent alternative source of revenue where land is of variable productivity potential. Rural landowners can generate a passive income from renewable energy developments, which can be supplemented in some cases with co-location of agricultural activities; and
- **Fewer Receptors** - Rural landscapes typically have minimum receptors nearby, compared with urban environments. Rural areas are less built-up, meaning that the number of individuals to be exposed to a change in the visual landscape is far less than in an urban environment.

2.4.5. Character of the Project Area

The location of the Project is within a highly rural setting. The Project area and the surrounding land is currently used for agricultural purposes. However electrical infrastructure already forms part of the character of the Project area.

The Project area has existing surrounding electrical infrastructure. Robertstown Substation is located to the south of the Project area, on the opposite side of Lower Bright Road. Transmission lines (both 132kV, 275kV and 330kV) as well as their associated easements surround the Project area. Bundey Substation and Project Energy Connect are under construction to the north of the Project along Powerline Road. The existing electrical infrastructure around the Project area is shown in Figure 2-6. The visual impact of the existing electrical infrastructure is important contextually for considering both the existing character of the Project area, and how the Project is likely to impact upon the visual landscape of the local area.

Figure 2-6: Existing Electrical Infrastructure Around the Project Area

2.4.6. Visual Interpretation of Utility-Scale Solar

Utility scale solar projects share similar visual characteristics to existing rural landscapes. This is important in understanding how solar projects are visually interpreted in their contexts. The following section examines the comparison between the proposed indicative technology of the Project to examples of agricultural uses and rural infrastructure.

The technology currently proposed for the Project is a single axis tracking system with an approximate 4 to 10m separation between rows, with ancillary infrastructure such as inverters and a switching yard. The modules will generally be aligned on the tracking system in a north/south row and rotate in position from east to west.

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.

Generally, however, the configuration will demonstrate lineal geometric repetition consistent with typical large-scale solar farms.

As shown below in Figure 2-7, Figure 2-8 and Figure 2-9 a project of this scale provides uniformity within rural landscapes, not dissimilar to the lineal patterns of vineyard or orchard rows, or the geometric form of monocultural fields.

Figure 2-7: Lineal Repetition of Vineyards and Solar Farm Panels

Figure 2-8: Comparison of Monoculture to the Geometric Landscape of Solar Farms

Figure 2-9: Viewpoints Articulating the Repetition and Lineal Sight Lines

3. LANDSCAPE CHARACTER

The scope of this assessment of landscape character includes the identification of Landscape Character Zones and description of the general landscape characteristics of the Project land and surrounding area within the 2km Visual Catchment.

3.1. PROJECT LOCATION

The Project land is approximately 630 ha and is shown on the location plan in Figure 3-1.

The Project land is located in the district of Geranium Plains, approximately ten (10) km northeast of Robertstown and 125 km north of Adelaide. The Project land is within the Local Government Area of the Regional Council of Goyder.

The Project area incorporates the Project land on which the PVS, switchyard/substation and potentially operations and maintenance buildings and associated infrastructure will be built and operated.

The following features characterise the Project area and are described further in Section 3.2.

- Adjacent to the Robertstown Solar project and near Robertstown & Bundey Substations;
- Bound by Powerline Road (north), Lower Bright Road (intersects through the site), Junction Road (west) Sutherlands Road (east) and Pipeline Road (south), all of which are unsealed and predominately used for local traffic movement;
- 132kV and 275kV transmission lines and associated easements surrounding the Project area;
- Rudimentary wire fencing;
- Mostly cleared, relatively flat land that has been heavily used for grazing and cropping with tree vegetated areas screening both boundaries and internal areas of the Project area; and
- Disused and/or decrepit residential buildings, most of which are essentially debris.

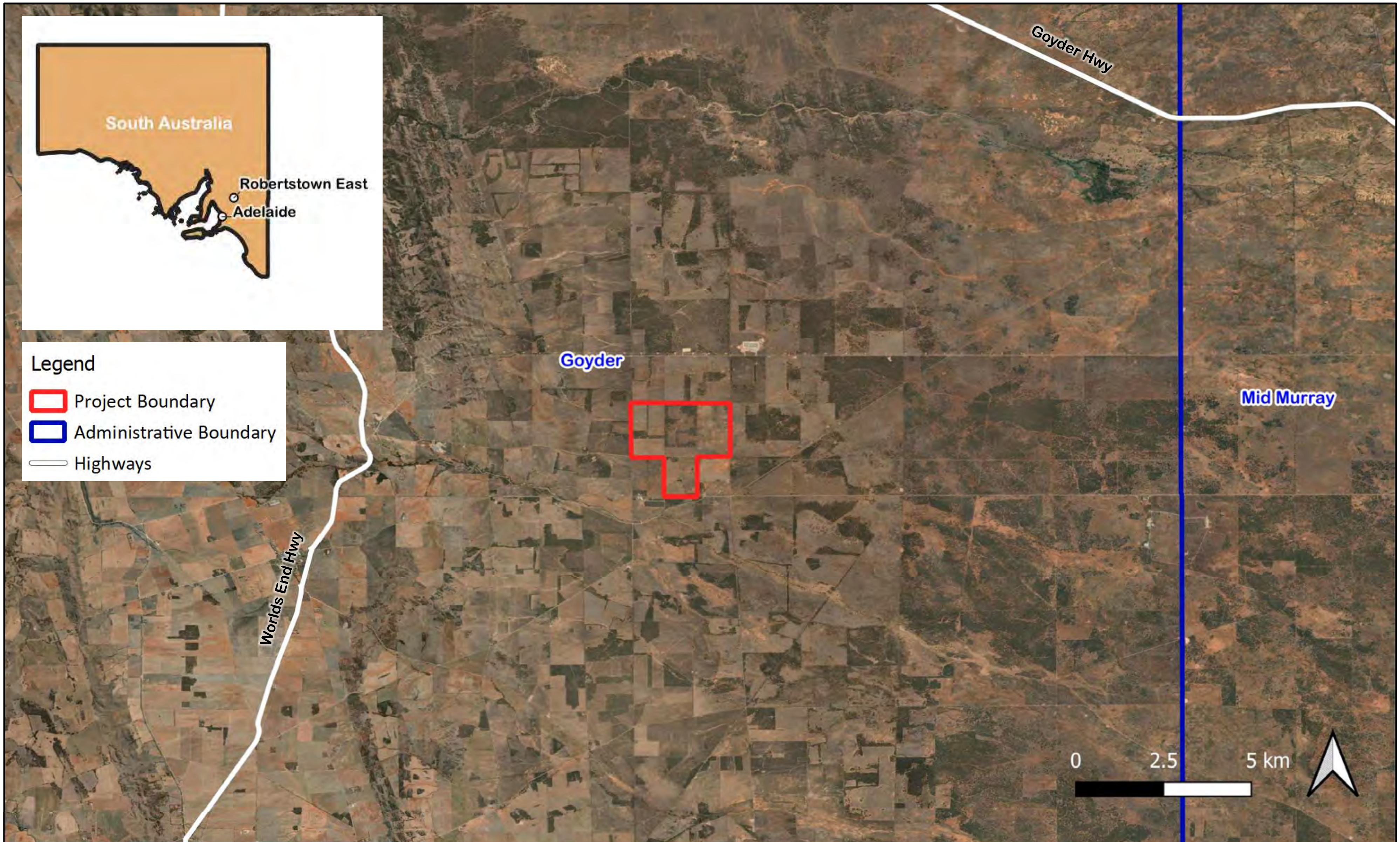

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Figure 3-1

Robertstown East
Solar Site Location

Robertstown East Solar | Geranium Plains South Australia

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

3.2. LANDSCAPE DESCRIPTION

There are no distinct Landscape Character Zones within the 2km Visual Catchment. The predominant landscape character is almost exclusively rural, details of which are described below.

As described in Section 2, once the existing landscape character has been identified, this will be reviewed alongside the description of the Project to identify the potential landscape and visual receptors and effects.

3.2.1. Landform/topography

The Project land and surrounding landscape is characterised as mostly flat land (Figure 3-2, Figure 3-3 and Figure 3-4). The land is approximately 330m above sea level with a slight gradient downwards to the southeast.

The surrounding landscape within the 2km Visual Catchment, and extending beyond by approximately 15km, is dominated by agricultural uses and is within the Rural zone category pursuant to the D&P Code.

There are little to no natural landscape features aside from vegetation (discussed in Section 3.2.2) evident within the 2km Visual Catchment, however a number of artificial features are dominant and discussed in Section 3.2.4.

Figure 3-2: Viewpoint 1 - Looking South-east
Flat terrain with low contrast and scattered vegetation screening within and around project area.

Figure 3-3: Viewpoint 1 - Looking North-east
Drone view at 100m of level terrain and vegetation stands within project area.

Figure 3-4: Viewpoint 7 – Infrastructure Adjacent to Project
SA Water Pump Station, substation and 0.7MW solar array (Solar array is difficult to observe due to flat topography).

3.2.2. Landcover/vegetation

The Project area and surrounding landscape consists of mostly cleared land due to historic cropping and grazing activities. There is native vegetation within the Project area including remnant stands of trees, scattered trees and tree clumps throughout (Figure 3-5 and Figure 3-6).

There is a mix of sparse-low density vegetation and areas of higher density vegetation screening along Powerline Road, Lower Bright Road (south) Junction Road (east) and Sutherlands Road.

Figure 3-5: Viewpoint 2 - Looking South

Drone view at 60m of scattered vegetation within and around the project area, with SA Water Pump Station and solar array in distance (top right corner of image)

Figure 3-6: Viewpoint 2 - Looking North

Drone view at 25m of vegetation stands typical of the project area and illustrating density of screening.

3.2.3. Water Form

The site is very flat with no recorded ephemeral water lines within the Project area (Figure 3-7).

Figure 3-7: Viewpoint 2 - Topography

Flat topography of Project Area and vegetated screening between open paddock areas with no discernible water lines.

