



**NGH**



# SCOPING REPORT

## Dunedoo Solar Farm

March 2020

Project Number: 17-362



## DOCUMENT VERIFICATION

Project Title:	Dunedoo Solar Farm
Project Number:	17-362
Project File Name:	Dunedoo Scoping Report

Revision	Date	Prepared by	Reviewed by	Approved by
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ABN 31 124 444 622 ACN 124 444 622

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# 1 INTRODUCTION

## 1.1 PROPOSAL OVERVIEW

ib vogt GmbH (ib vogt), on behalf of Sun Spot 4 Pty Ltd, proposes to develop a large-scale solar farm approximately 2 kilometres north of Dunedoo in Central New South Wales. The Dunedoo Solar Farm would occupy rural land currently used for stock grazing, cultivation and improved pasture. The proposal infrastructure includes solar arrays, a substation, an energy storage facility and transmission lines.

## 1.2 THIS REPORT

Scoping is a key stage in the environmental impact assessment (EIA) process. It identifies the main issues and information requirements for the assessment, considering the values of the site, the nature and extent of potential impacts, planning and regulatory requirements and the results of early consultations. This allows the assessment to efficiently focus on the most important issues.

This Scoping Report:

- Describes the proposal and the site.
- Identifies statutory approval requirements.
- Identifies key potential environmental issues associated with the proposal.

The report has been prepared to support a request to the Department of Planning, Industry and Environment (DPIE) for Secretary's Environmental Assessment Requirements (SEARs). The SEARs 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).

## 1.3 IB VOGT

ib vogt was established in Germany in 1991 as an engineering company. Since 2002 ib vogt has specialised in the development solar projects development and has deployed over 1 GW of utility scale solar and battery energy storage projects around the world. The company has operations in Europe, the Americas, northern and southern Africa, India, south east Asia and Australia. ib vogt has been developing renewable energy projects in Australia since 2016. Sun Spot 4 Pty Ltd is a project related Special Purchase Vehicle (SP) company that is 100% owned by ib vogt.

## **2 SITE DESCRIPTION**

### **2.1 LOCATION**

The Dunedoo Solar Farm proposal site is located approximately 2 kilometres north of the township of Dunedoo and approximately 77 kilometres north east of the city of Dubbo (refer Figure 2-1), within the Warrumbungle Local Government Area (LGA).

The solar farm arrays and infrastructure would be located on Lot 137 DP 754309, Lot 140 DP754309, Lot 1 DP 854326, Lot 2 DP 854326, Lot 80 DP754309 and Lot 1 DP 1260716

The transmission line would be located on Lot 80 DP754309, Lot 11 DP130889, Lot 7012 DP93290 and Lots 181 – 184 DP754291.

### **2.2 THE SITE AND LOCALITY**

The proposal site is approximately 322 hectares (ha), comprising agricultural land used for grazing, cultivation and improved pasture. All Weather Road runs east west through the site providing access. All Weather Road connects to Digilah Road to the east and the Castlereagh Highway to the west. Figure 2-2 illustrates the proposal site and surrounding features, with site photographs provided in Appendix A.

The majority of the site is cleared of trees, with an area of remnant native vegetation in the centre of the site (south of All Weather Road, see Figure 2-2), several planted rows of trees along fence lines and scattered paddock trees. The solar farm proposal would be designed to avoid tree removal.

The proposal site is generally flat, with a slight increase in elevation toward its northern end. There are several farm dams on the site and an unnamed drainage line within the western periphery of the site. The Talbragar River is located immediately south and south west of the site (Figure 2-2). The southern section of the site is located within the floodplain of the Talbragar River. The solar farm infrastructure would be designed to avoid flood prone areas, where possible, and flood investigations are underway to determine flood risks.

Figure 2-2 illustrates the nearest sensitive receivers (uninvolved with the project) to the proposal site, which are located approximately:

- 350 m to the north.
- 1.2 km to the northeast.
- 1.2 km to the east.
- 650 m to the west.
- 200 m to the west.
- 100m to the south (nearest Dunedoo residences).

The site boundary in Figure 2-2 illustrates the area of land under consideration for the solar farm proposal. Subject to flood investigations, it is expected that the infrastructure elements of the proposal would be located at least 1.5 km from the nearest residences within Dunedoo. The proposal design would also incorporate recommendations from the Visual Impact Assessment regarding setbacks between the proposed infrastructure and Dunedoo residences.

The Warrumbungle LGA encompasses the townships of Baradine, Binnaway, Coolah, Coonabarabran, Dunedoo, and Mendooran. The Warrumbungle LGA has a population of 9,589 people covering an area of 12,380 km<sup>2</sup> (Warrumbungle Shire Council 2016).

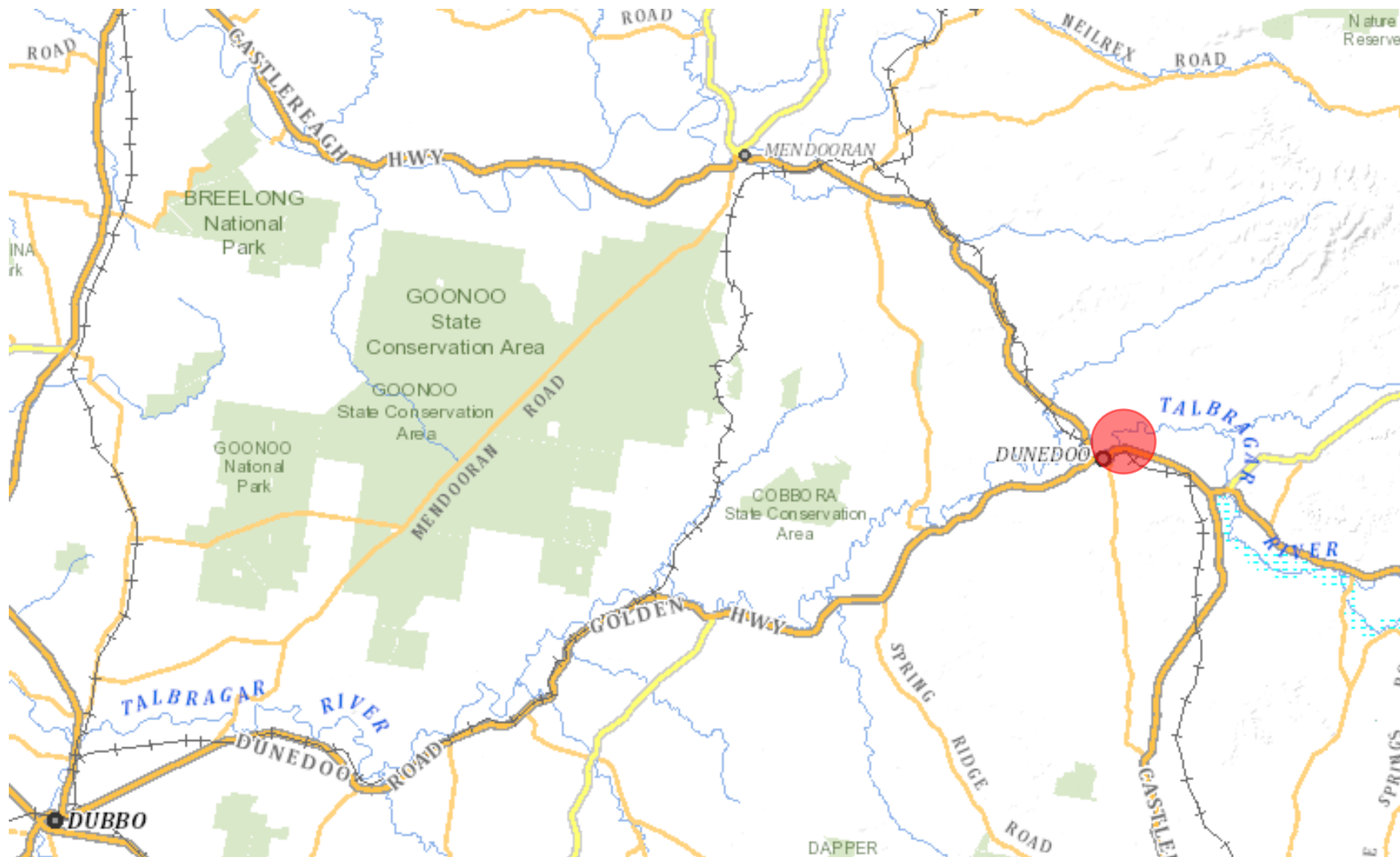


Figure 2-1 Location of the proposal site (Six Maps)





Figure 2-2 Proposal site and Sensitive Receivers

## **3 THE PROPOSAL**

### **3.1 SITE SELECTION**

The Dunedoo Solar Farm site has been selected for the following reasons:

- Excellent solar exposure
- Flat topography
- Excellent access to local and major roads
- Access to the grid transmission network
- A low number of non-involved neighbouring dwellings
- Likely low level of environmental impact – the site has been largely cleared and heavily disturbed by cultivation and cropping.

