Scoping Report

SUNRAYSIA SOLAR FARM, BALRANALD

MAY 2016

ngh environmental

Document Verification

Project Title: Sunraysia Solar Farm, Balranald

Project Number: 6819

Project File Name: Sunraysia Solar Farm Balranald Scoping Report final V2

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Draft v1	19/05/16	Raphael Morgan	Brooke Marshall	Nick Graham-Higgs
Final v1	19/5/16	Raphael Morgan	Nick Graham-Higgs	Nick Graham-Higgs
Final v2	20/5/16	Raphael Morgan	Minor edits	Nick Graham-Higgs

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1 INTRODUCTION

Sunraysia Solar Farm Two Pty Ltd proposes the development of a commercial scale solar photovoltaic (PV) farm near Balranald in southern New South Wales; the Balranald Solar Farm proposal. The proposal would have a capacity of around 200 Mega Watt AC (MWAC).

1.1 PURPOSE OF THIS DOCUMENT

This Scoping Report provides a description of the proposal including the site and its surroundings, the statutory framework for approval and identification of key potential environmental issues that may be associated with the solar farm proposal. The report has been prepared to support a request to the Department of Planning and Environment (DP&E) for the Secretary's Environmental Assessment Requirements (SEARs) which would guide the preparation of an Environmental Impact Statement (EIS) for the proposal under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.2 THE PROPOSAL

1.2.1 Site location

The Balranald Solar Farm proposal site is located around 17km south of the Balranald town centre and around 140km south east of Mildura, within the Balranald Shire Council Local Government Area (LGA) (Figure 1-1). The site is accessed from Yanga Way (also known as Mallee Highway and Tooleybuc-Balranald Road) located to the east. The proposed solar farm would connect to an existing substation, approximately 2km north of the site (Figure 1-2).

Figure 1-1 Proposal site location (Six maps 2016)

1.2.2 Site description

The Balranald Solar Farm proposal site is identified as Lots 9, 10, 11 and 14 of DP 751179. The site covers an area of around 1,000 hectares, the majority of which is cleared land that is currently being cultivated. There are patches of remnant native vegetation and isolated trees dispersed throughout the proposal site with more extensive remnant native vegetation in the south eastern area of the site as well as along the southern, western and eastern boundary. Multiple access tracks run through the proposed site. There are several farm dams across the site. There are no natural or constructed drainage lines on the site.

Yanga Way is a public road (State Road), located 30 metres east of the southern site boundary and 450m east of the northern site boundary.

The Cut Line, an unsealed local access road, runs along the southern boundary of the proposal site. It is used to access adjacent farming land via Yanga Way.

The existing Transgrid substation is located approximately 2km north of the proposal site. It is located on Crown Land and is surrounded by remnant native vegetation.

A timber reserve is located on the eastern boundary of the site. This area is Crown Land. It is used as travelling stock route and is generally well timbered however, more open areas of lower growing vegetation are present immediately adjacent to the southern site access point to the site and south of the existing substation. A telecommunications utility and the Yanga Way dissect the timber reserve.

Site photographs are provided in Appendix A.

The locality

The surrounding land within a 5km radius of the proposal site is mostly agricultural farmland (cropping).

The nearest named water course is Wee Wee Creek, a tributary of the Murray River, located around 5km to the south west.

There are four potential dwelling structures, identified from aerial photos, within 5km of the site boundary. The closest are located:

- 1.4km to the south.
- 1.7km to the north.

All other structures are further than 2km from the site.

1.2.3 Proposal description

The Balranald Solar Farm proposal would comprise the installation of a solar plant with a capacity of around 200 MWAC. Sunraysia Solar Farm Two Pty Ltd proposes to develop around 800 hectares of the 1,000 hectare proposal site. An indicative development area is illustrated in Figure 1-2. A more precise development area would be informed by detailed site investigations assessment, planning and design stage.

The proposal would include the following elements:

- PV modules using polycrystalline technology with solar tracking system.
- A site office and maintenance building.
- An access road from Yanga Way to the site.
- Internal access tracks to allow for site maintenance.

- Perimeter security fencing.
- Grid connection to the substation to the north via an overhead line (22-66kv).
- Native vegetation screening, where required to break up views of infrastructure.

The proposed development may be undertaken in stages. In total, the construction phase of the proposal is expected to take 7 to 12 months. The Balranald solar farm is expected to operate for around 30 years. The solar farm would be decommissioned at the end of its operational life, removing all above ground infrastructure and returning the site to its existing land capability.

Capital investment

The Balranald Solar Farm proposal would have a capital investment cost estimated to be $300 million. A quantity surveyor's report would be prepared as part of the proposal which would confirm the capital investment cost. In a meeting with DP&E on 13 May 2015, it was identified that the quantity surveyor's report was not required at the time of lodgement of the Scoping Report.