3.2.4. Land Use

The Project area is mostly free from development and is primarily used for grazing and cropping agricultural activities. There are a small number of abandoned buildings in and around the Project area (Figure 3-8). The dominant agricultural land use in the surrounding area is consistent with that of the Project area.

The Robertstown Substation is located to the west of the Project area, on the southern side of Lower Bright Road, which is not partially visible from the Project area. Bundey Substation is located to the northeast of the site on Powerline Road. The associated transmission lines and towers form part of the landscape and influence the overall naturalness of the area (Figure 3-9 and Figure 3-10). Further, two large watermains and SA Water Pump Station and solar array (refer to Figure 3-4 and Figure 3-5) are located near the Project area and the pipes and transmission lines extend throughout the surrounding landscape.

Figure 3-8: Viewpoint 1 - Drone View at 60m of Abandoned Building Within Project Area

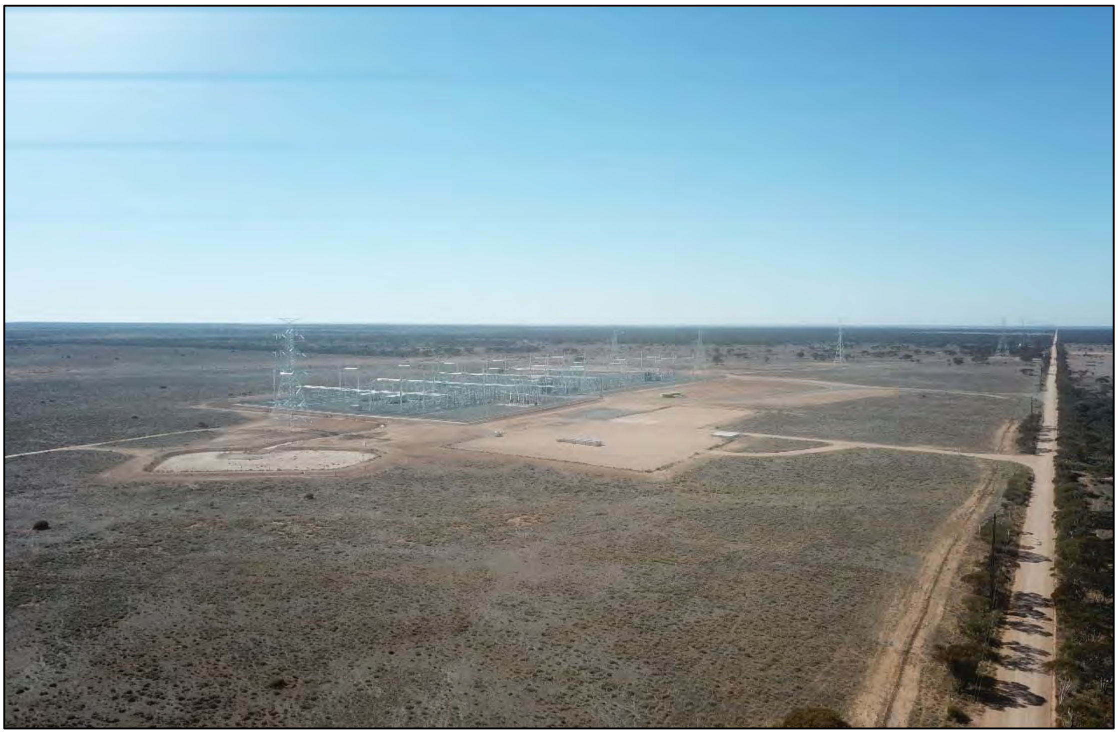

Figure 3-9: Viewpoint 4 - Drone View of Bundey Substation

60m of Bundey Substation and Energy Connect transmission towers.

Figure 3-10: Viewpoint 3 - Transmission Lines and Towers Within Project Area
(SA Water pump station in background).

3.2.5. Texture and Colour

There is little diversity or contrast in colour tones and texture due to levels and patterns of rainfall (Figure 3-11). The level horizon is a distinct feature in the background, and the vegetation stands being the discernible focal point between the Project area and the horizon.

Figure 3-11: Viewpoint 1 - Typical View of Terrain
Requires drone view at 15m to discern difference and view to horizon.

3.2.6. Settlement Pattern

The settlement pattern is spread across large rural allotments with very few scattered rural buildings. As stated, many of these buildings are abandoned.

3.2.7. Rarity

The Project area and the surrounding landscape do not contain any local, regional, national or internationally significant landscapes or elements.

The existing landscape elements within the Project area and surrounding landscape are common within the region and other rural landscapes.

4. ROBERTSTOWN EAST SOLAR PROJECT

4.1. PROJECT LAND PARTICULARS

The Project land and title particulars are detailed in Figure 4-1 below.

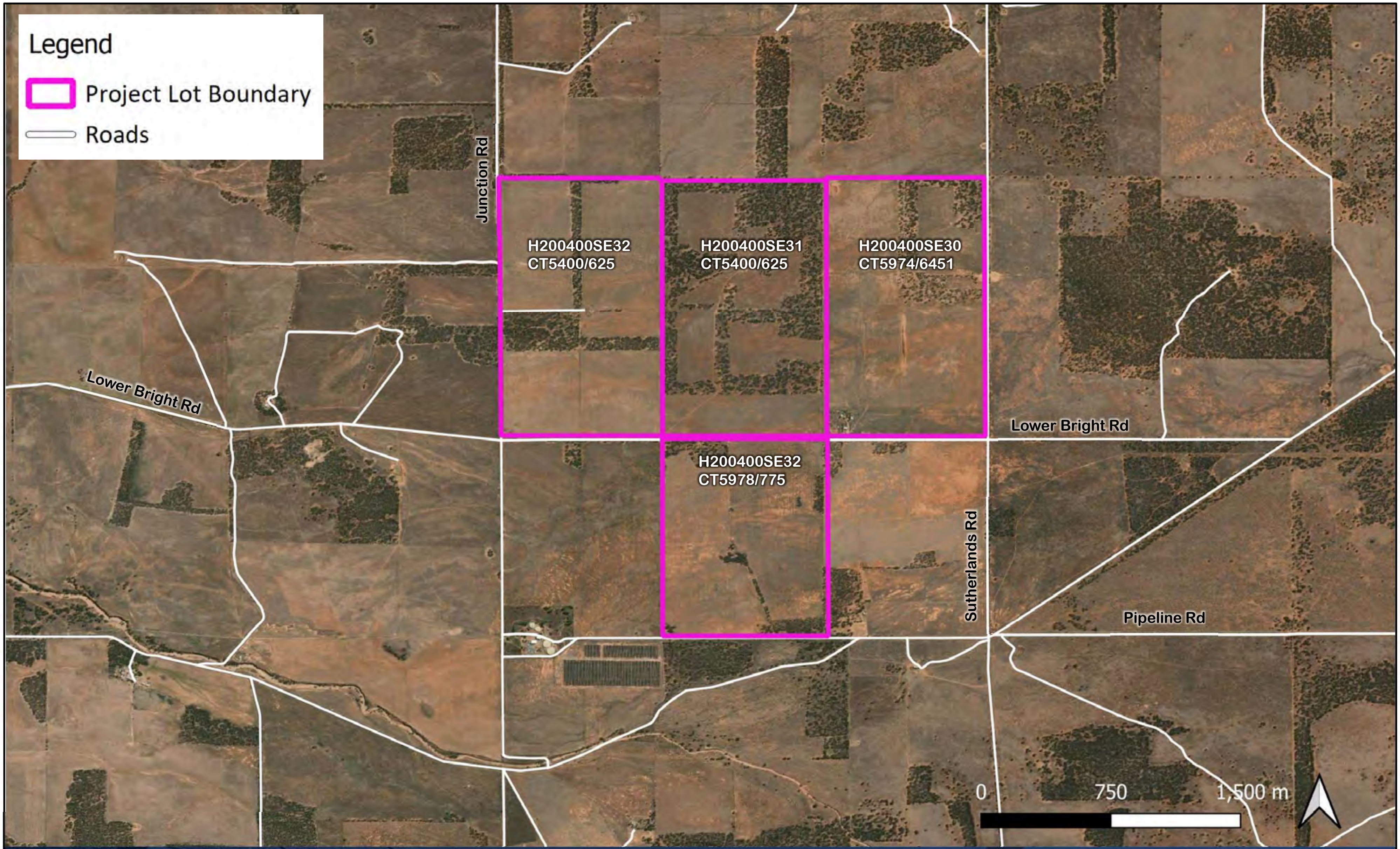

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Figure 4-1

Project Land Title Particulars

Robertstown East Solar | Geranium Plains South Australia

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

4.2. TECHNICAL DESCRIPTION

Robertstown East Solar is made up of a PVS element and associated infrastructure which together are “the Project”.

The Project will comprise of a series of mounted PV modules set out in arrays using a single axis tracking system. The arrays will be connected to inverters, a switchyard and potentially voltage step-up transformers. The Project will include an overhead or underground power transmission line from the switchyard to be connected to the Robertstown Solar Substation. The Project components includes, but is not limited to:

- A PVS of approximately 300MW (AC) generation capacity and associated infrastructure;
- Permanent operations components of the PVS element include (but are 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;
- Any synchronous condensers if included in the Project; and
- 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.

4.3. LAYOUT AND KEY VISUAL COMPONENTS

The indicative layout and indicative key visual components of the Project considered in this assessment include:

- Solar modules – mounted on single axis tracking racks;
  - Approximately 387,000 solar panels installed in rows orientated north;
  - Solar panels of approximately 2 x 1.2m mounted on steel frames approximately 3-4 metres above the ground; and
  - Panels are specifically designed to absorb light and should not produce any significant reflectivity or glare;
- Inverter stations (~3m high);
- Transformers;
- Switching substation; and
- One or more synchronous condensers (subject to requirement).

Typical examples of the proposed mounted solar panels are shown in Figure 4-2 below. Panels can tilt on one axis. There are wide distances between the rows of panels which provides for greater access during construction and operation and eliminates overshadowing from adjacent panels. Panels are attached to the racking in different formations, which can range from four panels to one panel and be orientated either landscape or portrait.