Once the solar farm is operational, the use of the site would be based on a lease or purchase agreement between ib vogt and the landowners.

### **3.2 THE PROPOSAL**

The solar farm would have a capacity of approximately 66 MW (DC) with an environmental footprint of approximately 95 ha within 322 ha of subject land; and would include:

- Single-axis tracker photovoltaic solar panels, mounted on steel frames over most of the site
- Internal substation
- Battery storage
- Electrical conduits and transformers
- Site office, access tracks and perimeter fencing
- Electrical connection works including an easement to connect to the existing Essential Energy substation to the southeast (see below).

Additional electrical transmission infrastructure would be required to connect the solar panel infrastructure to an existing Essential Energy substation. ib vogt is currently considering two connection options using either the existing Essential Energy 85A 66 kV transmission line (TL) that traverses the southeast region of the site (see Figure 3-1) or the existing Essential Energy 852 66kV transmission line (TL) (see Figure 3-2).

Option 1:

- Construction of single- or dual pole 66 kV TL within a 40-metre easement to junction with the existing Essential Energy 85A TL within Lot 80 DP754309
- Augmentation of the existing Essential Energy 85A TL poles to facilitate the additional solar farm TL (i.e. two separate circuits on the same pole) over Lot 80 DP754309, Lot 11 DP130889 and Lot 7012 DP93290
- Construction of an substation extension within Lots 181 -182 and Lots 200-201 DP754291 adjacent to the existing Essential Energy substation including augmentation within lots 183-186 DP754291 and 196-199 DP754309 as required by Essential Energy
- A t-off spur from the augmented Essential Energy 85A poles would connect to the substation extension within Lot 7012 DP93290 and Lot 181 – 184 DP754291 via either underground or overhead subject to detailed design.

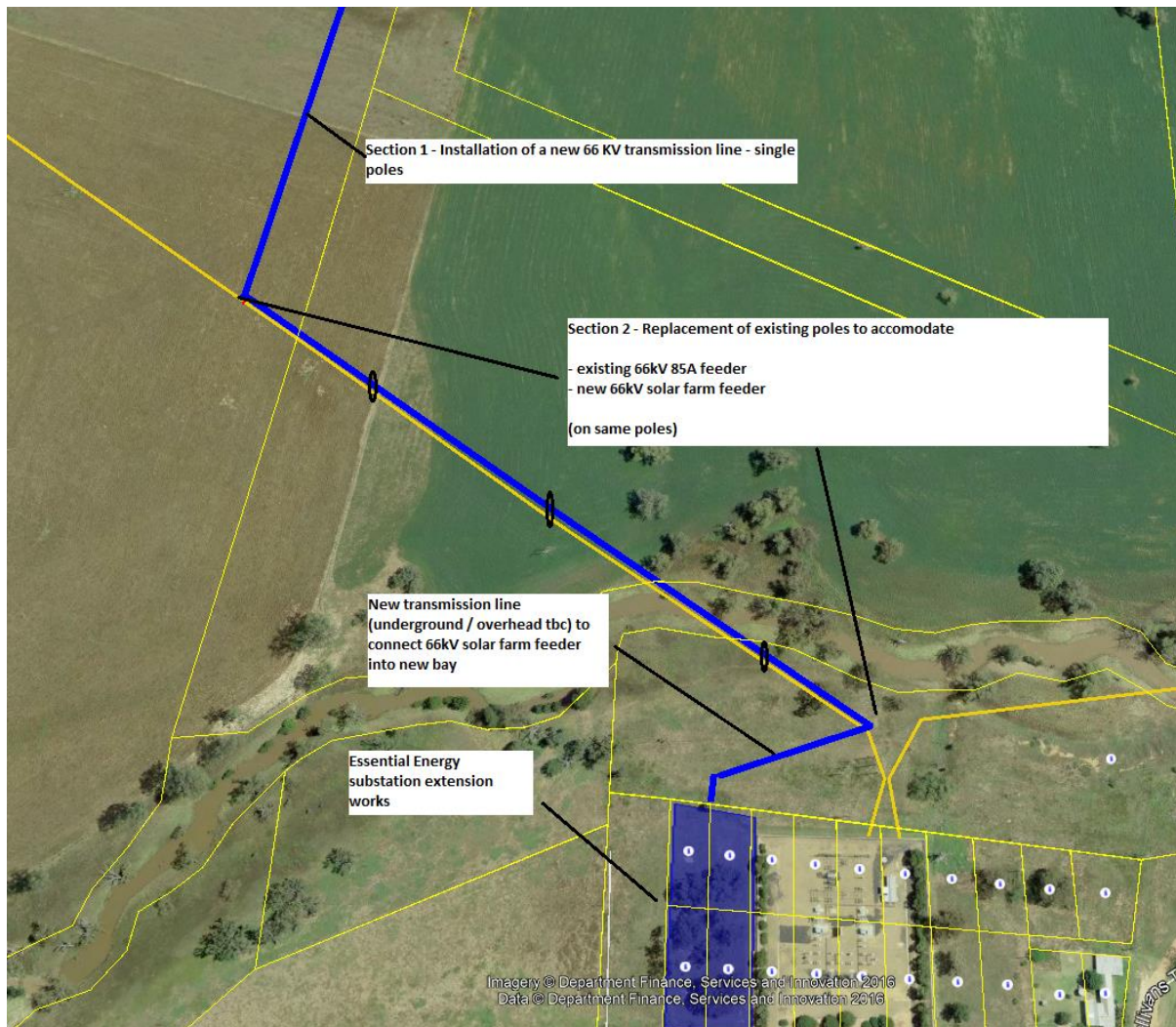


Figure 3-1 Transmission line Option 1

**Option 2:**

- Construction of single-pole 66 kV TL within a 30-metre easement within Lot 80 DP754309 and Lot 11 DP130880 to junction with the existing Essential Energy 852 TL within Lot 7012 DP93290.
- Subject to detailed design, the TL within Lot 11 DP130880 might be overhead, underground or hybrid.
- Augmentation of the existing Essential Energy 852 TL poles to facilitate the additional solar farm TL (i.e. two separate circuits on the same pole) over Lot 7012 DP93290
- Construction of a substation extension within Lots 181 -182 and Lots 200-201 DP754291 adjacent to the existing Essential Energy substation including augmentation within Lots 183-186 DP754291 and 196-199 DP754309 as required by Essential Energy
- A t-off spur from the augmented Essential Energy 852 poles would connect to the substation extension within Lot 7012 DP93290 and Lot 181 – 184 DP754291 via either underground or overhead subject to detailed design.

Alternative connection options are being considered which do not increase the development footprint as per Option 1 and Option 2 above.