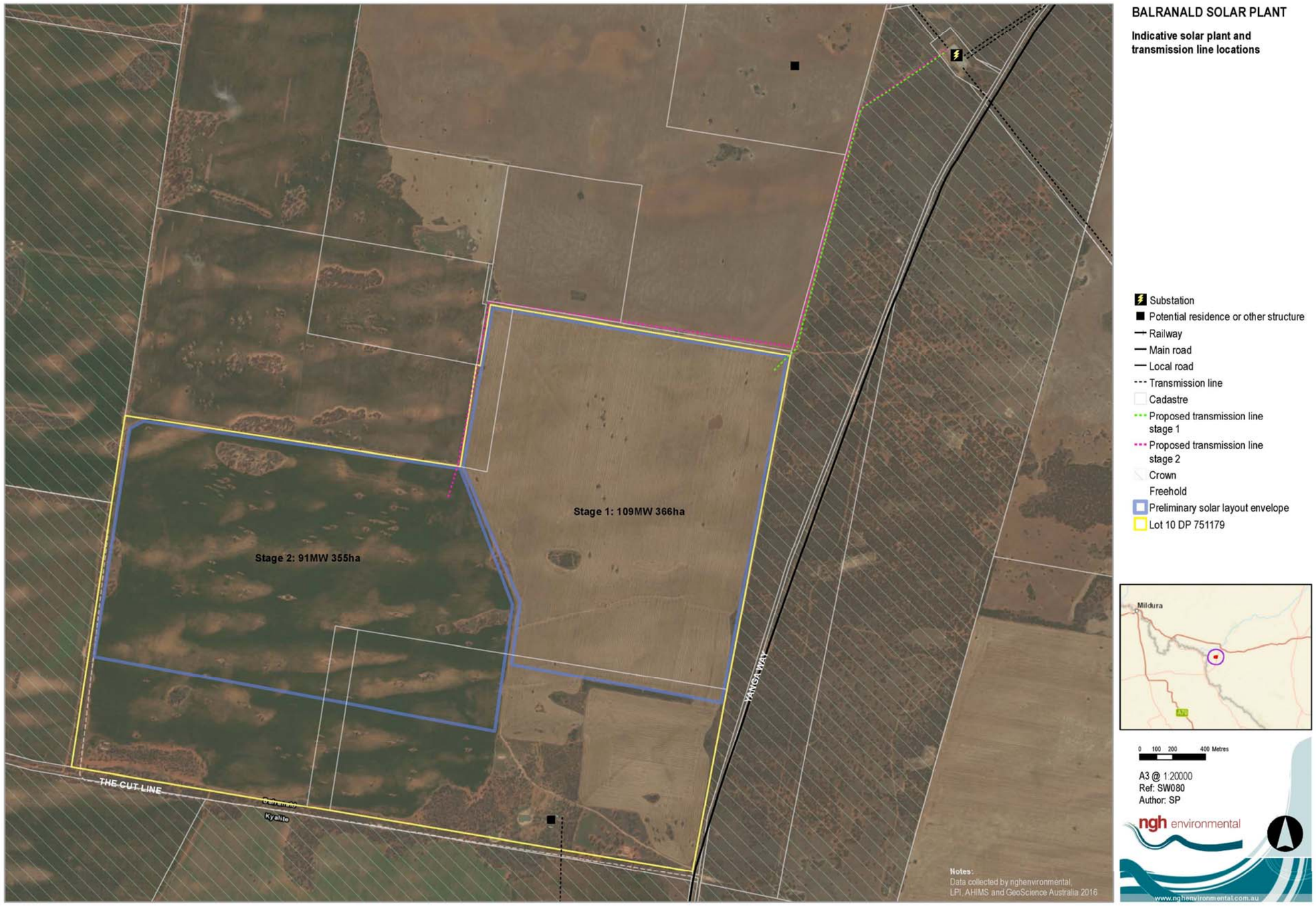


Figure 1-2 Indicative site layout

2 PROPOSAL NEED AND ALTERNATIVES

2.1 PROPOSAL NEED

The Kyoto Protocol is an international agreement created under the United Nations Framework Convention on Climate Change in Kyoto, Japan in 1997. The Australian Prime Minister signed Australia's instrument of ratification of the Kyoto Protocol in 2007, thereby committing Australia to reduce its collective greenhouse gas emissions.

The development of renewable energy projects is considered to be one of the most effective ways to achieve this commitment. This led to Australia implementing the Renewable Energy Target (RET) Scheme in 2009. The current target for large-scale generation is of 33,000 GWh in 2020. This would double the amount of large-scale renewable energy being delivered by the scheme compared to current levels.

Since January 2011, the RET scheme has operated in two parts—the Small-scale Renewable Energy Scheme (SRES) and the Large-scale Renewable Energy Target (LRET). The LRET creates a financial incentive for the establishment or expansion of renewable energy power stations, such as wind and solar farms or hydro-electric power stations. It does this by legislating demand for Large-scale Generation Certificates (LGCs). One LGC can be created for each megawatt-hour of eligible renewable electricity produced by an accredited renewable power station. LGCs can be sold to entities (mainly electricity retailers) who surrender them annually to the Clean Energy Regulator to demonstrate their compliance with the RET scheme's annual targets. The revenue earned by the power station for the sale of LGCs is additional to that received for the sale of the electricity generated. The LRET includes legislated annual targets which would require significant investment in new renewable energy generation capacity in coming years.

The Balranald Solar Farm proposal would provide the following benefits, specific to Australia's commitments:

- Reduction in greenhouse gas emissions required to meet our energy demands
- Assisting the transition towards cleaner electricity generation
- Direct contribution to help in meeting the LRET.

Additionally, the proposal would allow for the:

- Provision of embedded electricity generation, to supply into the Australian grid closer to the main consumption centres.
- Provision of social and economic benefits, through the provision of direct and indirect employment opportunities during construction and operation of the project.

2.2 ALTERNATIVES CONSIDERED

During the site selection process for the proposed solar farm, a number of alternative locations were considered. Minimising environmental and social impacts and maximising efficiency were major considerations in the evaluation of alternatives.

The site considered in this Scoping Report was identified as the preferred location, based on the:

- Availability of an abundant solar resource.
- Proximity to an existing electricity substation with good connection capacity.
- Availability of suitable land.

- Suitability of the land in terms of factors that affect solar yield and construction costs (northerly aspect, relatively low relief topography).
- Suitability of the land in terms of environmental factors that constrain development (absence of flood risk, previously disturbed site with minimal native vegetation, low number of residential receivers, no previously identified heritage or other social values).

Sunraysia Solar Farm Two Pty Ltd would finalise the infrastructure layout for the solar proposal once environmental constraints have been fully investigated through the EIS process. The proposal design is flexible so that there are a number of alternative arrangements. The final layout would aim to balance solar yield and construction costs factors with the maximum feasible avoidance of environmental constraints. The EIS would include details on the evolution of the final layout, with regard to these factors.