Figure 4-2: Examples of Typical Single-axis Tracking Solar Modules

Groups of solar panels are connected to an inverter, typically via 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. An example of a typical utility-scale inverter is shown in Figure 4-3 below.

Figure 4-3: Example of a Typical Utility-scale Inverter

Connection infrastructure includes:

- Associated underground cables connecting groups of solar panels to inverter stations and underground and/or overhead transmission lines from inverter stations to the Project's switching substation;
- A switching substation comprising typical electrical infrastructure to that which is found within the existing Robertstown Substation, depicted in Figure 4-4 below; and
- The switching substation will contain any synchronous condenser if required and will be fenced for safety and security purposes.

Figure 4-4: Examples of Transmission Substation Infrastructure

Administration and controls area including:

- Control room and site office with amenities (typical demountable style building);
- Maintenance and spare parts building;
- Other buildings;
- Car parking sufficient for employees and contractors during operation;
- Laydown/compound area and battery storage area; and
- Internal access roads.

Ancillary infrastructure includes:

- Drainage works, including stormwater management systems;
- Areas not to be developed e.g. native vegetation areas, heritage areas;
- Security fencing and CCTV will be installed;
- Low-level night time lighting; and
- Lightning protection.

Examples of indicative development components are shown below for a typical Office and Maintenance (O&M) buildings (Figure 4-5), a typical Switch Room (Figure 4-6), a typical Staff Room (Figure 4-7), how these buildings typically appear alongside each other (Figure 4-8), and security fencing (Figure 4-9).

Figure 4-5: Example of a Typical Office and Maintenance Building

Figure 4-6: Example of a Typical Switch Room

Figure 4-7: Example of a Typical Staff Room

Figure 4-8: Example of a Typical Switch Room Alongside an O&M Building

Figure 4-9: Indicative View of Security Fencing Surrounding a Solar Farm

From a distance of ~70m.

4.3.1. Construction and Decommissioning

The Project has three phases; construction, operation and decommission phases. Each phase is anticipated to have a varying degree of visual impact and duration. Each phase involves various activities, machinery, equipment and structures detailed below.

The key construction works required for 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;
- Installation of the battery system/technology and battery storage structures;
- Substation installation and electrical connection between solar panels and central inverters and switchyard/substation;
- Provision of other utility services (electricity, communications, etc.) as required;
- Overhead or underground electrical connections to the Robertstown Solar Substation;
- Installation of the remaining system components (including synchronous condensers if included);
- Landscaping (if required), fencing and signage; and
- Commissioning.

The operational period will run for approximately 30 years and includes:

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

During the decommissioning phase Project related infrastructure would be removed from the Project land, and the land restituted for its original use.

5. ASSESSMENT OF POTENTIAL RECEPTORS AND EFFECTS

The following assessment of potential effects is based primarily on the Photovoltaic (PV) array component of the Project and does not include an assessment of the ancillary structures (described in Section 4.3). This is primarily due to the horizontal spread of the PV array spanning a large area of the landscape, subsequently posing a higher potential for visual change to the landscape. Whereas the ancillary structures are common structures in the landscape (as described in Section 4.3). These structures are therefore not anticipated to pose a visual change requiring detailed assessment.

5.1. POTENTIAL LANDSCAPE RECEPTORS

Landscape receptors can include the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the landscape character itself (Landscape Institute & IEMA, 2013). As such, the landscape characteristics described in Section 3.2 are considered landscape receptors, as well as the identified rural landscape character.

As indicated in Section 2.1.2, this assessment will be guided by the most and least preferred characteristics identified in the literature (Table 2-1) and considered against the specifications of the assessment criteria detailed in Table 2-2. The category scales (high, moderate, low) are referred to with either H, M, L in the assessment of potential landscape effects in Table 5-1 below.

Table 5-1: Assessment of Landscape Effects

Landscape Receptor	Sensitivity of Receptor		Magnitude of effect					Description	Significance of Effect
	Susceptibility	Value	Size and scale	Frequency of use	Distance/ Geographical extent	Duration	Reversibility		
Landform/ topography	M	L	L	L	M	M	L	Although the Project will impact the landform, there will be no major impact on the topography of the land.	Moderate-Low
Landcover/ vegetation	L	L	L	L	L	L	L	Limited vegetation clearance will be undertaken as part of this Project.	Low
Water form	L	L	L	L	L	L	L	No water forms evident on the Project land or the surrounding landscape.	Low
Land use	M	L	M	L	M	M	L	Although the addition of the Project would be a noticeable change to the existing land use, the co-location of the Robertstown Solar project, Robertstown & Bundey Substations and the Project area render the proposed use of the Project land appropriate.	Moderate-Low
Texture and colour	M	L	M	L	M	M	L	The introduction of PV solar panels will introduce a new scale of colour and texture to the Project area; however, these textures and colours are commonplace in the landscape from machinery sheds, silos, storage sheds, etc.	Moderate-Low
Settlement pattern	M	L	M	L	M	M	L	The addition of the Project would be a noticeable change to the existing settlement pattern.	Moderate-Low

Landscape Receptor	Sensitivity of Receptor		Magnitude of effect					Description	Significance of Effect
	Susceptibility	Value	Size and scale	Frequency of use	Distance/ Geographical extent	Duration	Reversibility		
Rarity	L	L	L	L	L	L	L	No existing rare or unique elements were identified on the Project land or the surrounding landscape. Changes are negligible in this regard.	Low
Rural landscape character	L	L	L	L	L	M	L	Renewable energy developments are a type of desired outcome for the Rural Zone. Further, developments of this nature are not considered a significant change in rural landscapes, generally. Changes are negligible in this regard.	Low

5.2. VIEWSHED ANALYSIS

Viewshed analysis is a GIS tool used to identify the theoretical visibility of the Project within a defined study area. As stated, the results of the analysis are theoretical only and recognising the limitations of its use can assist with understanding the results of the analysis.

It is important to note that the Project in its entirety cannot be viewed from one single viewpoint.

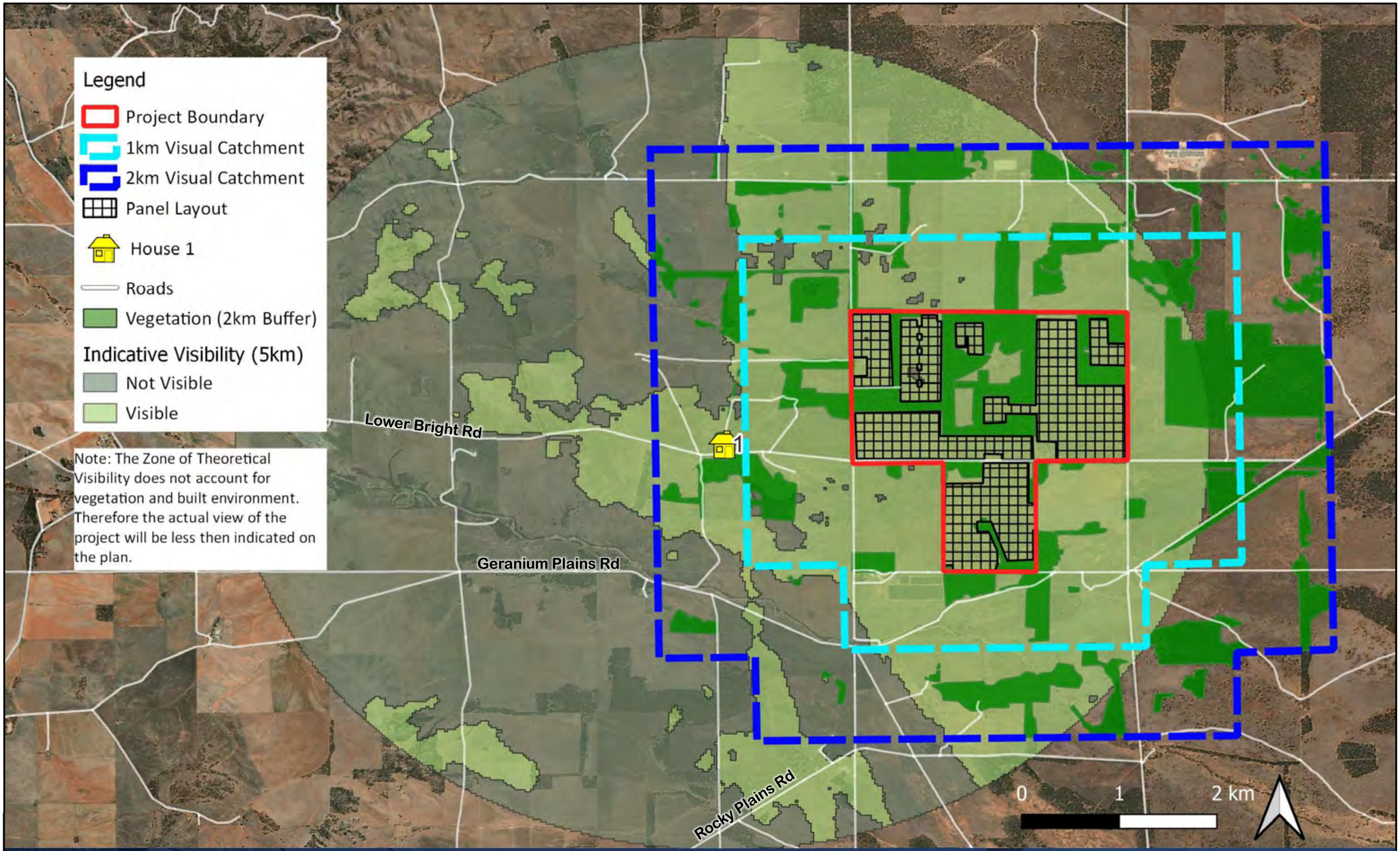
The viewshed analysis completed for this VIA (Figure 5-1: Zone of Theoretical Visibility) is based on digital elevation model (DEM) information derived from Geoscience Australia. This data has a resolution of approximately 30 metres, where 90% of tested elevations were within 6m of reference heights, and in flatter areas height errors are less than 3 metres (Gallant, et. al., 2011).