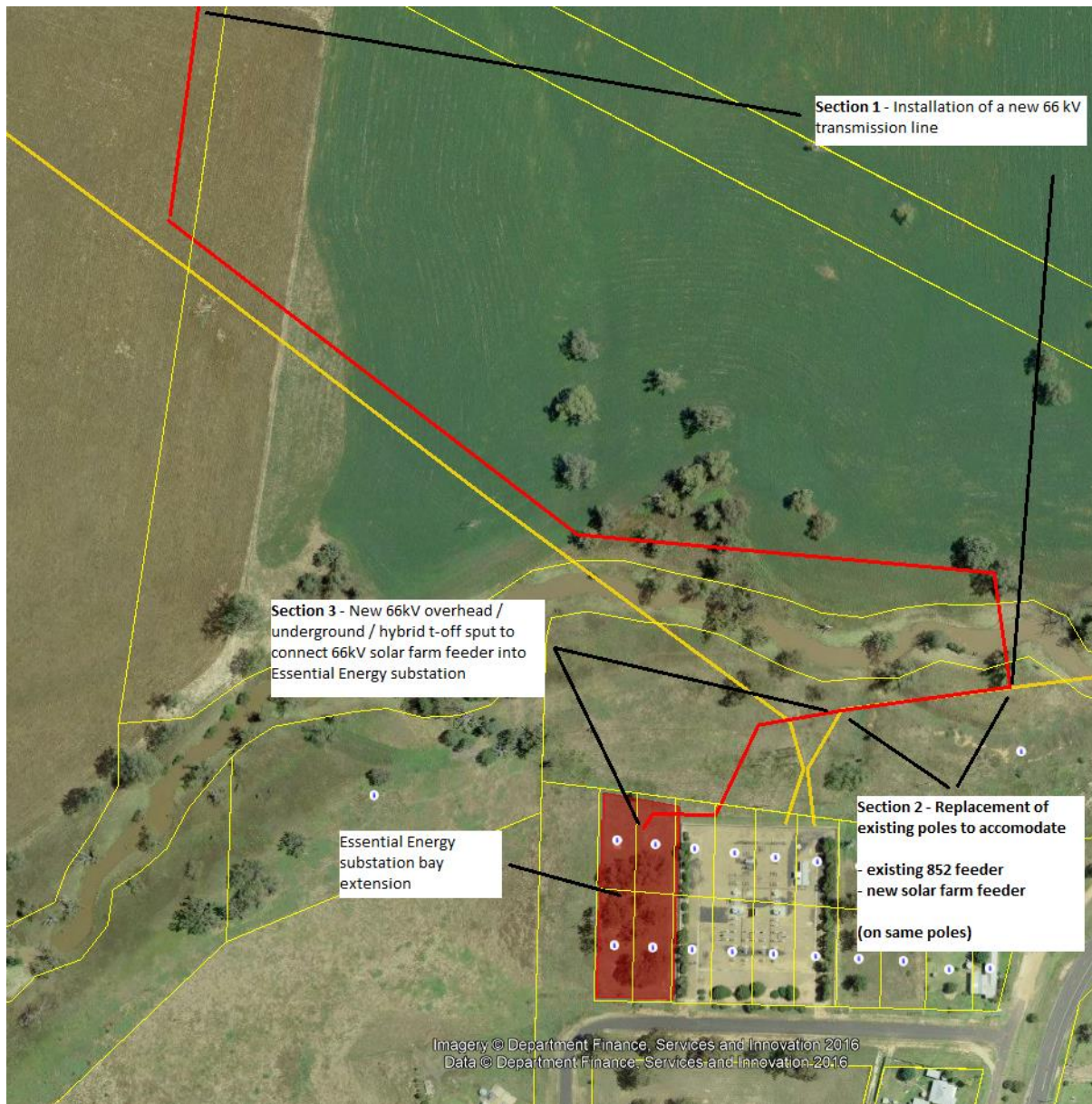


Figure 3-2 Transmission line Option 2

The site would be accessed from All Weather Road, which runs east to west across the site. All Weather Road meets the Castlereagh Highway to the west of the site, providing access to the region's transport network. Further details will be provided in the EIS.

### **3.2.1 Construction, operation and decommissioning**

The Dunedoo Solar Farm is expected to operate for around 30 years. The construction phase of the proposal is expected to take up to 12 months. After the initial operating period, the solar farm would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or upgraded with new PV equipment.

### **3.2.2 Capital investment**

The Dunedoo Solar Farm proposal would have an estimated capital investment of \$80-90M million. A quantity surveyor's report would be prepared during the EIS process as part of the proposal, which would confirm the capital investment cost.

## 4 JUSTIFICATION AND ALTERNATIVES

### 4.1 CLIMATE CHANGE

Electricity generation is the largest individual contributor of greenhouse gas emissions in Australia (Department of Environment 2016).

Australia is a signatory to the United Nations Framework Convention on Climate Change, the Paris Agreement and the Kyoto Protocol. These agreements commit Australia to a reduction in greenhouse gas emissions. Both the NSW and Australian Governments have developed renewable energy targets.

The proposal would also contribute to the Commonwealth Government's objective to achieve an additional 33GW of electricity from renewable sources by 2020 under the Renewable Energy Target or RET.

The COP21, also known as the 2015 Paris Climate Conference, achieved a legally binding and universal agreement on climate, with the aim of keeping global warming below 2°C, chiefly by reducing greenhouse gas emissions. The Dunedoo Solar Farm would form part of the Australian effort to help meet this target.

The Dunedoo Solar Farm would contribute to the New South Wales Renewable Energy Action Plan (NSW Government 2013), which supports the national target of 20% renewable energy by 2020. The proposal will also further the three goals of the Action Plan:

1. Attract renewable energy investment and projects
2. Build community support for renewable energy
3. Attract and grow expertise in renewable energy.

The NSW 2021: A plan to Make NSW Number One (NSW Government 2011) has the following goal:

- *Contribute to the national renewable energy target ... by promoting energy security through a more diverse energy mix, reducing coal dependence, increasing energy efficiency and moving to lower emission energy sources.*

### 4.2 TECHNICAL FEASIBILITY

The proposal would employ proven and mature solar technology. The solar resource at the site is highly suited to efficient, high-output generation.

The site is flat and predominantly clear, making it an ideal location for a utility scale solar project.

The Essential Energy network is located in close proximity to the site to the south east, allowing connection to the distribution network.

## **4.3 ELECTRICITY SUPPLY**

AEMO (2016) forecasts that grid-supplied electricity consumption will remain flat for the next 20 years, despite projected 30% growth in population. Although not required to meet projected electricity demand, the proposal would benefit the network by shifting electricity production closer to local consumption and regulating inputs to the grid using an Energy Storage Facility.

The Energy Storage Facility would be capable of storing energy for release when the use or cost is beneficial. The facility would be approximately 12-15 MW rated capacity, provided by banks of lithium-ion batteries. The facility would provide network services including 'energy smoothing' and frequency control integration and improved reliability as well as energy arbitrage. 'Energy arbitrage' is the price mechanism allowing energy to be stored during periods of low demand and then discharged during periods of high demand.

## **4.4 SOCIO-ECONOMIC BENEFITS**

### **Employment**

The proposal will generate around 100 direct jobs during construction, as well as indirect supply chain jobs. In addition, it will employ approximately 2-3 full time staff during the operation and maintenance phase (expected to be 25-30 years).

The employment benefits extend through the local supply chains to fuel supply, vehicle servicing, uniform suppliers, hotels/motels, B&B's, cafés, pubs, catering and cleaning companies, tradespersons, tool and equipment suppliers and many other businesses. In 2012, 24,000 Australians were employed in the renewable energy sector and the industry is set to generate an additional new 18,400 jobs by 2020 (CEC 2015).

### **Electricity prices**

According to Deloitte, Australian households will pay \$510 million more for power in 2020 without renewable growth through the RET and up to \$1.4 billion more per year beyond 2020. Renewables increase competition in the wholesale energy market – and as in any market, less competition means higher prices.

## **4.5 ALTERNATIVES TO THE PROPOSAL**

### **4.5.1 Alternative sites**

ib vogt has reviewed the solar generation potential of many areas in NSW using a GIS (Geographic Information System) model. The site was selected because it provides the optimal combination of:

- Low environmental constraints (predominantly cleared cropping land)
- Level terrain for cost effective construction
- High quality solar resource
- Low density population and limited neighbouring properties
- Suitable planning context
- Acceptable flood risk
- Road access
- Access to the distribution network

- High levels of available capacity on the grid distribution system.

The site is of a scale that allows for flexibility in the design, allowing ib vogt to avoid ecological and other constraints which may be identified during the EIS process. The factors that determine the final design area will be detailed in the EIS.

#### **4.5.2 Alternative technologies**

Photovoltaic solar technology was chosen because it is cost-effective, low profile, durable and flexible regarding layout and siting. It is a proven and mature technology, which is readily available for broad scale deployment at the site.



## **5 PLANNING CONTEXT**

### **5.1 NSW LEGISLATION**

#### **5.1.1 Environmental Planning and Assessment Act 1979**

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and its associated regulations and instruments set the framework for development assessment in NSW. The proposal would be assessed under Part 4 of the EP&A Act.

#### ***State Environmental Planning Policy (State and Regional Development) 2011***

Clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* defines 'State significant development' as including:

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

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

The proposal would have a capital investment cost greater than \$30 million and is therefore classified as 'State significant development' under Part 4 of the EP&A Act.

State Significant Developments (SSD) 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 SSD, 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 environmental assessment requirements issued by the Secretary of the Department of Planning and Environment (SEARs). 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. A Scoping Report is required to be submitted with the request for the SEARs.

#### ***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). The proposal is located within a rural zone and is permissible with consent under the ISEPP.

### **5.1.2 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. The need for upgrade works on local roads would be considered as part of the traffic assessment conducted for the proposal. If required, approval from the roads authority (RMS and/or Council) would be sought under section 138 of the Roads Act. Warrumbungle Shire Council, and RMS if required, would be consulted during the design and preparation of the EIS.