3 CONSULTATION

The current land owner of the proposal site strongly supports the project. Additionally, Sunraysia Solar Farm Two Pty Ltd has had discussions with the following local stakeholders:

- Balranald Shire Council. The proposal received positive feedback.
- Adjacent land owners to the north and east were contacted and indicated their support for renewable energy projects.

A Community Engagement Plan would be prepared to inform the community and stakeholders about the proposal and their opportunities to provide input into the assessment and development process. Stakeholders would be identified as those potentially being impacted by the solar farm proposal or having an interest in the project itself. The Community Engagement Plan would set out consultation requirements with interested parties including government agencies (e.g. Balranald Shire Council, RMS, Department of Primary Industries (Land)), Aboriginal groups, community groups and neighbours to the site. The Community Engagement Plan may include:

- Preparation of material for distribution informing stakeholders about the project and newspaper advertisements to advertise the proposal.
- Establishment of a database, including all private stakeholders and potentially affected landholders.
- Meetings with stakeholders and concerned landholders as required.
- An ‘open day’ to provide detailed information about the proposal to the general public.
- Establishment of an information hotline and project email address.

The Community Engagement Plan would aim to ensure that there is effective, ongoing liaison with the community. Measures to reduce adverse impacts and promote positive impacts would be identified in the EIS and appropriate management plans developed for the project. Agency consultation would also be undertaken in accordance with any requirements of the SEARs.

4 PLANNING CONSIDERATION

4.1 NSW LEGISLATION

4.1.1 Environmental Planning and Assessment Act 1979

Development in NSW is subject to the requirements of the EP&A Act and its associated regulations. Environmental planning instruments prepared pursuant to the Act set the framework for approvals under the Act.

The Balranald Solar Farm proposal would be assessed under Part 4 of the EP&A Act.

4.1.2 State Environmental Planning Policy (State and Regional Development) 2011

Clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* identifies electricity generating works and heat or co-generation developments which are State Significant Developments. Clause 20 states that the following is considered a state significant development:

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:

> *(a) has a capital investment value of more than $30 million, or*
>
> *(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance.'*

The Balranald Solar Farm proposal would have a capital investment cost estimated to be $300 million. Therefore the proposal is classified as "state significant development" under Part 4 of the EP&A Act.

State Significant Developments are major projects which require approval from the Minister for Planning and Environment. While the Minister for Planning and Environment is the consent authority for State Significant Development, the Minister may delegate the consent authority function to the Planning Assessment Commission (PAC), the Secretary or to any other public authority.

An Environment Impact Statement (EIS) is prepared in accordance with the requirements of the SEARs of DP&E. In determining the SEARs, the Secretary must consult with relevant public authorities and would have regard to the need to assess key issues raised by those public authorities.

4.1.3 State Environmental Planning Policy (Infrastructure) 2007

Clause 34(7) of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) provides that development for the purpose of a solar energy system may be carried out by any person with consent on any land (except land in a prescribed residential zone). A solar energy system includes a PV electricity generating system. The proposal is therefore permissible with consent.

4.1.4 Balranald Local Environmental Plan 2010

The site is located within the Balranald LGA and is therefore subject to the provisions of the *Balranald Local Environmental Plan 2010* (Balranald LEP). The Balranald LEP aims:

> *(a) to encourage sustainable economic growth and development,*
> *(b) to encourage the retention of productive rural land in agriculture,*

(c) to identify, protect, conserve and enhance Balranald's natural assets,
(d) to identify and protect Balranald's built and cultural heritage assets for future generations,
(e) to allow for the equitable provision of social services and facilities for the community,
(f) to encourage and support growth in the Balranald and Euston townships,
(g) to provide for future tourist and visitor accommodation in a sustainable manner that is compatible with, and will not compromise, the natural resource and heritage values of the surrounding area.

The solar farm site and transmission line route are located on land zoned RU1 - Primary Production.

RU1 Primary Production

The LEP states that the consent authority must have regard to the objectives for development in a zone when determining a development application. The objectives of this zone are:

- *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *To encourage diversity in primary industry enterprises and systems appropriate for the area.*
- *To minimise the fragmentation and alienation of resource lands.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*
- *To encourage development that is in accordance with sound management and land capability practices, and that takes into account the environmental sensitivity and biodiversity of the locality.*
- *To support rural communities.*
- *To ensure the provision of accommodation for itinerant workers.*

For the life of the project, the proposal would harness a natural resource (solar energy). While the activity would impact on land availability for primary production, the land would allow for diversity in land use, it would minimise fragmentation of resource lands. Being fully reversible and involving limited ground disturbance, it would not remove the potential to use the land for primary production in the medium to long term. The solar farm would be decommissioned at the end of its operational life, removing all above ground infrastructure and returning the site to its existing land capability.

Electrical generation is prohibited in the RU1 Zone. However, the ISEPP allows the development for the purpose of a solar energy system on any land with consent (refer to Section 4.1.3).

4.1.5 Roads Act 1993

The *Roads Act 1993* (Roads Act) provides for the classification of roads and for the declaration of the Roads and Maritime Services (RMS) and other public authorities as roads authorities for both classified and unclassified roads. It also regulates the carrying out of various activities in, on and over public roads.

Approval from the roads authority (RMS and/or Balranald Shire Council) would be required under section 138 of the Roads Act to erect a structure or carry out a work in, on or over a public road. Balranald Shire Council and RMS would both be consulted during the design and preparation of the EIS.

4.1.6 Native Vegetation Act 2003

The *Native Vegetation Act 2003* regulates the clearing of native vegetation. Clearing is defined as cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning native vegetation including native grasses and herbage.