Although smoothing has been applied, and after vegetation removal random noise is still present. The noise typically alters elevations by 2 to 3 metres, but in some cases by as much as 10 metres (Gallant, et. al., 2011). Considering the Project area and surrounding area is mostly flat and partially vegetated the accuracy is considered to be manageable over a larger area.

It is not common practice to include other land use or topographical data when processing the viewshed, therefore the results do not account for features or "obstructions" (i.e. buildings/structures, vegetation, and ridgelines) that have potential screening abilities. Accordingly, false positives are a common occurrence. The earth curvature can also have an influence on screening potential, however given the size and scale of the Project in relation to the earth curvature this is not considered necessary to include in the viewshed.

Lastly, the heights of the viewer/receptors and the Project are also integral to the analysis. In this instance, the receptor height is set at 1.6 metres, which is considered an average persons' height, and the Project height is set at 4 metres, which is an indicative dimension of the maximum height of the PVS likely to be used for the Project.

It is also important to consider that a significant amount of the land that is indicated to have a degree of visibility of the Project is not exposed to many receptors. A viewshed analysis has been undertaken for four (4) locations, being the most proximate residential receptors. A total of eight (8) viewpoints underwent assessment during site visits to "ground-truth" the degree of visibility and effects of the Project. This revealed a significant number of false positives



EPS ENERGY

Figure 5-1

Zone of Theoretical Visibility House 1

Robertstown East Solar | Geranium Plains South Australia

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

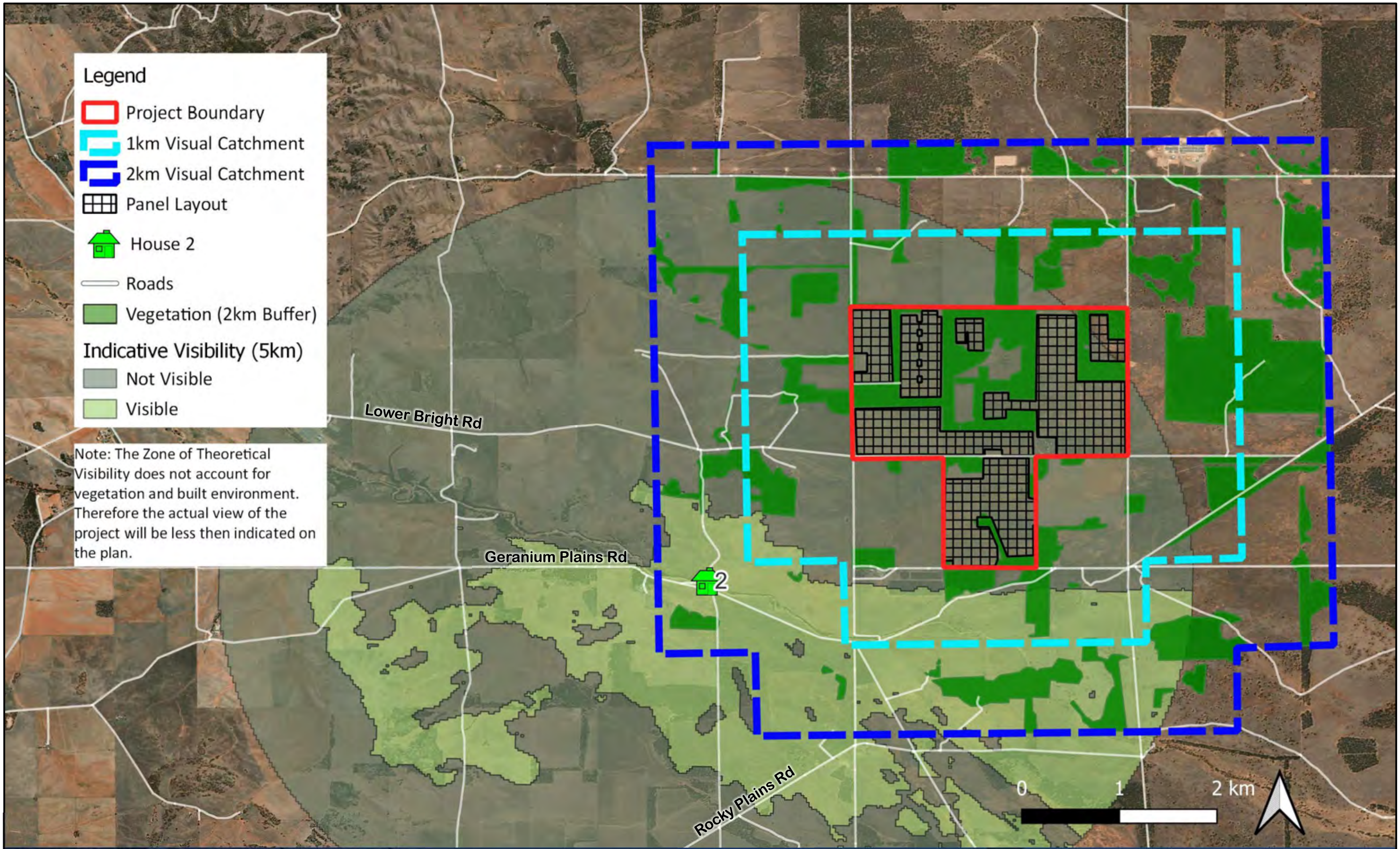


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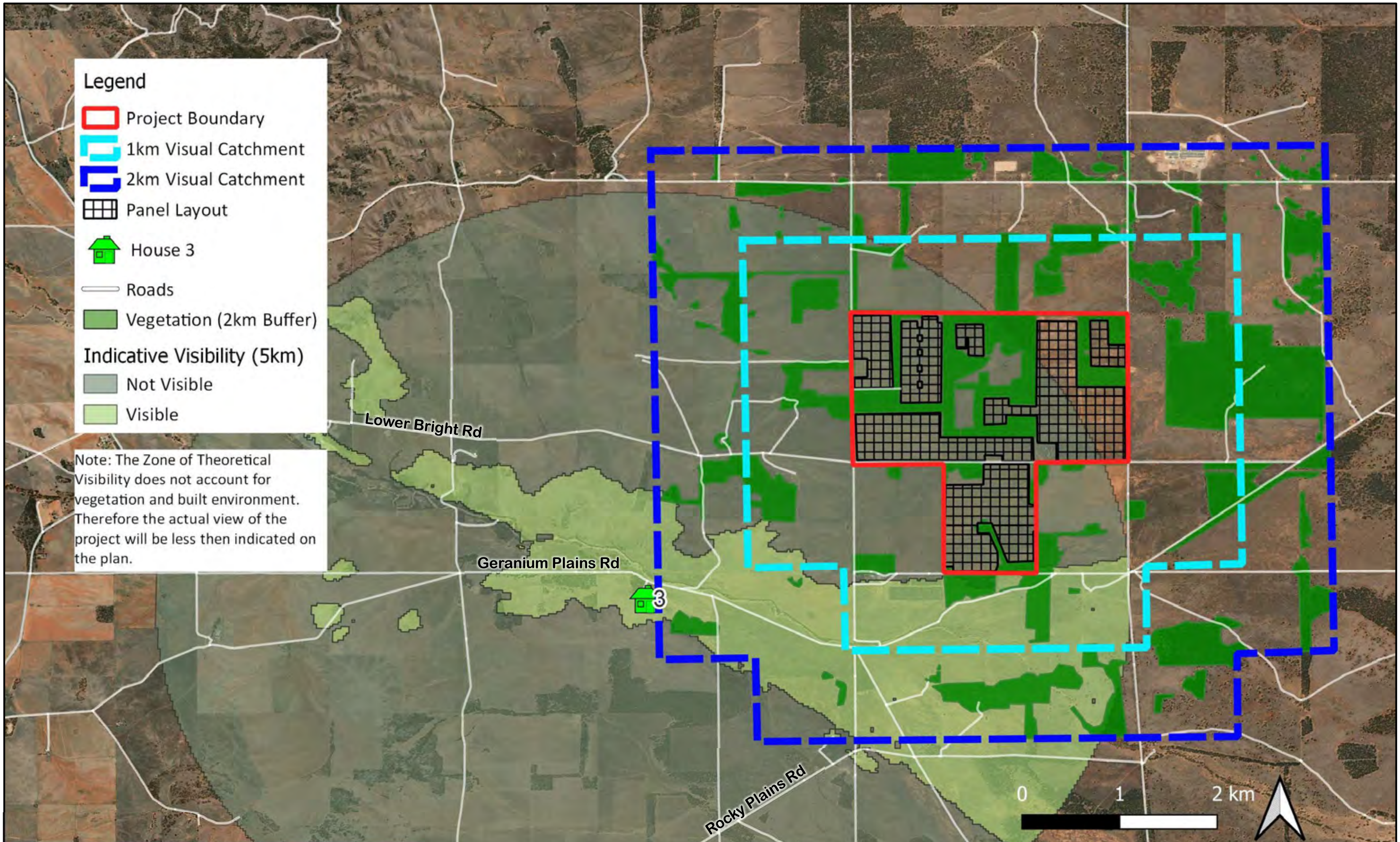
Figure 5-2