### **5.1.3 Biosecurity Act**

The *Biosecurity Act 2015* and its subordinate legislation commenced on the 1st July 2017. The Biosecurity Strategy 2013-2021 and *Biosecurity Act 2015* (which repealed the *Noxious Weeds Act 1993*) provide a streamlined, clear framework for safeguarding primary industries, natural environments and communities from a range of pests, diseases and weeds. The broad objectives for of this Act and for biosecurity in NSW are to manage biosecurity risks from animal and plant pests and diseases, weeds and contaminants by:

- preventing their entry into NSW
- quickly finding, containing and eradicating any new entries
- effectively minimising the impacts of those pests, diseases, weeds and contaminants that cannot be eradicated through robust management arrangements.

The *Biosecurity Act 2015* provides a flexible and responsive statutory framework to help achieve these objectives for the benefit of the NSW economy, environment and community.

### **5.1.4 Biodiversity Conservation Act 2016**

The *Biodiversity Conservation Act 2016* outlines the framework for addressing impacts on biodiversity from development and clearing and sets out to:

- Conserve biological diversity and promote ecologically sustainable development;
- Prevent the extinction and promote the recovery of threatened species, populations and ecological communities;
- Protect the critical habitat of those species, populations and ecological communities that are endangered;
- Eliminate or manage certain threatening processes;
- Ensure proper assessment of activities impacting threatened species, populations and ecological communities, and
- Encourage the conservation of threatened species, populations and ecological communities through co-operative management.

Together with the *Biodiversity Conservation Regulation 2017*, it establishes a framework to avoid, minimise and offset impacts on biodiversity from development through the Biodiversity Offsets Scheme. The Biodiversity Offsets Scheme creates a transparent, consistent and scientifically based approach to biodiversity assessment and offsetting for all types of development that are likely to have a significant impact on biodiversity. It also establishes biodiversity stewardship agreements, which are voluntary in-perpetuity agreements entered into by landholders, to secure offset sites.

## Significance of impact

The Biodiversity Offsets Scheme applies to the following development and clearing proposals:

- Local development that will have impacts above the 'Biodiversity Offsets Scheme Threshold' or is likely to significantly affect threatened species or ecological communities based on the assessment of significance in s7.3 of the *Biodiversity Conservation Act 2016*. ("Local development" is development approved under Part 4 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* other than State Significant Development and Complying Development)
- State Significant Development and State Significant Infrastructure, unless it is not likely to have any significant impact on biodiversity values (as determined by the Secretary of the Department of Planning and Environment and the Chief Executive of the Office of Environment and Heritage)
- Clearing above the Biodiversity Offsets Scheme Threshold regulated through the Vegetation State Environmental Planning Policy. This covers clearing that does not require development consent in urban areas and environmental conservation zones (E2-E4 zones)
- Agricultural clearing proposals that require approval by the Native Vegetation Panel under the *Local Land Services Amendment Act 2016*
- Biodiversity certification proposals
- Activities assessed under Part 5 of the *EP&A Act*, if the proponent chooses to opt-in to the Biodiversity Offsets Scheme.

Therefore, as this proposal is assessed under as State Significant Development, and potentially may have impacts on biodiversity values, a Biodiversity Development Assessment Report (BDAR) must be prepared.

### 5.1.5 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, 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. 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 impacts to Aboriginal heritage and native fauna and flora are discussed in Section 6 of this report.

### 5.1.6 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. 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 is unlikely to directly or indirectly affect any items of heritage significance (refer Section 6).

### **5.1.7 Crown Land Management Act 2016**

The main aims of the *Crown Lands Management Act 2016* are to provide for the ownership and management of Crown land in NSW, and provide clarity concerning the law applicable to Crown land. Works within a Crown reserve require environmental, social, cultural heritage and economic considerations to be considered, and must facilitate the use of land by the NSW Aboriginal people.

The objects of this Act are:

- (a) to provide for the ownership, use and management of the Crown land of New South Wales, and
- (b) to provide clarity concerning the law applicable to Crown land, and
- (c) to require environmental, social, cultural heritage and economic considerations to be taken into account in decision-making about Crown land, and
- (d) to provide for the consistent, efficient, fair and transparent management of Crown land for the benefit of the people of New South Wales, and
- (e) to facilitate the use of Crown land by the Aboriginal people of New South Wales because of the spiritual, social, cultural and economic importance of land to Aboriginal people and, where appropriate, to enable the co-management of dedicated or reserved Crown land, and
- (f) to provide for the management of Crown land having regard to the principles of Crown land management.

There is an area of Crown land immediately adjacent to the solar farm site and the local electrical substation, owned by Essential Energy. This would be further investigated in the EIS and the Department of Primary Industries (Lands) would be consulted during the assessment process.

### **5.1.8 State Environmental Planning Policy No. 33 – Hazardous and Offensive Development**

This SEPP defines and regulates the assessment and approval of potentially hazardous or offensive development. The SEPP defines ‘potentially hazardous industry’ as:

*“...development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:*

*(a) to human health, life or property, or*

*(b) to the biophysical environment,*

*and includes a hazardous industry and a hazardous storage establishment”*

‘Potentially offensive industry’ is defined as:

*...a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment.*

SEPP 33 provides for systematic assessment of potentially hazardous and offensive development for the purpose of industry or storage. For development proposals classified as ‘potentially hazardous

industry' the policy requires a preliminary hazard analysis (PHA) to determine risks to people, property and the environment.

A checklist and a risk screening procedure developed by DPIE is used to help determine whether a development is considered potentially hazardous industry (DOP, 2011). Appendix 3 of the *Applying SEPP 33* guidelines lists industries that may fall within SEPP 33; the lists do not include solar farms and energy storage facilities.

A preliminary risk screening in accordance with SEPP 33 was undertaken (see section 7.2.7) and determined based on the spread of storage capacity and site-specific hazard mitigation measures that the proposal was not potentially hazardous. Therefore, a PHA was not completed.

## **5.2 LOCAL GOVERNMENT**

### **5.2.1 Warrumbungle Local Environmental Plan 2013**

The proposal site is located within the Warrumbungle LGA and is subject to the *Warrumbungle Local Environmental Plan 2013* (Warrumbungle LEP). The aims of the LEP are:

- (a) to encourage sustainable economic growth and development in Warrumbungle,*
- (b) to encourage and provide opportunities for local employment growth and the retention of the population in Warrumbungle,*
- (c) to encourage the retention of productive rural land for agriculture,*
- (d) to identify, protect, conserve and enhance Warrumbungle's natural assets,*
- (e) to identify and protect Warrumbungle's built and cultural heritage assets for future generations,*
- (f) to facilitate the equitable provision of social services and facilities for the community,*
- (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 proposed solar farm site is located on land zoned RU1 - Primary Production under the Warrumbungle LEP. Electrical generation is not listed among developments, which are permitted with consent for the zone, however, the ISEPP takes precedence over the LEP and permits solar developments with consent in the RU1 zone.

### **Subdivision**

A lease of land creates a subdivision under s.7A *Conveyancing Act 1919* (formerly s.327AA *Local Government Act 1919* now repealed) when the total of the original term of the lease, together with any option of renewal, is more than five years.

When the lease affects the whole of a lot in a current plan - the body of the lease will simply identify the area to be leased by reference to the lot and deposited plan number. A new plan is not required.

When the lease affects part of a lot or lots in a current plan - it will be necessary to provide a plan to define the land in the lease and the residue of any lot in a current plan affected by the leased area.

Should the proposed land subdivision result in lot sizes that are less than the minimum lot size (as shown on the LEP Lot Size Map relating to that land) then approval via the Department of Planning and Environment, may be necessary. This may apply to this proposal as the minimum lot size map shows a 40-hectare minimum for the subject land and subdivision of the land below the minimum lot size may be required.

In this regard, consultation between ib vogt and Warrumbungle Council is ongoing to determine whether the provisions contained within the Local Environmental Plan would permit the land subdivision to occur.

Furthermore, land subdivision that affects land containing a dwelling will be subject to the provisions of the State Environmental Planning Policy (Rural Lands) 2008 and the matters that must be considered in determining development applications for rural subdivisions or rural dwellings.

## **5.3 COMMONWEALTH LEGISLATION**

### **5.3.1 Environmental Protection and Biodiversity Conservation Act 1999**

The EPBC Act provides an assessment and approval process for actions likely to cause a significant impact on Matters of National Environmental Significance (MNES). These include:

- World Heritage properties
- National Heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Listed threatened species and ecological communities
- Migratory species protected under international agreements
- Nuclear actions (including uranium mines)
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- A water resource, in relation to coal seam gas development and large coal mining development.