It should be noted that under Section 89J of the EP&A Act, an authorisation referred to in section 12 of the *Native Vegetation Act 2003* to clear native vegetation would not be required for a State Significant Development.

The potential to impact native vegetation is discussed in Section 5.2 of this report.

4.1.7 Threatened Species Conservation Act 1996

The *Threatened Species Conservation Act 1995* (TSC Act) provides for the conservation of threatened species, populations and ecological communities of animals and plants. The TSC Act sets out a number of specific objects relating to the conservation of biological diversity and the promotion of ecologically sustainable development.

It should be noted that under Section 79B(2A) of the EP&A Act, concurrence under Section 79B including concurrence under the TSC Act would not be required for a State Significant Development.

The potential to impact threatened species, populations and ecological communities listed under this Act is discussed in Section 5.2 of this report.

4.1.8 National Parks and Wildlife Act 1974

Under the *National Parks and Wildlife Act 1974*, the Director-General of the National Parks and Wildlife Service is responsible for the care, control and management of all national parks, historic sites, nature reserves, reserves, Aboriginal areas and state game reserves. The Director-General is also responsible under this legislation for the protection and care of native fauna and flora, and Aboriginal places and objects throughout NSW.

It should be noted that under Section 89J of the EP&A Act, an Aboriginal Heritage Impact Permit under Section 90 of the *National Parks and Wildlife Act 1974* would not be required for a State Significant Development.

The potential impact to Aboriginal heritage and native fauna and flora are discussed in Section 5.2 of this report.

4.1.9 Heritage Act 1977

This Act aims to conserve heritage values. The Act defines 'environmental heritage' as those places, buildings, works, relics, moveable objects and precincts listed in the Local or State heritage Significance. A property is a heritage item if it is listed in the heritage schedule of the local Council's Local Environmental Plan or listed on the State Heritage Register, a register of places and items of particular importance to the people of NSW.

It should be noted that under Section 89J of the EP&A Act, an approval under Part 4 or a permit under Section 139 of the *Heritage Act 1977* would not be required for a State Significant Development.

The proposal would not impact directly or indirectly on any items of heritage significance (refer to Section 5.2.3).

4.1.10 Crown Lands Act 1989

The objects of this Act are to ensure that Crown land is managed for the benefit of the people of New South Wales and in particular to provide for:

(a) a proper assessment of Crown land,
(b) the management of Crown land having regard to the principles of Crown land management contained in this Act,
(c) the proper development and conservation of Crown land having regard to those principles,
(d) the regulation of the conditions under which Crown land is permitted to be occupied, used, sold, leased, licensed or otherwise dealt with,
(e) the reservation or dedication of Crown land for public purposes and the management and use of the reserved or dedicated land, and
(f) the collection, recording and dissemination of information in relation to Crown land.

For the purposes of this Act, the principles of Crown land management are:

(a) that environmental protection principles be observed in relation to the management and administration of Crown land,
(b) that the natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible,
(c) that public use and enjoyment of appropriate Crown land be encouraged,
(d) that, where appropriate, multiple use of Crown land be encouraged,
(e) that, where appropriate, Crown land should be used and managed in such a way that both the land and its resources are sustained in perpetuity, and
(f) that Crown land be occupied, used, sold, leased, licensed or otherwise dealt with in the best interests of the State consistent with the above principles.

Under Part 3 of the Act, the Minister for Lands must be satisfied that the land has been assessed prior to any allocation action, i.e. reservation, dedication, sale, lease, licence or permit. The purpose of a land assessment is to ensure decisions made in relation to Crown land are in accordance with the principles of Crown land management by (amongst other matters) including an assessment of the capabilities of Crown land and the identification of suitable land uses.

Connection of the solar farm to the substation may require a transmission line to be established through Crown Land (Figure 1-2). This would require consent from the Department of Primary Industries (Lands). This would be considered in the EIS and the Department of Primary Industries (Lands) would be consulted during the assessment and development process.

4.2 COMMONWEALTH LEGISLATION

4.2.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of the Environment (DoE). Under the EPBC Act, if the Minister determines that an action is a 'controlled action' which would have or is likely to have a significant impact on a Matter of National Environmental Significance (MNES) or Commonwealth land, then the action may not be undertaken without prior approval of the Minster.

The EPBC Act identifies the following eight MNES:

- World Heritage properties.
- National heritage places.
- Ramsar wetlands of international significance.
- Threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).

When a person proposes to take an action which may be a 'controlled action' under the EPBC Act, they must refer the proposal to the DoE for a decision about whether the proposed action is a 'controlled action'.

A search of the Commonwealth Protected Matters Search Tool indicates that there are no World Heritage or National Heritage areas or items within the proposal site. Search results listed four Wetlands of International Importance that are either known to occur or have potential to occur within 10km, however these are not relevant to the site or proposal. The proposed development is not likely to impact Commonwealth land. Section 5.2 discusses the results of searches in relation to threatened species, ecological communities and migratory species. Further flora and fauna studies would confirm whether impacts to the remnant vegetation would occur as a result of the proposed development, during the preparation of the EIS.

4.2.2 Native titles Act 1993

The *Native Title Act 1993* provides a legislative framework for the recognition and protection of common law native title rights. Native title is the recognition by Australian law that Indigenous people had a system of law and ownership of their lands before European settlement. Where that traditional connection to land and waters has been maintained and where government acts have not removed it, the law recognises this as native title.

People who hold native title have a right to consult or continue to practise their law and customs over traditional lands and waters while respecting other Australian laws. This could include visiting to protect important places, making decisions about the future use of the land or waters, hunting, gathering and collecting bush medicines. Further, when a native title claimant application is registered by the National Native Title Tribunal, the people seeking native title recognition gain a right to consult or negotiate with anyone who wants to undertake a project on the area claimed.

Where native title does exist in relation to the proposal site, Sunraysia Solar Farm Two Pty Ltd would comply with the provisions of the *Native Title Act 1993*.