Zone of Theoretical Visibility House 2

Robertstown East Solar | Geranium Plains South Australia

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



EPS ENERGY

Figure 5-3

Zone of Theoretical Visibility House 3

Robertstown East Solar | Geranium Plains South Australia

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

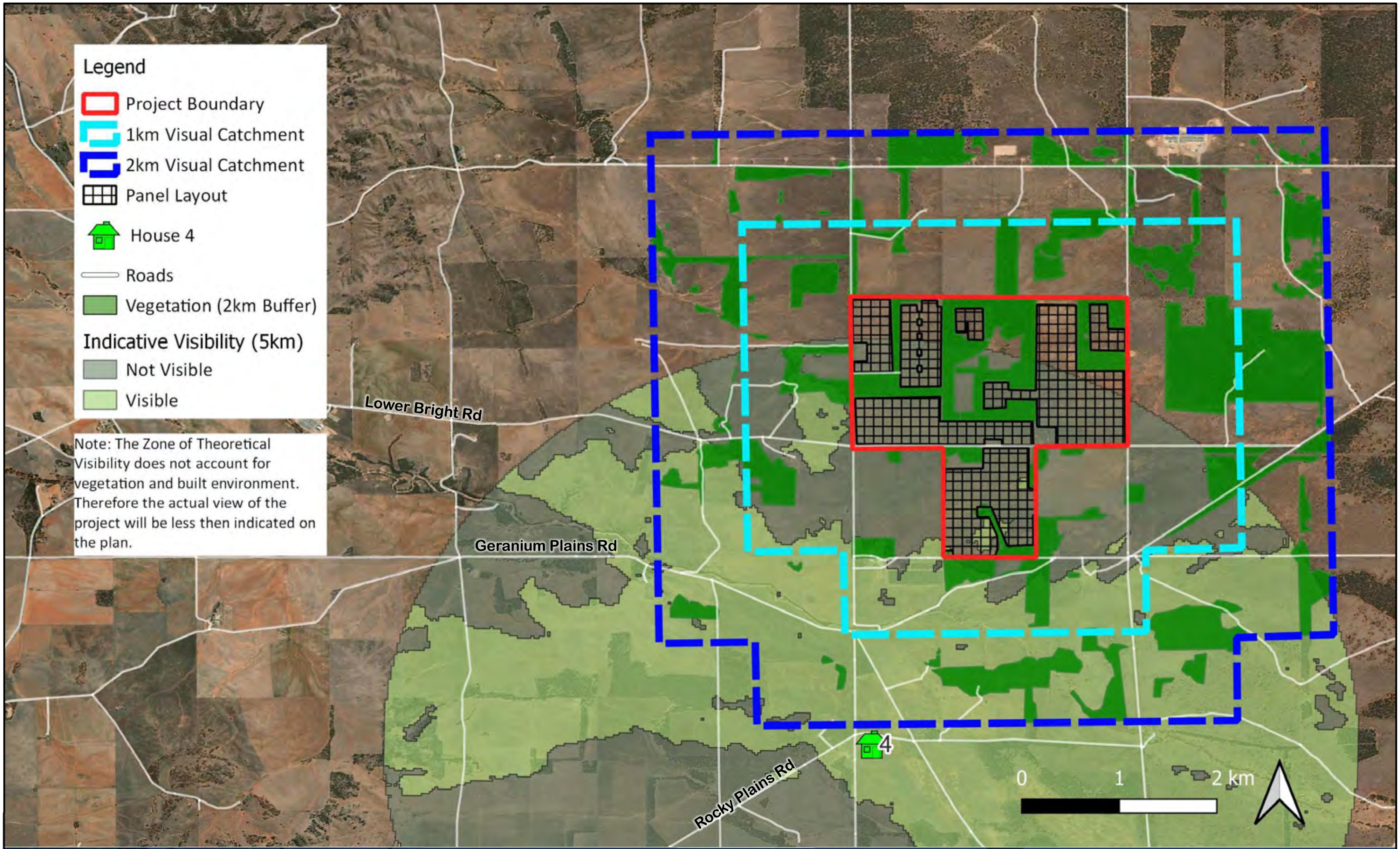


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Figure 5-4

Zone of Theoretical Visibility House 4

Robertstown East Solar | Geranium Plains South Australia

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

5.2.1. Viewshed Analysis Interpretation

The viewshed analysis undertaken above, demonstrates that out of the four (4) proximate residential receptors, only House 1 is considered to have any significant theoretical visibility of the project. Houses 2, 3, and 4 have views distorted by topographic changes.

Notwithstanding the theoretical visibility of the project, it is noted that the viewshed analysis does not take into consideration any vegetation screening effect between the residences and the project. Figures 5-1 to 5-4 demonstrate that all residences benefit from such screening effects, further reducing the potential for project visibility. Proposed mitigation measures for House 1 are further described in Section 6.

5.3. POTENTIAL VISUAL RECEPTORS

Visual receptors are defined as individuals and/or defined groups of people who are affected by changes to views or visual amenity of the landscape because of the Project (Landscape Institute & IEMA, 2013). It follows that the key visual receptors to consider in this assessment are the potential "residential receptors" and the "viewpoint receptors". These have been assessed separately in Table 5-2 and Table 5-3 respectively.

The potential *residential* receptors identified within a 1 and 2km Visual Catchment of the Project area are shown in Figure 5-5. This figure numerically identifies 2 potential residential receptors within 2km of the site boundary, one (1) of which is owned by a Robertstown Solar Project landowner (House 1). The Project related landowners are exempt from this VIA as Amp Energy will liaise with them directly on any potential visual mitigation measures, including visual screening along the western edge of project to ameliorate any views. The potential degree of visibility of the Project from visual receptor House 1 is shown Figure 5-8 and Figure 5-9. It is also noted that although Receptors 3-8 are outliers of the Visual Catchment, they have been included in this assessment to ensure completeness. All eight (8) receptors are therefore depicted as shaded cells in Table 5-2.

It is noted that field investigations revealed the local receptors were distinguished between residences, ruins or structures such as sheds. Figure 5-5 illustrates the eight (8) structures positively identified on ground as ruins or sheds within 2km of the project boundary.

The potential *viewpoint* receptors are the local roads around the Project and are shown in Figure 5-6. Again, it is important to note that the Project in its entirety cannot be viewed from one single viewpoint along the road network due to existing vegetation screening many parts of the Project and the flat topography. Further to this, photographs showing the local conditions surrounding the Project along the roads within the extent of the 2km Visual Catchment and further afield are provided, and where the Project is expected to be visible, it is indicated in Figure 5-8 to Figure 5-19 as purple shading.

The assessment of visual effects on both the potential residential receptors and potential viewpoint receptors is undertaken in accordance with the assessment criteria outlined in Table 2-2. As with the assessment of landscape effects, the category scales (high, moderate, low) are referred to with either H, M, L in the assessment tables of visual effects.

It is noted that in both the assessment of visual effects on both the residential receptors and viewpoint receptors the 'duration' and 'reversibility' for all receptors score "Moderate" and "Low" respectively. This is due to the nature of the Project as a utility-scale solar development, which is a temporary feature lasting up to 30 years, is non-invasive to install, and the associated infrastructure can be removed upon decommissioning and the landscape and associated views restored to the condition and use prior to the introduction of the Project. Similarly, the ‘value’ for all viewpoint receptors is assigned “Low” in accordance with the value results from the assessment of rural landscape character (Table 5-1).