Approval by the Commonwealth Environment Minister is required if an action is likely to have a significant impact on a MNES. Assessments of significance based on criteria listed in Significant Impact Guidelines 1.1 issued by the Commonwealth (Commonwealth of Australia 2013) are used to determine whether the proposed action is likely to have a significant impact (i.e. is likely to be considered a 'controlled action').

A search of the Commonwealth Protected Matters Search Tool was undertaken – see Section 7.2.1.

### **5.3.2 Native Title 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, the proponent would comply with the provisions of the *Native Title Act 1993*.

## **6 CONSULTATION**

Community and stakeholder consultation will be integral to the proposal. ib vogt has begun consultation or is planning to consult with a wide range of relevant Local Government, State and Commonwealth authorities, as well as local businesses, community groups and other interested parties.

A Community Consultation Plan (CCP) has been prepared to provide a framework to engage with the community and stakeholders about the proposal and ensure opportunities to provide input into the assessment and development process are understood. Stakeholders were identified as those potentially being impacted by the solar farm proposal or having an interest in the proposal. The CCP has set out consultation requirements with interested parties including adjacent neighbours, near neighbours, local businesses, any special interest groups and representative bodies. The plan also includes strategies for consultation for the local community and the broader community within the region.

To date, ib vogt has carried out consultation with the Department of Planning and Environment, Essential Energy, Warrumbungle Shire Council and the immediate neighbours regarding the proposal.

During October 2017, a newsletter was issued to all residents within 2km of the proposal site (including all residents of Dunedoo) to advise them of the proposal. Further details on the consultation will be included in the EIS.

The CCP aims 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 proposal. Agency consultation would also be undertaken in accordance with any requirements of the SEARs.



## 7 SCOPING REPORT

### 7.1 METHODOLOGY

NGH Environmental has undertaken a preliminary constraints assessment of the proposed Dunedoo Solar Farm proposal site. The assessment was based on a desktop review and preliminary site inspection undertaken on 27 July 2017 to identify potential high-level constraints and major risks to the proposal.

The risk rating is a factor of the **likelihood** of the impact occurring and the **consequence** of the impact. Depending on the combination of consequence and likelihood, the overall risk rating could be low to extreme (refer Table 7-1). High to extreme risks (termed 'key risks') would warrant a higher level of investigation. Low to Medium risks would be discussed in less detail. Where uncertainty exists, a higher rating was applied. Preliminary constraints are discussed in Sections 2.2 and 7.2 and are illustrated in Figure 2-2 and Appendix B. This Scoping Report will be used to guide further detailed investigations and ultimately the site infrastructure layout.

A summary of the key environmental issues is provided in Section 7.2. The intent of the discussion is to demonstrate an understanding of the issues that require further environmental assessment and proposed investigation strategies for these key issues. The potential impacts of other (less significant) issues are discussed in section 0.

Table 7-1 Risk assessment rating matrix

Likelihood	Consequence				
	Negligible	Minor	Moderate	Major	Catastrophic
Remote	Low	Low	Low	Medium	Medium
Unlikely	Low	Low	Medium	High	High
Possible	Low	Medium	High	Very High	Very High
Likely	Medium	High	Very High	Very High	Extreme
Almost certain/ inevitable	Medium	High	Very High	Extreme	Extreme

Table 7-2 summarises the results of the preliminary risk assessment. Fourteen environmental risks were investigated. The unmitigated risk rating is the risk rating prior to assessment and is therefore precautionary. It considers a 'worst case' in the absence of specific information.

The following environmental risks were considered to be key issues:

- Biodiversity.
- Aboriginal heritage.
- Flooding and hydrology
- Visual amenity and landscape character.
- Noise.
- Land use and resources.



Table 7-2 Risk assessment of environmental issues

Environmental risk	Likelihood	Consequence	Risk rating (unmitigated)
Biodiversity	Likely	Moderate	High
Aboriginal heritage	Possible	Moderate	High
Visual amenity and landscape character	Possible	Moderate	High
Flooding and hydrology	Possible	Minor	High
Land use and resources	Likely	Minor	High
Noise	Likely	Minor	High
Soils and landforms	Possible	Minor	Medium
Historic heritage	Unlikely	Moderate	Medium
Access and traffic	Unlikely	Moderate	Medium
Contamination	Possible	Minor	Medium
Air quality	Possible	Minor	Medium
Hazards and risks	Possible	Minor	Medium
Socio and economic impacts	Possible	Minor	Medium
Utilities	Possible	Minor	Medium
Resource use and waste generation	Possible	Minor	Medium

## 7.2 ASSESSMENT OF KEY ISSUES

### 7.2.1 Biodiversity

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

- Threatened species and community listings under the BC Act and EPBC Act.
- Commonwealth EPBC Act Protected Matters Search Tool, using a 10-kilometre search radius.
- Threatened species and communities records in the BioNet Database (OEH), using a 10 kilometre search radius.
- A preliminary site inspection by an ecologist.

#### Database searches

The EPBC Act Protected Matters Search undertaken on 9 March 2020 indicated six (6) nationally-listed threatened communities which may or are likely to occur in the search area:

- *Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions*
- *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia*
- *Natural Grasslands of the Murray Valley Plains Critically Endangered Community*
- *Poplar Box Grassy Woodland on Alluvial Plains*
- *Weeping Myall Woodlands Endangered Community*
- *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.*

The OEH Bionet database indicates the following Endangered Ecological Communities listed under the BC Act for the search area:

- *Coolac-Tumut Serpentine Shrubby Woodland in the NSW South Western Slopes and South Eastern Highlands Bioregions*
- *Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions*
- *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penplain, Nandewar and Brigalow Belt South Bioregions*
- *White Box Yellow Box Blakelys Red Gum Woodland.*

The EPBC Act search indicated 10 threatened flora species and 16 threatened fauna species (excluding fish) that are either known to occur or have potential to occur in the search area. The NSW Bionet search indicated 0 threatened flora and 2 threatened fauna records for the search area. The threatened species indicated by the searches are shown in Table 7-3.

Table 7-3 Threatened flora and fauna species indicated in the databases searches


Species	Indicated in search?	
	EPBC Act	BC Act
<b>Plants</b>		
<i>Dichanthium setosum</i>	✓	-
<i>Euphrasia arguta</i>	✓	-
<i>Homoranthus darwinioides</i>	✓	-
<i>Leucochrysum albicans</i> var. <i>tricolor</i>	✓	-
<i>Philotheca ericifolia</i>	✓	-
<i>Prasophyllum petilum</i>	✓	-
<i>Prasophyllum</i> sp. <i>Wybong</i>	✓	-
<i>Swainsona recta</i>	✓	-
<i>Thesium australe</i>	✓	-
<i>Tylophora linearis</i>	✓	-
<b>Birds</b>		
Regent Honeyeater ( <i>Anthochaera phrygia</i> )	✓	-
Australasian Bittern ( <i>Botaurus poiciloptilus</i> )	✓	-
Curlew Sandpiper ( <i>Calidris ferruginea</i> )	✓	-
Australian Painted Snipe ( <i>Rostratula australis</i> )	✓	-
Painted Honeyeater ( <i>Grantiella picta</i> )	✓	-
Black Falcon ( <i>Falco subniger</i> )	-	✓
Superb Parrot ( <i>Polytelis swainsonii</i> )	✓	-
Swift Parrot ( <i>Lathamus discolor</i> )	✓	-
Malleefowl ( <i>Leipoa ocellate</i> )	✓	-
<b>Reptiles</b>		
Pink-tailed Worm-lizard ( <i>Aprasia parapulchella</i> )	✓	-
Striped Legless Lizard ( <i>Delma impar</i> )	✓	-
<b>Mammals</b>		
Squirrel Glider ( <i>Petaurus norfolcensis</i> )	-	✓
Grey-headed Flying-fox ( <i>Pteropus poliocephalus</i> )	✓	-
Large-eared Pied Bat ( <i>Chalinolobus dwyeri</i> )	✓	-
Spot-tailed Quoll ( <i>Dasyurus maculatus maculatus</i> SE mainland population)	✓	-
Greater Glider ( <i>Petauroides volans</i> )	✓	-
Corben's Long-eared Bat, South-eastern Long-eared Bat ( <i>Nyctophilus corbeni</i> )	✓	-
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) ( <i>Phascolarctos cinereus</i> ) (combined populations of Qld, NSW and the ACT)	✓	-

## Site inspection

A site inspection of the proposal site was undertaken on 27 July 2017 by an ecologist. The methodology utilised included a site walkover, rapid assessment points identifying the dominant plant species, photos and observations of habitat features such as hollows when encountered. This method allowed for identification of vegetation communities likely to be present within the proposal site. Vegetation integrity plots were not undertaken during the initial site inspection.