5 PRELIMINARY ENVIRONMENTAL ASSESSMENT

5.1 METHODOLOGY

A preliminary environmental risk analysis has been conducted to assist in the identification of key environmental matters that would require detailed assessment within the EIS. Risks were identified for both the construction and operation phase of the proposal and analysed in relation to their possible consequence and likelihood of occurrence. From this analysis, some environmental matters were deemed to be key issues on the basis that they had the potential, without appropriate mitigation measures, to have a significant impact on the environment. A preliminary constraints map is provided in Appendix B.

A summary of the key environmental issues is provided in Section 5.2. The intent of the discussion is to demonstrate an understanding of the issues that require further environmental assessment and likely mitigation measures for these key issues. The potential impacts and management of other (less significant) issues are discussed in Section 5.3**.**

5.2 ASSESSMENT OF KEY ISSUES

5.2.1 Biodiversity

The potential ecological constraints within the study area have been identified based on the following information sources:

- Existing threatened species listings under the TSC Act and EPBC Act.
- Existing records of threatened species sightings in the study area, as recorded in the Bionet Database (OEH).
- Department of Environment Protected Matters Search Tool (nationally threatened species listed on the EPBC Act).
- Preliminary site survey by a qualified ecologist.

The proposal would aim to minimise the removal of any remnant native vegetation.

Threatened species and ecological communities

A search of the EPBC Act Protected Matters Search Tool was conducted on the 17 May 2016, using a 10 km radius from a single point located approximately at the centre of the site. This search identified 19 threatened species, three endangered ecological communities (EECs), 7 listed migratory species (some of which are included within the threatened bird species) that are either known to occur or have potential to occur in this area.

A search of the NSW Bionet database was conducted on the same date, using a 10 km x 10 km grid over the site area. This search identifies species listed under the TSC Act. The search identified three threatened fauna species (all birds), none within the proposal site.

Biodiversity constraints

A site visit was undertaken in May 2016 by an ecologist and senior environmental consultant over two days to provide a preliminary constraints analysis of the proposal site.

The majority of the site is cleared land which has been previously cultivated. Isolated trees and patches of remnant native vegetation occur throughout the site with the larger remnants mostly located closer to the

boundaries of the site. The Crown Land to the east includes more extensive areas of intact native vegetation. Figure 5-1 illustrates the biodiversity features identified on and in vicinity of the proposal site.

Three main native vegetation associations occur onsite:

- Mallee woodland
- Blackbox woodland
- Mulga woodland

The native vegetation comprising Mallee and Blackbox woodland remnants are common vegetation types. These trees readily forms hollows. In all areas inspected high numbers of tree hollows were observed. High bird diversity was observed in several areas of the site. This vegetation has minimal midstorey but native diversity in the understorey may be quite high in better conditions (in spring and after rain). Due to the high number of hollows and important habitat this may provide for threatened species, viable remnants would be considered a high constraint to the proposal development.

The native vegetation comprising Mulga woodland remnants is a common vegetation type that does not readily form hollows. It has minimal midstorey but, as for the other remnants, native diversity in the understorey may be quite high in better conditions. It contains less fauna habitat values and would be considered a moderate constraint to the proposal development.

Isolated trees are also scattered throughout the site. However, while some may bear hollows, they are susceptible to damage from farming and white ants and unlikely to persist long in the landscape. They are not as viable or considered as important on their own, as the remnants described above.

The preliminary constraints map is provided in Appendix B and details the potentially moderate and high constraint areas.

Conclusions and Need for Further Assessment

Although the majority of the site includes large areas devoid of native vegetation, some remnant native vegetation occurs on the site which provides potential habitat for fauna species listed as threatened at a national and state level. Considering the dispersed nature of the vegetation across the proposal site and size of the proposal, it is unlikely that vegetation removal would be able to be avoided. However, there is potential to minimise vegetation removal and potentially limit it to vegetation of a lower constraint (e.g. trees which provide limited fauna habitat, smaller less viable remnants).

As part of the EIS and design process, detailed ecological survey and assessment of any native vegetation proposed to be removed would be undertaken. Targeted surveys for threatened fauna species with the potential to occur would also be undertaken in these areas. The results would help refine the concept design and help avoid impacts from the proposal, including transmission line, on biodiversity. The potential impacts would be assessed and recommendations made to avoid/minimise/mitigate impacts as required.

5.2.2 Aboriginal heritage

An extensive search of the AHIMS was completed for the proposal site and surrounding area. The search returned four results, all of which are located in proximity to the substation (Figure 5-1).

Although there is no evidence of landform reshaping, the existing cropped areas where Mallee vegetation has been cleared is likely to have damaged the soil profile and any Aboriginal artefacts within it. However, native vegetation remnants have old trees and therefore soil disturbance in these areas is not likely to have been high. These areas may contain better potential for Aboriginal artefacts. (Previously recorded Aboriginal heritage items near the substation suggest others have the potential to occur in the area.)

Surveys would be required to confirm the presence of Aboriginal heritage items/sites/etc and the level of constraint.

Conclusions and Need for Further Assessment

An Aboriginal heritage assessment of the development footprint of the proposal would be completed as part of the EIS. The significance of any Aboriginal heritage sites that may be potentially affected by the proposal would be determined in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW 2010).

5.2.3 Visual amenity

Figure 5-1 shows that the site is located over 1.4km north of the nearest residential receiver. The site is not located on an elevated area, therefore the proposal is not expected to be an imposing feature in the landscape. In addition, there is vegetation providing screening between the site and Yanga Way to the east, for most of the site's eastern boundary. The panels would be north facing, which would limit impacts to the residential receiver to the south and traffic along Yanga Way. The solar panels are designed to absorb as much sunlight as possible. They therefore reflect a very low percentage of the light they receive and are not considered likely to result in glare or reflections that would affect traffic or nearby receivers.