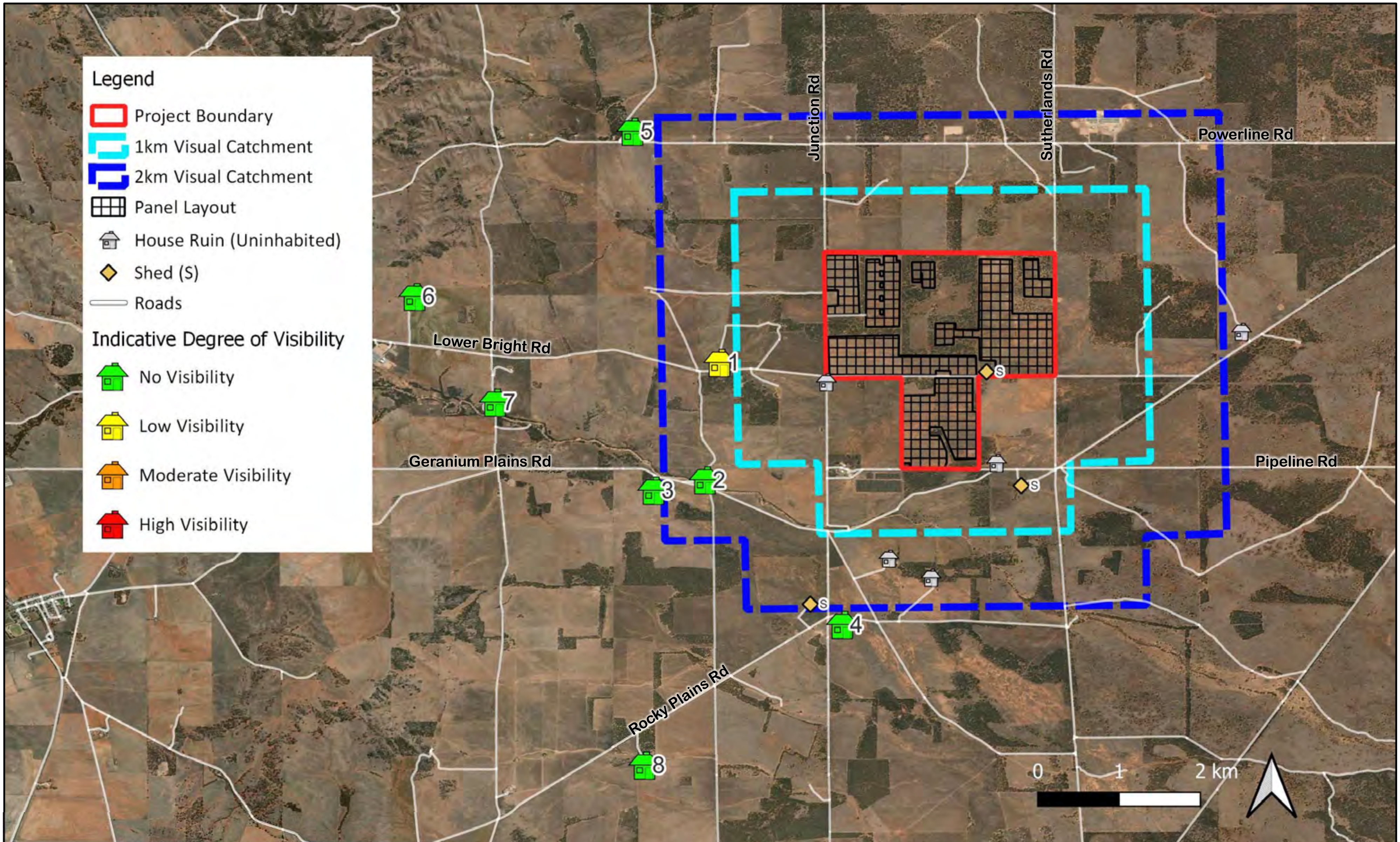

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Figure 5-5

Indicative Visibility from Potential Residential Receptors

Robertstown East Solar | Geranium Plains South Australia

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

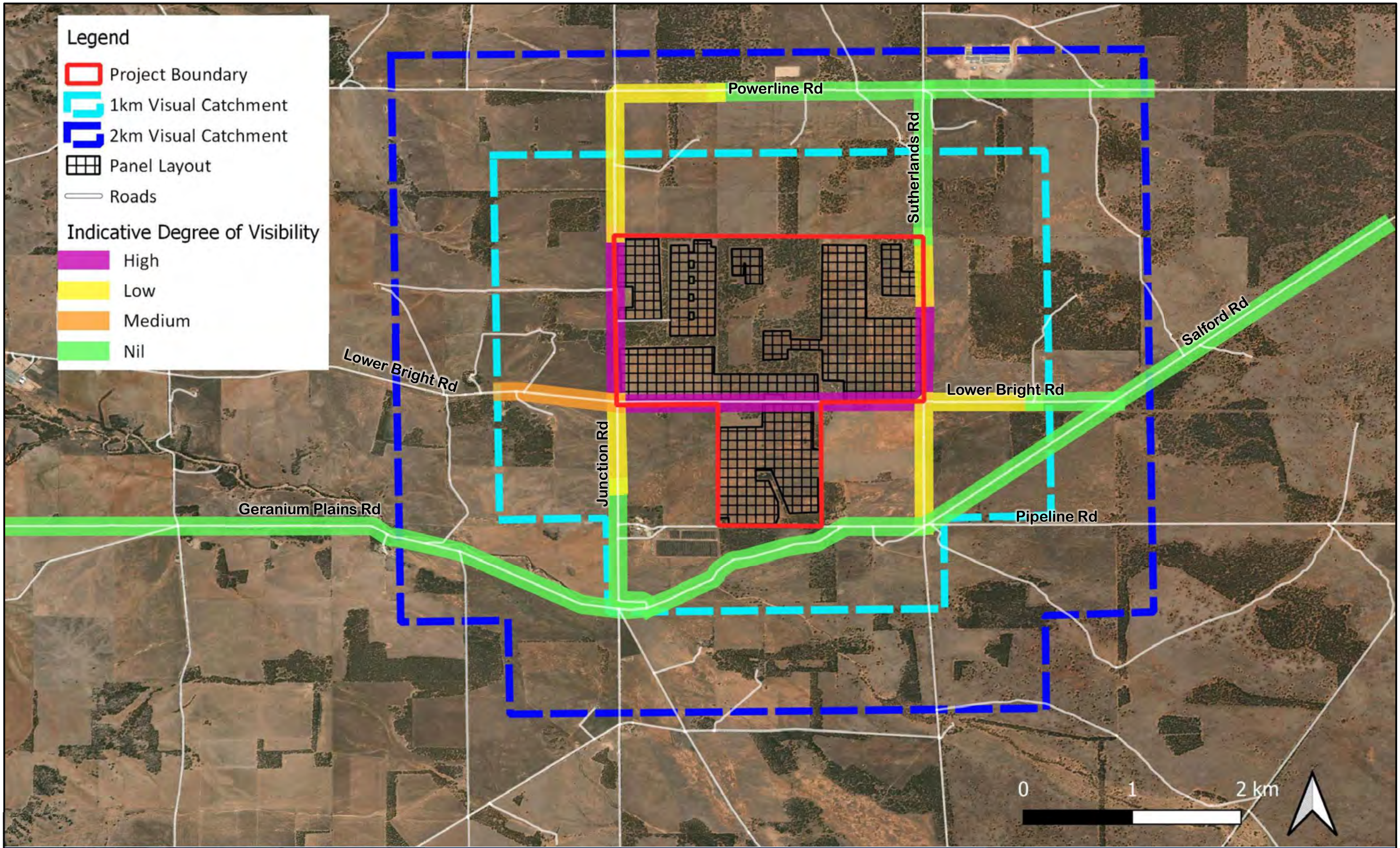

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Figure 5-6

Indicative Visibility from Viewpoints within Landscape

Robertstown East Solar | Geranium Plains South Australia

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

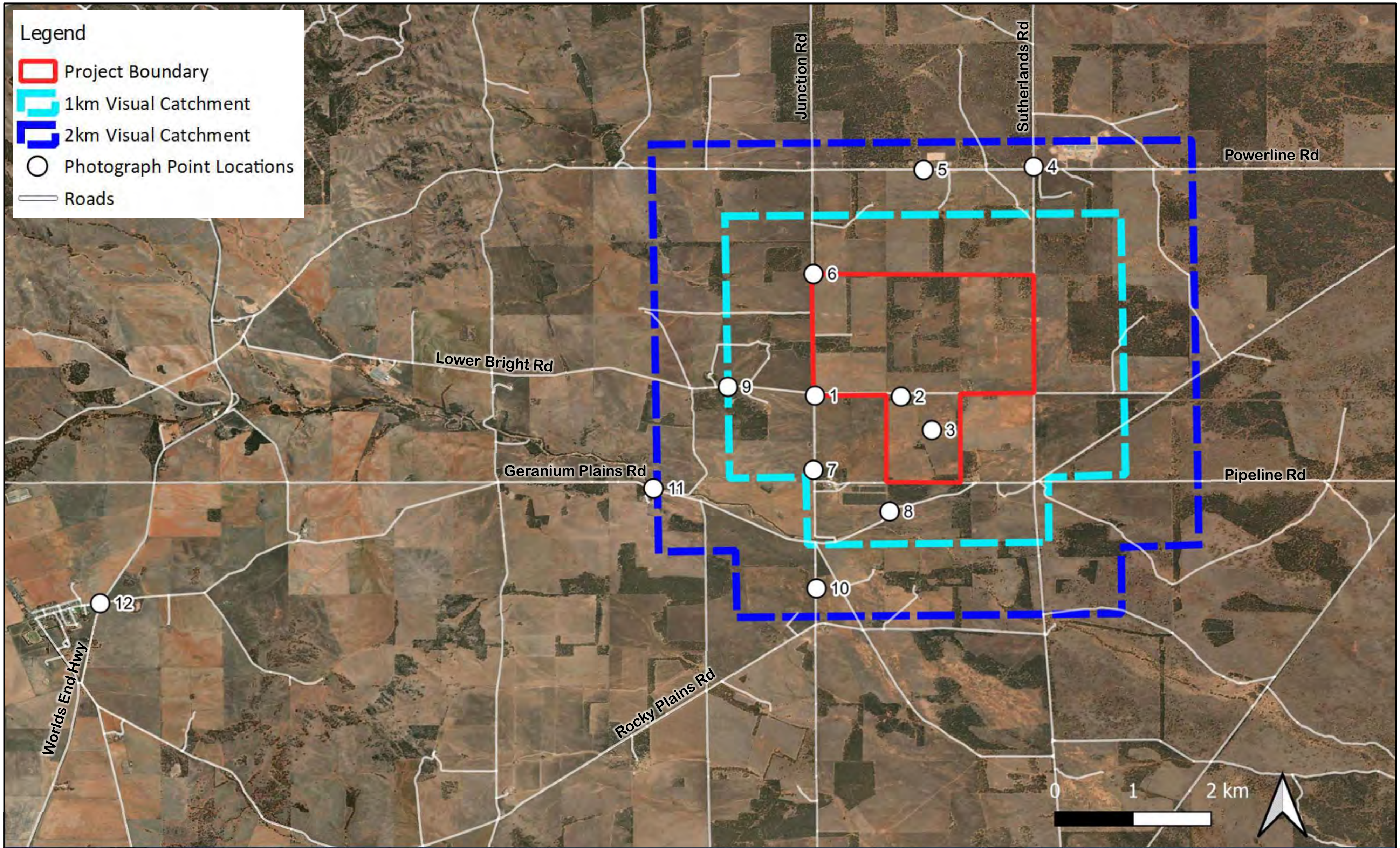

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Figure 5-7

Photo Point Locations

Robertstown East Solar | Geranium Plains South Australia

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

Table 5-2: Assessment of Visual Effects on Potential Residential Receptors

	Sensitivity of Receptor		Magnitude of effect						
Receptor Identifier	**Susceptibility**	**Value**	**Size and scale**	**Frequency of use**	**Distance/ Geographical extent**	**Duration**	**Reversibility**	**Description**	**Significance of Effect**
1	H	M	L	L	L	M	L	These receptors have prominent views of Robertstown Solar and Robertstown East Solar and the expanse views east over the landscape. The dwelling is surrounded by mature tree vegetation which limits direct views. Although the Project may result in a noticeable change to the landscape, the receptors will be looking through vegetation towards the solar layout located 1.3km away. Note: residence is occupied by a Robertstown Solar land host participant.	Moderate-Low
2	L	L	L	L	L	M	L	The Project is not visible from this receptor due to the existing topography. The Project will not result in any change to views of the landscape from this receptor.	Low
3	L	L	L	L	L	M	L	The Project is not visible from this receptor due to the existing topography and vegetation. The Project will not result in any change to views of the landscape from this receptor.	Low
4	L	M	L	L	L	M	L	The Project is considered at a distance which will not be significantly visible from this receptor due to the existing topography and vegetation. The Project will not result in any change to views of the landscape from this receptor.	Low