Table 7-4 Threatened flora and fauna species indicated in the databases searches

Site	Easting	Northing	Description	Image
Cropping area	726413	6457695	Paddock dominated by improved pasture that had been heavily grazed	
Native Pasture	726848	6458062	Native pasture with high cover of Plains grass	
Yellow box – River Red Gum Woodland	726354	6457414	Box-gum woodland	
Scattered fuzzy box woodland	725623	6458108	Scattered Fuzzy Box woodland	

Site	Easting	Northing	Description	Image
Riparian area	726513	6456037	Riparian area and proposed transmission line looking toward the substation	

## Biodiversity constraints

Aerial Imagery and site inspections confirm most of the site has been cleared of woody vegetation and has been highly modified by agricultural practices. However, small fragmented areas of woodland occur within the proposal site. Cleared areas predominantly consist of cropping paddocks such as Lucerne (*Medicago sativa*) and Forage oats (*Avena* sp) or paddocks containing exotic improved pasture species such as Bambatsi panic (*Panicum coloratum* var. *makarikariense*) and Consol lovegrass (*Eragrostis curvula* complex). However, a separate grassland community was observed dominated by Plains grass (*Austrostipa aristiglumis*). This native pasture community has a high native grass cover but contains low native grass diversity and is generally of a lower quality compared to the derived native grassland communities in the region. Areas of cropping and exotic pasture are regarded as a low constraint, however, a precautionary approach has been undertaken in regards to areas of native pasture, which is considered a moderate constraint.

Woodland areas contain small fragmented patches of native species as well as small areas of planted vegetation and contain a combination of native and exotic species. Woodland areas to south of All Weather Road contain River redgum (*Eucalyptus camaldulensis*), Rough-barked apple (*Angophora floribunda*) and Yellow box (*Eucalyptus melliodora*). Woodland areas to the north of All Weather Road, and to the north- western corner of the proposal site contain scattered Fuzzy box (*Eucalyptus conica*). In both woodland communities, midstorey is absent and groundcover contains predominately exotic flora species and has been influenced by heavy grazing. However, both woodland communities are considered to form part of the Box Gum Woodland Endangered Ecological Community, with the latter considered to part of the Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions, albeit in a degraded condition. Woodland areas are regarded as a high constraint.

There is potential for the site to provide habitat for flora and fauna that are known to utilise Box Gum Woodland. This would be investigated in detail as part of the preparation of the EIS. Site inspections have identified that small areas of native pasture may provide habitat with potential to support threatened flora species (including *Swainsona recta* and *Dichanthium setosum*). Targeted surveys for this species have been undertaken to avoid impacts in these areas. Waterways and riparian corridors provide aquatic habitat and fauna movement corridors and have high potential to transport sediments and other pollutants and are regarded as a moderate to high constraint. A significant riparian area borders the proposal site to the south and it is proposed that the transmission line would cross this riparian area. Permits may apply for works in waterways and construction practices will be subject to best practice methodologies and rehabilitation requirements.

A preliminary constraints map is provided at Appendix B and details the preliminary biodiversity constraint areas.

## Conclusions and need for further assessment

Detailed ecological surveys and further investigation and assessment have been undertaken utilising the Biodiversity Assessment Method (BAM). The findings of the surveys and the Biodiversity Development Assessment Report (BDAR) will be presented in the EIS and will include targeted surveys for candidate species, collection of vegetation integrity plot data and the calculation of any biodiversity offsets that may be required for the project, in accordance with the Biodiversity Offset Scheme (BOS). If calculations determine that offset credits are required to offset impacts, then an offset strategy to determine the method of securing the offset would be required to be developed in accordance with the BAM.

As noted above, targeted surveys may be required for the following:

- Threatened flora species, including *Swainsona recta* and *Dichanthium setosum*
- Threatened reptile species, including *Delma impar*
- Remnant woodland and native dominated grasslands (EECs)

### 7.2.2 Aboriginal heritage

A search of the Aboriginal Heritage Information Management System (AHIMS) on 11 March 2020 and identified two Aboriginal sites and no Aboriginal places within one kilometre of the proposal site.

Landforms, vegetation and soils over much of the proposal site have been heavily disturbed by paddock levelling, cultivation, construction of irrigation channels, track formation and clearing for agriculture. This is likely to reduce the potential for Aboriginal heritage sites of significance in the affected areas. Conversely, unmodified areas with remnant woodlands are likely to have a higher potential for significance. It is noted that field assessment is required to confirm this and that any Aboriginal heritage sites/items/etc. identified would be a moderate to high constraint, requiring impact mitigation.

### Further assessment

An Aboriginal heritage assessment of the development footprint has been undertaken and stakeholder consultation process is still ongoing. The significance of any Aboriginal heritage sites that may be potentially affected by the proposal will be determined in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011). The findings of the assessment will be included in the EIS.

### 7.2.3 Visual amenity and landscape character

The solar farm has potential to result in visual impacts to neighbouring houses and road users adjacent to the site. The site is located within a rural area with nearest residences of the Dunedoo township located 100m to the south. There are approximately 5 potential (uninvolved) isolated residences within 2 kilometres of the proposal site. The site boundary in Figure 2-2 illustrates the area of land under consideration for the solar farm proposal. Subject to flood investigations, it is expected that the infrastructure elements of the proposal would be located at least 1.5 km from the nearest residences within Dunedoo. The proposal design would also incorporate recommendations from the Visual Impact Assessment regarding setbacks between the proposed infrastructure and Dunedoo residences.

An assessment of the level of visual impact would be undertaken as part of the EIS process. The EIS would also consider the potential for the solar farm to affect local landscape character. Additional consultation with specific affected residences would be undertaken to identify the nature and

significance of impacts and the need for mitigation measures. The level terrain improves the potential effectiveness of vegetation planting around the site.

It is noted that solar panels are designed to absorb as much sunlight as possible. They therefore reflect a very low percentage of the light and are not considered likely to result in glare or reflections that would affect traffic or nearby receivers.

### **Further assessment**

A Visual Impact Assessment, including view shed analysis and community consultation, has been undertaken to investigate visual impacts and mitigation options. The findings will be presented in the EIS.

#### **7.2.4 Hydrology and flooding**

The nearest watercourse to the proposal site is the Talbragar River, located immediately south and south west of the site. The southern section of the proposal site is located within the floodplain of the Talbragar River. The Talbragar River drains the western slopes of the Great Dividing Range – its headwaters being situated in the Coolah Tops – and discharges to the larger Macquarie River, downstream at Dubbo. The Macquarie River forms part of the broader Murray-Darling basin. -

BMT WBM undertook a flood risk assessment for the Dunedoo Solar Farm proposal during September 2017 to identify development constraints and assess the flood risk associated with the proposal. The assessment established that the northern part of the proposal site is not situated within an area of high flood risk, however some areas of the southern part are subject to overland flood flows. It may be possible to reduce local flood hazards in the southern portion of the site through the filling of topographic depressions, if required.

### **Further assessment**

A Flood Impact Assessment has been undertaken in order to identify and quantify any potential flood impacts to neighbouring properties. This will be presented in the EIS.

#### **7.2.5 Noise**

There are approximately 5 potential (uninvolved) residences in the vicinity of the proposal site.

Noise impacts would, for the most part, only occur during construction (generated by construction vehicles and machinery), with minimal noise likely to be generated during operation. Ib vogt would adopt best practice mitigation measures during construction, such as standard working hours and regular vehicle and machinery maintenance to reduce the risk of adverse noise impacts.

During the operation of the solar farm, noise would potentially be produced by the solar tracking system (an optional feature which would operate for around half an hour per day), the substation and switchgear and any maintenance works undertaken at the site. Noise impacts during the operation of the solar farm are expected to be very low.

### **Further assessment**

A construction noise assessment has been undertaken to assess potential noise impacts. The findings will be presented in the EIS.



### **7.2.6 Land use and resources**

The proposal site is currently used for stock grazing, cultivation and improved pasture. The proposal site occurs within an area classified as Biophysical Strategic Agricultural Land by the NSW Government.

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.

There would be a loss of access to any resources that may be available at the site for the life of the proposal. 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 low and restricted only to the period of operation.

### **Further assessment**

The impact of the proposal on agricultural production in the locality and region will be presented in the EIS.