Neither of the closest receivers identified are visible from the site boundary. Given the flat terrain, screening views of the infrastructure as a mitigation strategy is considered highly feasible.

Conclusions and need for further assessment

Considering the size of the proposal which would cover around 800ha, it is proposed that a visual impact assessment, including view shed analysis be prepared as part of the EIS to confirm potential visual impacts. If management measures are required, these would first consider measures to be implemented within the proposal site boundary (e.g. vegetation screening at strategic locations).

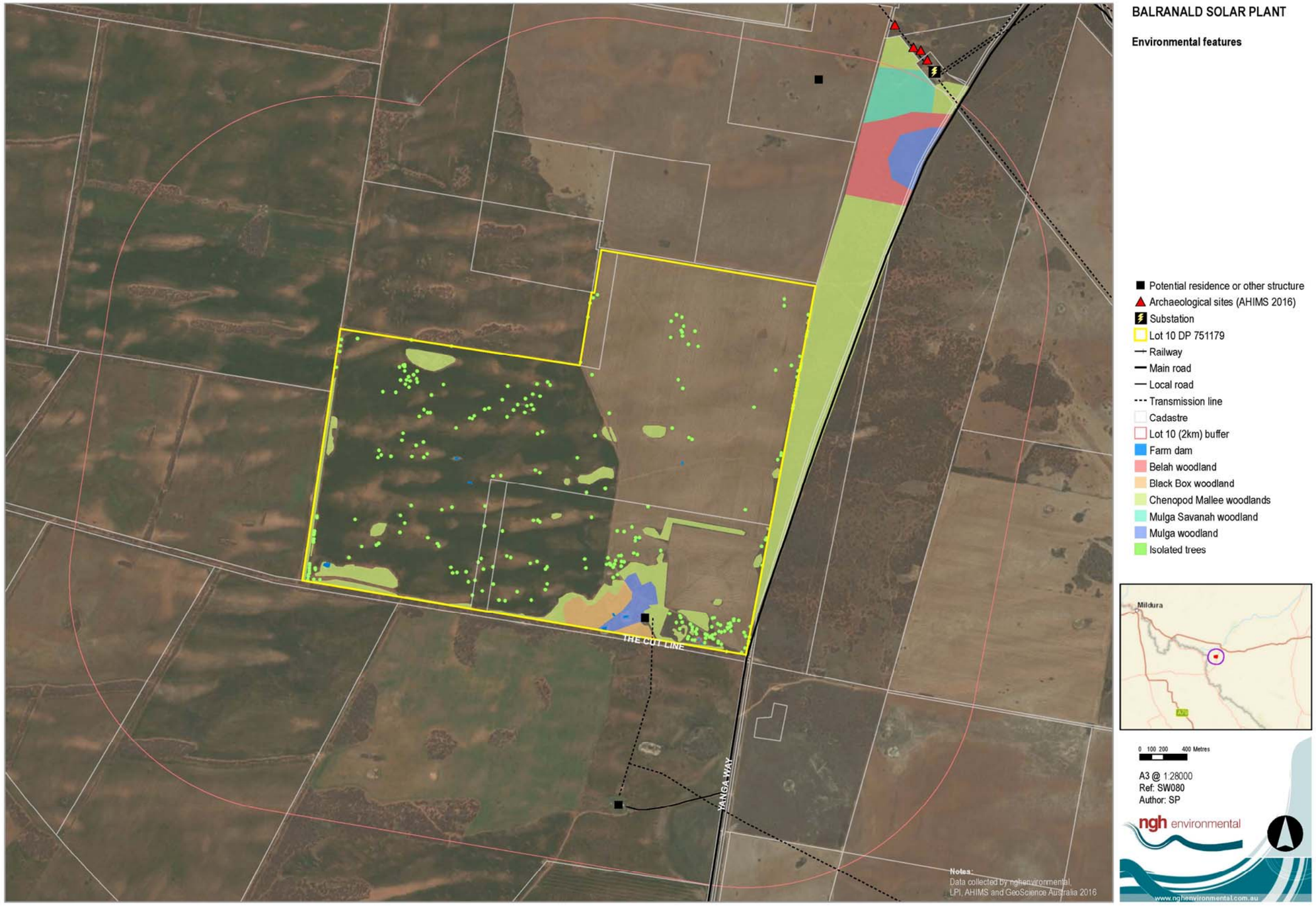


Figure 5-1 Environmental features

5.3 OTHER ENVIRONMENTAL ISSUES

There are a range of potential environmental issues associated with the Balranald Solar Farm which are not considered to be key issues. These issues are considered secondary issues for investigation, given the characteristics of the proposal and the availability of appropriate safeguards for mitigation. These issues are outlined in Table 5-1.

These issues would be addressed in sufficient detail to assess the level of their impacts (if any). It is anticipated that any impacts identified would be able to be managed through appropriate mitigation measures and management plans.

Table 5-1 Other environmental issues

Issue	Existing environment	Potential impacts	Management and mitigation measures
Non-Aboriginal heritage	A search of listed items (under the NSW *Heritage Act 1977*, the Australian Heritage Database and those listed by Balranald and Wakool Councils and State Government agencies) was completed for the Balranald and Wakool LGA. None of the items listed are located within 5km of the proposal site. The proposal site includes a dilapidated dwelling and stock yards and sheds which are not listed on any heritage register but may have some heritage significance.	Due to the open and disturbed nature of the site, it is considered unlikely that heritage artefacts remain unidentified in the proposal area, with the potential exception of the buildings.	The potential to impact non-Aboriginal heritage would be considered in the EIS. In particular, the potential heritage significance of the buildings on the site would be considered and appropriate management measures implemented if required.
Noise	The nearest sensitive receiver (residential) to the site is located 1.4km south of the proposal site (Figure 5-1).	Noise impacts would, for the most part, only occur during construction (generated by construction related vehicles and machinery), with minimal noise likely to be generated during operation. Considering the distance of the proposed works to the nearest sensitive receiver (1.4km away), noise impacts during construction are likely to be negligible.	The operation of the solar plant and transmission line would not be expected to have more than a minor noise impact. A construction noise assessment would be undertaken as part of the EIS to assess potential noise impacts. The assessment would be undertaken in accordance with the Interim Construction Noise Guideline (Department of Environment Climate Change and Water, 2009).