	Sensitivity of Receptor		Magnitude of effect						
Receptor Identifier	Susceptibility	Value	Size and scale	Frequency of use	Distance/ Geographical extent	Duration	Reversibility	Description	Significance of Effect
5	L	L	L	L	L	M	L	The Project is not visible from this receptor due to the existing topography and vegetation. The Project will not result in any change to the landscape from this receptor.	Low
6	L	L	L	L	L	M	L	The Project is not visible from this receptor due to the existing topography and vegetation. The Project will not result in any change to the landscape from this receptor.	Low
7	L	L	L	L	L	M	L	The Project is not visible from this receptor due to the existing topography and vegetation. The Project will not result in any change to views of the landscape from this receptor.	Low
8	L	L	L	L	L	M	L	The Project is not visible from this receptor due to the existing topography and vegetation. The Project will not result in any change to the landscape from this receptor.	Low

Table 5-3: Assessment of Visual Effects on Local Road Receptors

Receptor Identifier	Sensitivity of Receptor		Magnitude of effect					Description	Significance of Effect
	Susceptibility	Value	Size and scale	Frequency of use	Distance/ Geographical extent	Duration	Reversibility		
Lower Bright Road	H	M	L	L	L	L	L	Some sections of Lower Bright Road have prominent views of Robertstown Solar and Robertstown East Solar and the expanse views east over the landscape. However, at no point along this road can both projects in their entirety be viewed from a single location. This local road intersects between the most southern and three northern lots that make up the Project area. Roadside and Project land vegetation screens sections of the road towards the proposed location of solar arrays.	Moderate-Low
Powerline Road	L	L	L	L	L	M	L	The Project is only partially visible from this road due to the existing vegetation and topography. The Project is approximately 1.5km from Power Line Road. The Project will not result in any change to views of the landscape from this receptor.	Low
Junction Road	M	L	L	L	L	M	L	Some sections of Junction Road have prominent views of Robertstown Solar and Robertstown East Solar. However, at no point along this road can both projects in their entirety be viewed from a single location. This local road is located on the western boundary of the Project area and has exposure to approximately 1.8km of solar arrays. Road side and	Low

	Sensitivity of Receptor		Magnitude of effect						
Receptor Identifier	**Susceptibility**	**Value**	**Size and scale**	**Frequency of use**	**Distance/ Geographical extent**	**Duration**	**Reversibility**	**Description**	**Significance of Effect**
								Project land vegetation screens sections of the road towards the proposed location of solar arrays. Additional landscape screening is proposed for approximately 600m from the intersection of Lower Bright Road and Junction Road in a north direction to screen the Project from House 1 (refer to Figure 6-1).	
Sutherlands Road	M	L	L	L	L	M	L	Some sections of Sutherlands Road have prominent views of Robertstown East Solar. However, at no point along this road can the Project in it's entirety be viewed from a single location. This local road is located on the eastern boundary of the Project area and has exposure to approximately 1.8km of solar arrays. Roadside and Project land vegetation screens sections of the road towards the proposed location of solar arrays.	Low
Geranium Plains Road	L	L	L	L	L	M	L	The Project is only partially visible from this road due to the existing vegetation and topography. The Project will not result in any change to views of the landscape from this receptor.	Low
Pipeline Road	M	L	L	L	L	M	L	The Project is only partially visible from this road due to the existing aboveground pipeline and vegetation. The Project area adjacent to the road is screened by the above ground pipeline and underlying vegetation. The Project will not result in any change to views of the landscape from this receptor.	Low

Figure 5-8: Viewpoint 9 - Indicative View Looking East

View towards project from Potential Residential Receptor House 1

Figure 5-9: Viewpoint 9 – View Looking North-west

View towards Potential Residential Receptor House 1 showing vegetation surrounding dwelling.

Figure 5-10: Viewpoint 12 – Worlds End Highway

Looking north-east - no visibility of the project.

Figure 5-11: Viewpoint 9 – Lower Bright Road

Looking East.

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Figure 5-12: Viewpoint 7 – Junction Road

Looking north – unlikely to view panels to north due to vegetation and flat topography.

Figure 5-13: Viewpoint 8 - Geranium Plains Road

Looking north-west towards SA Water solar plant for their pumping station – note tree screening effect due to level topography.

Figure 5-14: Viewpoint 10 - Junction Road

Looking north towards Robertstown solar site and Robertstown East Solar (noting no visibility of Robertstown East due to vegetation and flat topography).

Figure 5-15: Viewpoint 11 - Geranium Plains Road

Looking north-east, topography of ridgeline screens any views to project.

Figure 5-16: Viewpoint 5 - Powerline Road

Looking south towards the project – flat topography and vegetation screens views.

Figure 5-17: Viewpoint 6 – Drone Photo From 60m AGL (Looking North-east)

Note existing vegetation screening around project area.

Figure 5-18: Viewpoint 6 - Drone Photo From 60m AGL (Looking East)

Note existing vegetation screening around project area.

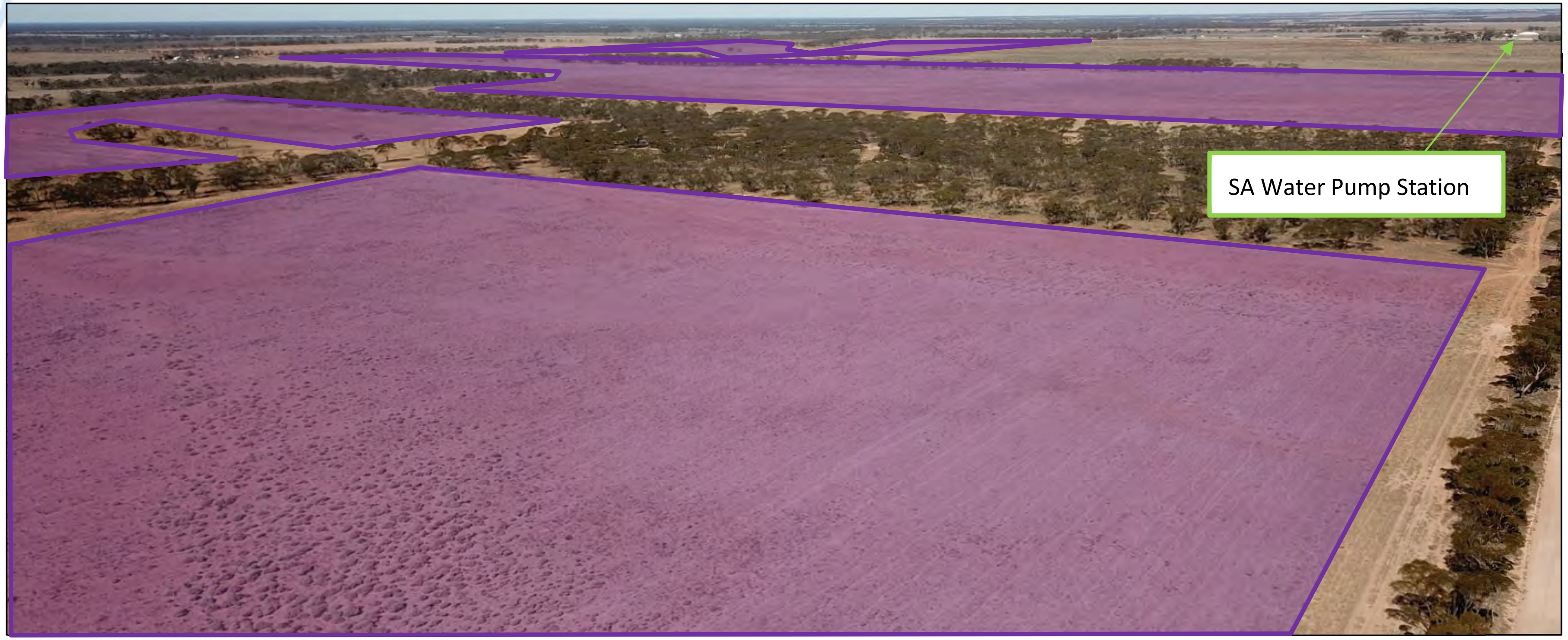

Figure 5-19: Viewpoint 6 - Drone Photo From 60m AGL (Looking South-east)

Note existing vegetation screening around project area.

Figure 5-20: View along Pipeline Road (Looking West)

Note existing aboveground pipeline and vegetation screening screens views to the project area.

5.3.1. Summary of Potential Visual Receptors

As stated in Section 5.3, a total of 2 potential residential receptors were identified within a 2km Visual Catchment of the Project area, one (1) of which is owned by a Robertstown Solar Project landowner (House 1). The Project landowners are exempt from this VIA as Amp Energy will liaise with them directly on any potential visual mitigation measures. However, a total of 8 potential residential receptors within a 5km buffer area were assessed against the criteria outlined in Section 2.1.2 and the assessment results detailed in Table 5-2 above.

A summary of the significance of effects for the 8 potential **residential** receptors is as follows:

- 7 of the 8 potential residential receptors scored “Low”; and
- 1 of the 8 potential residential receptors scored “Moderate-Low (being a project landowner House 1).

No potential residential receptors scored “Moderate-High” or “High”.

These scores indicate that overall, the potential residential receptors may have a “Low” significance of effect. As such, any relevant mitigation measures that may be considered suitable are detailed in Section 6.

5.4. CUMULATIVE LANDSCAPE AND VISUAL EFFECTS

Cumulative landscape and visual effects are the combined visual changes (both positive and negative) caused by a proposed development in conjunction with other similar developments. It is also important to consider both the existing and evolving contextual landscape in the region.

As stated, landscapes are not static, but continue to evolve and change, driven by factors such as government policy, the needs of a growing population, economy and climate change. This includes new forms of energy generation, such as renewable energy.

Rural landscapes have historically been the preferred location for large electrical infrastructure. Electrical infrastructure, including substations and transmission lines are already prevalent in rural landscapes, which is an important factor when considering cumulative landscape and visual effects of a proposed development. In the context of the Project, this is supported by the P&D Code which lists renewable energy facilities as an envisioned land use for the Rural zone. Accordingly, numerous renewable energy projects either in action, approved or proposed are evident within the region where the Project is proposed.