### **7.2.7 Risk Screening**

An environmental hazard is a thing or situation which can threaten the environment or human health. Hazards may be natural or artificial or result from the interaction between human activity and the natural environment. Hazards relevant to the Proposal and Development Site include risks associated with hazardous goods, electromagnetic fields, aviation impacts, and fire.

### **Hazardous materials and development**

SEPP 33 Hazardous and Offensive Development requires a Preliminary Hazard Assessment (PHA) to be prepared for potentially hazardous or offensive development. Appendix 3 of the Applying SEPP 33 guidelines (DOP 2011) lists industries that may fall within SEPP 33; the guidelines do not include solar farms and energy storage facilities. Appendix 2 of the guidelines provides a risk screening procedure and a checklist to identify Hazardous and Offensive Development in instances where the applicability of SEPP 33 is not immediately apparent. Information relevant to the risk screening and the checklist is provided below.

#### **Risk screening**

The SEPP 33 screening procedure is based on the quantity of dangerous goods stored or transported, the frequency of transportation movements and, in some cases, the distance of the materials from the site boundary. The guidelines require goods to be classified according the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code). The ADG Code lists 9 classes of dangerous goods:

- Class 1 Explosives
- Class 2 Gases
- Class 3 Flammable liquids
- Class 4 Flammable solids
- Class 5 Oxidising substances and organic peroxides
- Class 6 Toxic and infectious substances
- Class 7 Radioactive material



Class 8 Corrosive substances

Class 9 Miscellaneous dangerous substances and articles, including environmentally hazardous substances.

A development, which exceeds screening thresholds in the guidelines would be considered potentially hazardous, and a PHA would need to be submitted with the development application. For quantities below the given thresholds, the SEPP indicates that there is unlikely to be a significant off-site risk, in the absence of other risk factors.

The dangerous goods that would require transportation and storage during construction or operation of the proposed solar farm are identified in Table 7-5, with ADG Code classification, relevant quantity and transportation thresholds, and storage arrangements. In terms of the class, transportation and storage of dangerous goods, the Proposal would not exceed SEPP 33 thresholds, would not be considered potentially hazardous and would not require the preparation of a PHA.

Table 7-5 Dangerous goods and SEPP 33 thresholds relevant to the Proposal

Hazardous material	Storage threshold	Transport threshold		Storage arrangements	Exceeds thresholds?
		Movements	Quantities		
Class 2.1 Flammable gases					
LPG	10 tonnes or 16m <sup>3</sup> (above ground)	>500 cumulative >30/week	2-5 tonnes	Up to 45kg cylinders beside the control building, at least 20 metres from boundary.	No
Class 2.2 Non-flammable, non-toxic gases					
Inert fire suppression gas	NA	NA	NA	Compressed in steel bottles in BSU	No
Class 3 – Flammable liquids (PGII)					
Fuel (petrol)	5 tonnes	>750 cumulative >45/week	3-5 tonnes	1 tonne in secure operations storage building	No
Class 9 Miscellaneous dangerous substances and articles					
Li-on batteries	NA	>1000 cumulative >60/week	No limit	Housed across the site in up to 18 customised containers 18 x 21.99m <sup>3</sup> containers = 396m <sup>3</sup> total	No

## **Class 2.2 Non-flammable, non-toxic gases**

The inert gas stored in compressed form in the proposed Battery Storage for fire suppression would belong to Class 2.2 Non-flammable, non-toxic gases. Gases within this class/division are excluded from the SEPP 33 risk screening process and are not considered to be potentially hazardous with respect to off-site risk. These materials have a Workcover notification threshold of 10,000 litres.

The use of inert gases for fire suppression in enclosed spaces carries asphyxiation risks for staff, site visitors and emergency personnel. Gases commonly used are blends of argon, nitrogen and carbon dioxide. Inert gases are used to reduce oxygen content to below 15% to extinguish fires. Levels below 18% are hazardous for humans, and levels below 10% are extremely dangerous. The risk of accidental asphyxiation can be minimised by:

- proper installation and operation
- regular equipment inspection maintenance
- provision of warning signs and information to staff
- staff and emergency responder training (including during maintenance and rescue/first aid)
- fixed or personal oxygen monitoring equipment
- activation of an audible and visible internal and external alarm prior to gas release
- incorporation of an odour in the gas
- effective ventilation and air exchange
- safe and effective purging system.

## **Class 9 Miscellaneous dangerous substances and articles**

Class 9 represents miscellaneous dangerous goods, which pose little threat to people or property, although they may pose an environmental hazard (DOP 2011). Lithium-ion batteries are Class 9 Hazardous Goods (both new and waste batteries). Class 9 goods are also excluded from the SEPP 33 risk screening process. The major hazard offered by lithium-ion battery technologies is fire, as a result of the flammability of the substances used in the battery (Recharge 2013). Fire risks associated with lithium-ion batteries are discussed in Section 9.8. Class 9 materials have a Workcover notification threshold of 10,000 litres or kilograms.

Lithium-ion batteries are classified as hazardous waste under the Commonwealth *Hazardous Waste Act 1989* and are classified as Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code). The ADG Code requires dangerous goods to be carried in a secure, safe and environmentally controlled manner. The code specifies 'special provisions' and 'packing instructions' applying to the transportation of Li-ion batteries. The code listing also applies to waste Li-ion batteries. The National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998 (the NEPM), which sets the regulatory framework for transporting 'controlled wastes' between Australian states and territories, does not currently cover Li-ion batteries. Waste Li-ion batteries are not currently regulated as a hazardous waste by state governments and hence transport within the state is not required to be tracked in hazardous waste tracking systems (Randell Consulting 2016).

## **Other risk factors**

The Proposal would not involve the storage or transport of incompatible materials, generation of hazardous wastes, generation of dusts within confined areas, activities involving hazardous materials,

incompatible, reactive or unstable materials and process conditions, storage or processing operations involving high (or extremely low) temperatures.

### **7.3 OTHER ENVIRONMENTAL ISSUES**

There are a range of potential environmental issues associated with the proposal which are not considered to be key issues. These 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 7-6. The impacts and any required mitigation relating to these issues are addressed at an appropriate level of detail in the EIS.

Table 7-6 Other environmental issues

Existing environment	Potential impacts	Management and mitigation
<b>Soils</b>		
Soils at the proposal site have been extensively disturbed by agricultural activities. The soil type is expected to be alluvial and may have poor drainage in low-lying areas and poor trafficability when wet.	Construction activities would include minor excavations and vegetation removal, which have the potential to cause soil erosion and sedimentation and dust issues.	The design would provide all weather access at the site during construction and operation to avoid erosion/sedimentation impacts and tracking of soil, in particular after rain events.  The EIS would provide thorough consideration of soil impacts and proposed mitigation measures during construction and operation.
<b>Historic heritage</b>		
There are no listed heritage items in the vicinity of the proposal site. The site inspection did not identify any old structures or items that would potentially have historic significance.	There is considered a low risk of impact to heritage items.	The heritage status of the site would be assessed during fieldwork undertaken as part of the archaeological assessment. Appropriate management measures would be implemented if required.
<b>Access and traffic</b>		
The site would be accessed from All Weather Road, which traverses the proposal site. All Weather Road connect to the Castlereagh Highway, would be the major transport route for haulage and site vehicles during construction and operation of the proposal.	Construction traffic would impact traffic along the Castlereagh Highway and All Weather Road. Maintenance access tracks during operation would also be required across the proposal site.  All Weather Road is unsealed. During construction, there may be impacts to residences along the access route associated with dust, vibration and noise.	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 residents regarding the works that may affect roads or traffic.

Existing environment	Potential impacts	Management and mitigation
		The design would also consider any requirements from RMS and other relevant stakeholders on access arrangements to the proposal site. The mitigation measures would require a Traffic Management Plan to be prepared.
<b>Contamination</b>		
Contamination associated with agricultural activities (e.g. pesticides, petrochemicals) or asbestos construction or insulation materials may still be present on the site.	There is potential that contaminants may be uncovered during excavation activities at the site.	Risk associated with contamination at the site are considered low and therefore no detailed investigation is likely to be required within the EIS. The mitigation measures would require a CEMP be prepared to manage any contamination identified during site construction.
<b>Air quality</b>		
The air quality in the study area is expected to be good and typical of rural settings in NSW with low population density and no industrial pollution sources. Existing sources of air pollution are expected to include vehicle emissions, dust from agricultural practices and smoke from seasonal stubble burning. During colder months, solid fuel heating may result in a localised reduction in air quality, particularly if temperature inversions operate overnight.	The construction of the proposal is not anticipated to have a significant impact on air quality, and would mostly be related to dust during dry periods and vegetation removal. Impacts to air quality during operation would be negligible.	The mitigation measures would require a CEMP be prepared to manage air quality impacts during the construction phase. There is an opportunity to improve local air quality by maintaining ground cover vegetation under the panels.
<b>Hazard and risk – electric and magnetic fields (EMF)</b>		
Existing powerlines produce EMF at the site. Additional infrastructure, which form part of the proposal such as connecting powerlines and a transformer, would produce additional electromagnetic emissions at the site.	The transformer, battery storage and network connection would be located on the proposal site and adjoining Crown Land. The powerlines constructed as part of the proposal would not pass through	The EMF levels of the proposed powerlines, battery storage and transformer would be assessed as part of the EIS.