Issue	Existing environment	Potential impacts	Management and mitigation measures
Soils and water	The site is very slightly undulating. There are no drainage lines at the site or within 2km and the site does not occur within a flood planning zone. The only waterbodies on the proposal site are man made farm dams. The soil is very fine red clay and becomes very muddy when wet. Soils compaction and wind and water erosion are soil risks for excavation and access.	Construction activities would include minor excavations and vegetation removal which have the potential to cause soil erosion and sedimentation. The site tends to become muddy after heavy rain which may cause issues during construction and operation when accessing the site.	The design would ensure adequate all weather access to the site during construction and operation is provided to avoid erosion/sedimentation impacts and tracking of soil, in particular after rain events. The EIS would provide thorough consideration of soil and water impacts and proposed mitigation measures during construction and operation.
Contamination	Contamination associated with agricultural activities (e.g., pesticides) may still be present on the site.	A search of contaminated sites records for the Balranald LGA did not identify any recorded sites. It is unlikely that significant contamination exists on the proposal site and construction activities would not pose a significant contamination risk at the site.	It is considered unlikely that contamination is present at the site and therefore no detailed investigation is likely to be required within the EIS. If contamination is identified during site construction, it would be managed in accordance with a Construction Environmental Management Plan (CEMP) and relevant EPA guidelines.

Issue	Existing environment	Potential impacts	Management and mitigation measures
Access and traffic	Yanga Way is a State Road for which RMS is the roads authority. The road is expected to carry medium volumes of traffic, likely to be increased during periods such as grain harvest. The Cut Line running along the southern boundary of the proposal site (Figure 5-1) is a track accessed from Yanga Way that provides access to surrounding agricultural land.	Construction traffic may impact traffic along Yanga Way and the Cut Line. Access to the proposal may also require the upgrade of the intersection with Yanga Way during construction and/or operation. Maintenance access tracks during operation would also be required across the proposal site and along the easement of the proposed transmission line.	Construction traffic impacts would be considered in the EIS and take into consideration existing traffic volumes and any requirements from RMS. Consultation would be undertaken before construction with RMS, the local council and local farmers regarding the works that may affect roads or traffic. The design would also consider any requirements from RMS and other relevant stakeholders on access arrangements to the proposal site, including transmissions line, in particular if any modifications to the current access to the site is required. A Traffic Management Plan would be developed as part of the CEMP.
Groundwater	The site is not located within 5km of any areas of groundwater vulnerability as mapped by Balranald Shire Council.	It is unlikely that groundwater would be encountered given the minor excavation and earthwork requirements for the proposal and pole placements for the transmission lines. Contamination of groundwater would also be unlikely given that chemicals and fuels would be appropriately stored, and spills procedures would be implemented.	Groundwater impacts are expected to be minimal. Appropriate chemical and fuel handling as part of the CEMP would mitigate any potential contamination of groundwater.

Issue	Existing environment	Potential impacts	Management and mitigation measures
Alienation of Resources	The rural land in the study area is used primarily for agriculture, particularly crop farming.	Although the proposal has the potential to impact on agricultural use of the site during construction and operation, the relatively small loss of productive land at a regional scale is not considered likely to have a significant impact on the overall agricultural productivity of the region.	The solar farm would be decommissioned at the end of its operational life, removing all above ground infrastructure and returning the site to its existing land capability. Overall, the adverse impacts related to alienation of resources are expected to be minimal, and as such, are not considered to be a key environmental issue. This would be discussed in the EIS.
Air Quality	The air quality in Balranald is generally expected to be good and typical of that found in a rural setting in NSW due to low population numbers. Existing sources of air pollution in such a location is expected to comprise vehicle emissions and dust from agricultural practices. During colder months, there may be a minimal increase in air contaminants due to smoke emissions from the operation of solid fuel heating. The fine clay soil can impact on air quality, particularly during dry and windy conditions. This is exacerbated during some cropping activities.	The construction of the proposal is not anticipated to have a significant impact on air quality, and would mostly be related to dust. Impacts to air quality during operation is likely to be negligible. There is an opportunity to improve air quality in operation by maintaining ground cover beneath the panels. This would be less impact than current cropping operations.	A CEMP would be prepared to manage air quality impacts during the construction of the project.

Issue	Existing environment	Potential impacts	Management and mitigation measures
Hazard and Risk - EMF	A 22-66kv transmission line to connect the site to the substation is proposed.	Considering that no dwellings or other facilities are intended to be built and occupied within the proposed transmission line easement, the electromagnetic field (EMF) that would be generated by the proposed transmission line is expected to be below the guideline for public exposure and would not be expected to have an adverse impact on human health.	The EMF levels of the proposed transmission line would be calculated as part of the EIS.
Hazard and Risk - Bushfire	The proposal site has been predominantly cleared for agricultural purposes.	The proposal is unlikely to be affected by bushfire, or pose a significant bushfire risk.	The proposed development is unlikely to result in an increased risk of bushfire for the site. This would be assessed in the EIS.
Aviation	Balranald Airport is located approximately 21km north of the site.	Concerns have been raised in the media regarding the potential risk posed to pilots from solar farms; specifically glare related risks. The PV modules that would be installed at Balranald would not result in a glare issue.	The EIS would provide information about glare impacts related to aviation.