This Section considers the potential cumulative landscape and visual effects that may result from interactions between the Project and both existing and proposed similar developments within 20km of the Project. The 20km radius is considered an appropriate scope for this assessment as visibility beyond this distance is impractical due to the flat topography of the land and existing vegetation around the Project land.

Table 5-4: Renewable Energy Projects Within 20km of the Project

Status	Developer/ Owner	Renewable	Project
Operational	Neoen	Wind	Goyder South Stage 1 Wind Farm
Under Construction/ Approved	Neoen	Wind	Goyder South Stage 2 Wind Farm
Proposed	Risen Energy	Solar PV/Battery	Australia Plains Solar & Storage
Proposed	Robertstown Solar	Solar PV/ Battery	Robertstown Solar

The nearest, non-related renewable energy developments to the Project are Neoen's Goyder Renewables Zone Project Stage 1, 2 & 3 which is under construction, and Risen Energy's proposed Australia Plains Solar and Storage Project, both approximately 20km distance from Robertstown East Solar.

The Robertstown East Solar project is proposed to replace loss of generation capacity of the Robertstown Solar project. Therefore, a reduction in solar panels across the Robertstown Solar project is proposed and to be replaced by generation from Robertstown East Solar. As identified in the visual assessment of the Robertstown Solar project, it is not possible to view the entire solar layout from any one location. With Robertstown East Solar located further east and on flat topography, with extensive boundary and internal vegetated areas, the same outcome applies when assessing the cumulative impact of both projects. Robertstown East Solar will predominantly only be visible from adjacent roads to the Project at close range, due to flat topography and existing vegetation. When combined with a reduced solar footprint for the Robertstown Solar project, the cumulative impact of both projects is not considered greater than the Robertstown Solar project approved as Development Approval 422/V005/18 V1.

It is therefore reasonable to conclude that there will be no significant cumulative visual effects as both the Robertstown Solar project and Robertstown East Solar plus the other regional renewable energy projects cannot be viewed together from a single viewpoint. Each project can be considered stand-alone visual elements within the landscape.

In the P&D Code renewable energy facilities are a land use under the Desired Outcomes for the Rural Zone, therefore it is also reasonable to conclude that the Project will not result in any negative cumulative landscape effects.

The renewable energy projects that are in operation, are approved within 20km of the Project area support State and Local Government policy to have renewable energy projects. Renewable energy projects, such as Robertstown East Solar, once constructed and operating in South Australia, are located within rural Council areas and on land with a particular zone including land zoned Rural.

As such, mitigation measures are considered suitable and are detailed in Section 6.

6. MITIGATION MEASURES

The assessments outlined in the above sections conclude that the overall visual impact rating to residential receptors is "Low".

Specific mitigation for visual receptor House 1 is proposed. A ~600m x 10m landscape screen is proposed along the Junction Road boundary of the site, starting at the intersection of Lower Bright Road extending north as shown in xx. The landscape screen, the existing vegetation around House 1 and the distance between the Project and House 1 should effectively ameliorate the visual impacts for House 1. House 1 is the only dwelling in the vicinity of the Project that would have a view of the Project.

The local road network serves predominantly local landowners. Very little additional traffic or tourism is experienced in this part of the local road network. While some sections of adjacent local roads will have views over the Project layout, no location will have a view over the entirety of the Project. It is considered that with the minimal road use mostly associated with local landowners, the need for any additional visual screening mitigation is unnecessary.

Accordingly, the following mitigation measures are proposed to be implemented during the construction and operation phases, where practicable:

- Stakeholder engagement activities will continue to 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;
- 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.

Specific details relating to the above-mentioned mitigation matters will be considered as part of the construction and operation management plans.

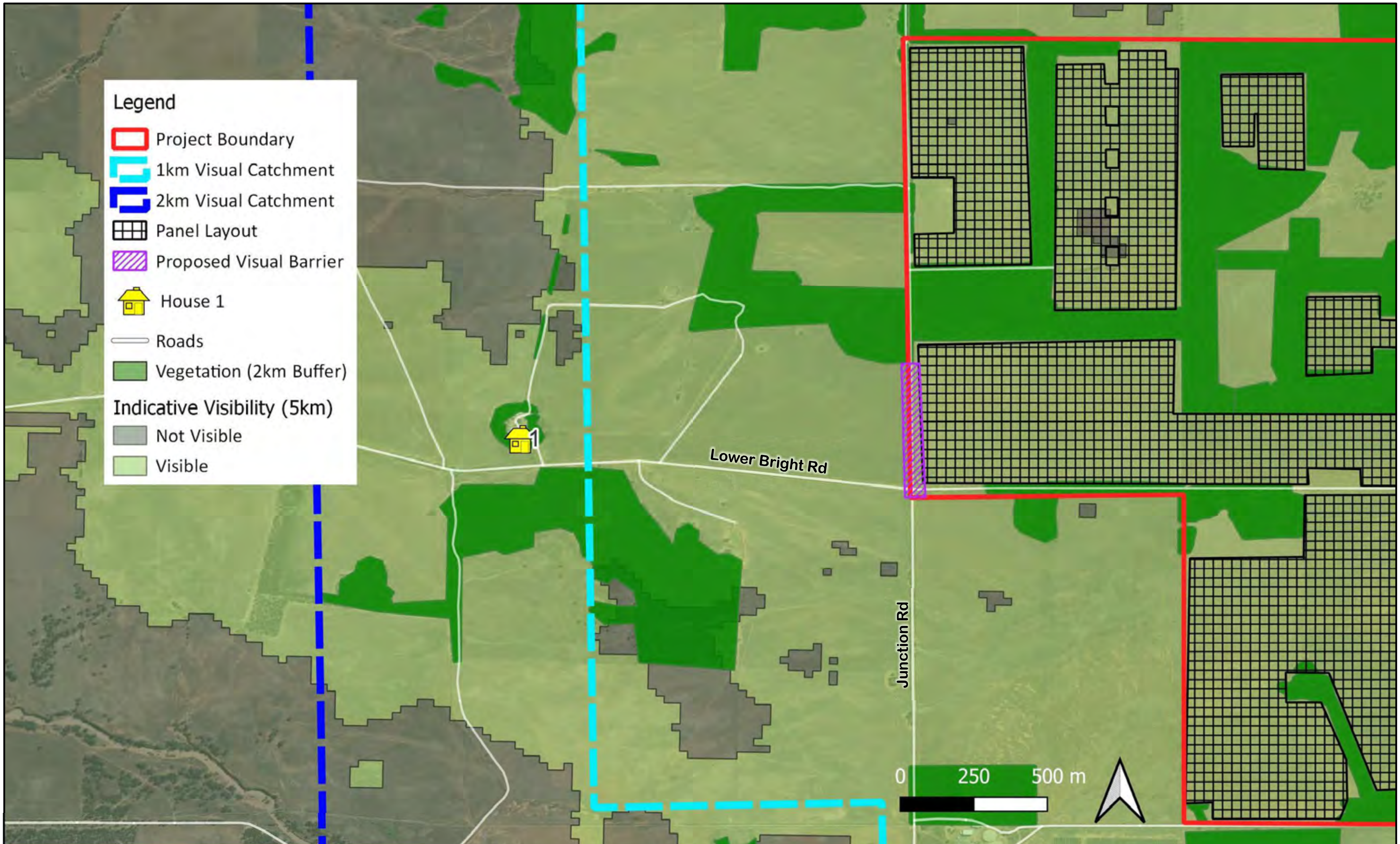

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Figure 6-1

Proposed and Existing Mitigation Measures

Robertstown East Solar | Geranium Plains South Australia

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

7. RESIDUAL VISUAL IMPACTS

Residual visual impacts are the adverse effects remaining after all the practical methods of mitigation have been implemented. The final stage of this VIA will assess the significance of the residual visual impacts of the Project.

As stated throughout this VIA, the P&D Code details the State's position on visual impacts from renewable energy facilities. The Code anticipates and encourages the introduction of renewable energy infrastructure as new components of the landscape in the Rural zone, accepting that it is difficult to mitigate the visual impacts and any potential visual impact needs to be considered alongside other relevant Code provisions including the aim for an increase in renewable energy electricity generation.

The assessments outlined in earlier sections of this VIA conclude that the overall visual impact rating to the potential residential receptors is considered "Low". The inclusion of the mitigation measures outlined in the section above will further lower the residual visual effects on both potential residential receptors and viewpoint receptors.

Considering the above, the residual visual impacts are therefore considered to be acceptable.

8. CONCLUSION

This VIA is intended to provide an assessment of the existing landscape character within the context of the Project's proposed location to determine the potential landscape and visual effects of the Project during both construction and operational phases. It has been noted that the assessment of visual impact is subjective, and the individual consideration of qualitative factors such as scenic quality may differ between receptors as it is influenced by individual values, preferences and affiliations with the landscape and particular views.

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

- The bulk and scale of the Project is consistent with the existing electricity infrastructure;
- The uniform and linear layout of the Project is not considered out of character with the existing rural landscape; and
- The Project cannot be viewed in its entirety from one single viewpoint.

The assessment has concluded:

- 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;
- Renewable energy facilities and ancillary development is a type of development that is envisaged within the Rural zone;
- Utility scale solar projects are becoming more common place in rural setting and are considered acceptable rurally located infrastructure; and
- The significance of visual effects on potential residential receptors is categorised as "Low".

Combined, these assessments form the basis to evaluate the magnitude and significance of the visual impact on the landscape and locality resulting from the Project, which is "Low" overall.

While the P&D Code anticipates and encourages the introduction of renewable energy infrastructure as new components of the landscape in the Rural zone and accepts that it is difficult to mitigate the visual impacts of large scale renewable energy infrastructure, the mitigation measures detailed in Section 6 are proposed to lower the impacts of the potential landscape and visual effects as far as practicable. The residual impacts are therefore considered to be acceptable.

9. REFERENCES

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