Issue	Existing environment	Potential impacts	Management and mitigation measures
Social and economic impacts	The proposal site is located within the Balranald LGA. The main industries of employment in this part of NSW are expected to be agriculture.	The construction of the proposal would generate jobs for the duration of the construction period (approximately 7 to 12 months). It is possible that construction workers would relocate their families to Balranald during the construction period, and this may place pressures on services such as accommodation, schools and health services.	The EIS would assess potential social and economic impacts of the proposal.
Waste Management	The proposal would generate a number of waste streams and utilise a variety of materials during the construction phase.	During construction, excavated material and green waste would be generated as waste. Limited operational waste would be associated with this proposal.	A Waste Management Plan (WMP) would be developed and incorporated into the CEMP. This would incorporate the principles to avoid, re-use and recycle to minimise wastes.

APPENDIX A SITE PHOTOGRAPHS

Isolated paddock trees within the site boundaries

Native vegetation remnants within the site boundaries

Cleared paddocks, currently under cropping within the site boundaries

Existing farm dams

Existing dilapidated dwelling and site sheds

Existing perimeter tracks within and adjacent to the site

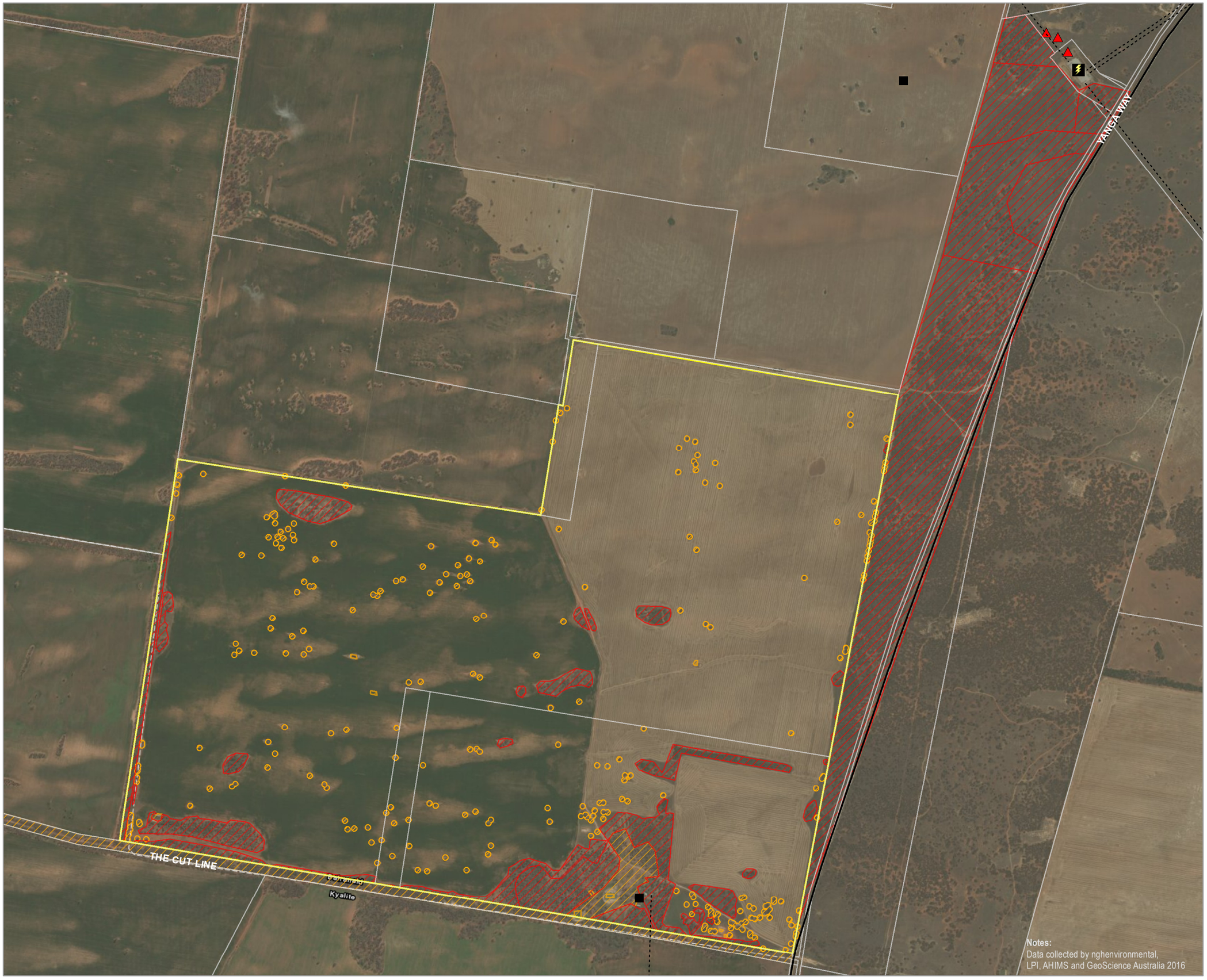
Yanga Way and timber reserve

Existing substation, north of the site

APPENDIX B PRELIMINARY CONSTRAINTS MAPPING

BALRANALD SOLAR PLANT

Preliminary constraints map



- Substation
- Potential residence or other structure
- Railway
- Main road
- Local road
- Transmission line
- Cadastre
- Lot 10 DP 751179
- Archaeological sites (AHIMS 2016)
- Belah woodland
- Black Box woodland
- Chenopod Mallee woodlands
- Mulga Savanah woodland
- Mulga woodland (reserve)
- Farm dam
- Mulga woodland
- Isolated trees
- The cut line

Note:
RED is a high constraint
ORANGE is a moderate constraint

0 100 200 400 Metres

A3 @ 1:20000
Ref: SW080
Author: SP

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Notes:
Data collected by nghenvironmental, LPI, AHIMS and GeoScience Australia 2016