Existing environment	Potential impacts	Management and mitigation
	any neighbouring private properties. The EMF that would be generated by the proposed powerlines, battery storage and transformer is expected to be below the guideline for public exposure and would not be expected to have an adverse impact on human health.	
<b>Hazard and risk - bushfire</b>		
The proposal site has been predominantly cleared for agriculture.	The proposal is unlikely to be affected by bushfire, or pose a significant bushfire risk.	Bushfire impacts and risk would be assessed in the EIS.
<b>Hazard and risk - Aviation</b>		
Public airfields and private airstrips are scattered in the region.	It is noted that 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 air traffic.	The EIS would investigate the potential for glare impacts related to aviation.
<b>Social and economic impacts</b>		
The proposal site is located in a rural region, near to the township of Dunedoo.	The proposal would reduce the availability of agricultural land but would generate economic benefits during construction and operation, including local employment opportunities. Other socio-economic impacts would include traffic and access, noise, air quality and visual impacts.	The EIS would assess potential social and economic impacts of the proposal.

Existing environment	Potential impacts	Management and mitigation
<b>Utilities</b>		
<b>Electricity network</b> Essential Energy is a NSW Government-owned corporation, with responsibility for building, operating and maintaining the electricity network in the proposal area.	The proposed works would involve works adjacent to these utilities. The solar farm will need to connect to the Essential Energy electricity network.	The EIS would assess the proposal against the setback and approval requirements of Essential Energy. The solar farm would be designed to comply with required setback, approval and consultation requirements of Essential Energy.
<b>Waste management</b>		
The proposal would generate several waste streams and utilise a variety of materials during the construction phase.	During construction, excavated material and green waste would be generated as waste. Packaging from panels and other components would require disposal. Limited operational waste would be associated with the proposal.	A Waste Management Plan would be incorporated into the CEMP, applying the principles to avoid, re-use and recycle to minimise wastes. Cleared trees would be recycled as fauna habitat where possible.

## **8 CONCLUSION**

This Scoping Report has outlined the proposed Dunedoo Solar Farm and established the environmental and planning context of the proposal. The proposal would be assessed under Part 4 of the EP&A Act and classed as State Significant Development under State Environmental Planning Policy (State and Regional Development) 2011.

The report has been prepared to assist the development of Secretary's Environmental Assessment Requirements (SEARs) for the proposal, which will guide the preparation of the Environmental Impact Statement (EIS).

The report identifies the following key environmental issues associated with the proposal, based on preliminary investigations:

- Biodiversity
- Aboriginal heritage
- Visual amenity and landscape character
- Noise (construction)
- Land use and resources.

These issues will be assessed in detail in the EIS. It is likely that other issues such as soil and water values, traffic impacts and natural hazards can be readily addressed by appropriate standard mitigation and management measures. The relevance and importance of issues would be reviewed throughout the EIS process.



## 9 REFERENCES

Australian Energy Market Operator (AEMO) (2016) National Electricity Forecasting Report - For the National Electricity Market (NEM) 2016 <[https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning\\_and\\_Forecasting/NEFR/2016/2016-National-Electricity-Forecasting-Report-NEFR.pdf](https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning_and_Forecasting/NEFR/2016/2016-National-Electricity-Forecasting-Report-NEFR.pdf)>, accessed 18 August 2017.

Department of Environment and Energy (2016) Quarterly update of the National Greenhouse Gas Inventory. <http://www.environment.gov.au/climate-change/greenhouse-gas-measurement/publications/quarterly-update-australias-national-greenhouse-gas-inventory-jun-2016>, accessed 18 August 2017.

Warrumbungle Shire Council, 2016, *Warrumbungle Shire Council*, accessed 21 July 2017 from <http://www.warrumbungle.nsw.gov.au/>

## APPENDIX A SITE PHOTOGRAPHS



View toward the north west across south eastern portion of site (All Weather Road on left)





View to the south east from Digilah Road toward the proposal site (middle ground) with Dunedoo in the background on the left

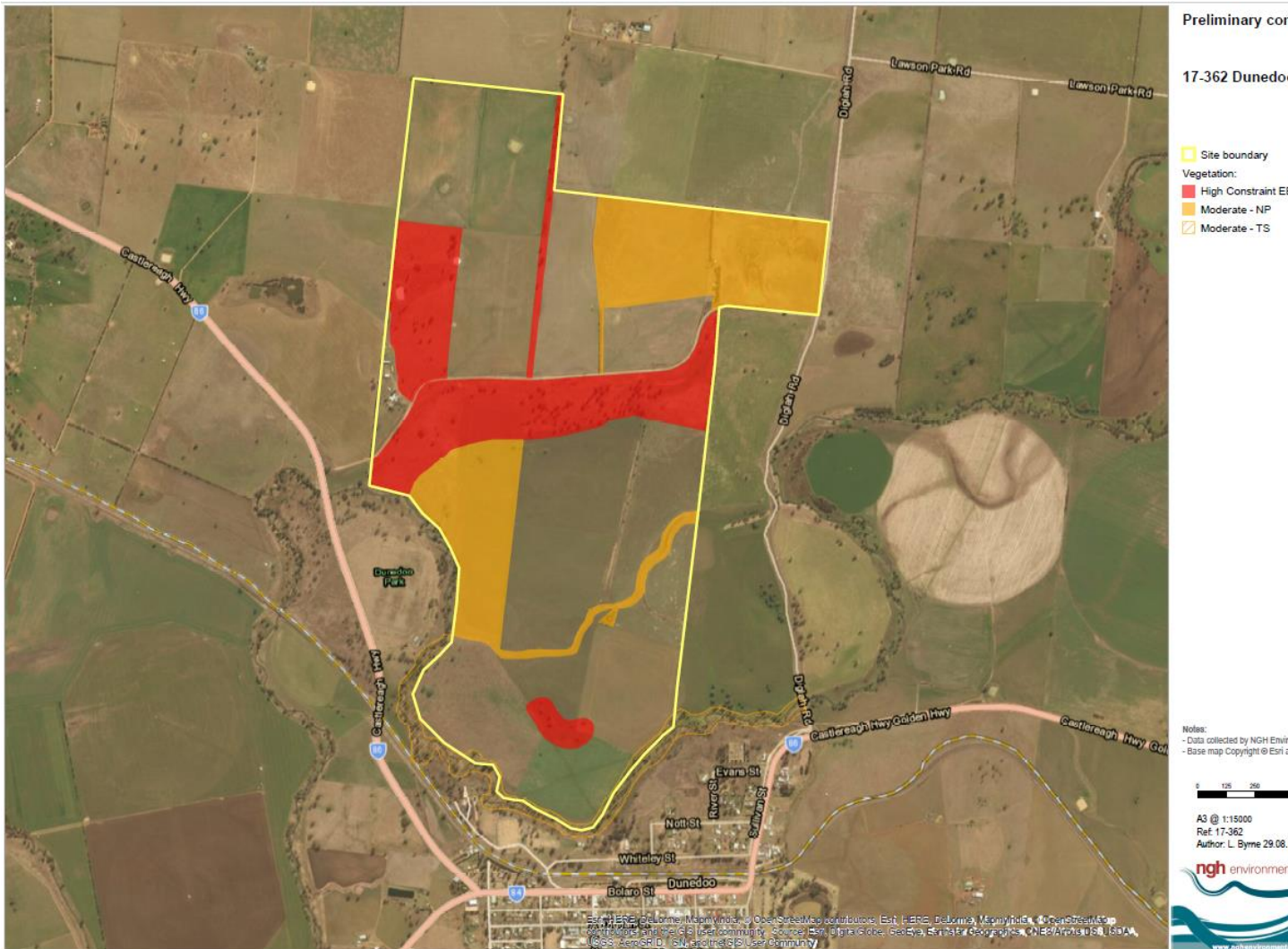


View north west across central portion of the site from All Weather Road



View west toward the site from Castlereagh Highway

## APPENDIX B BIODIVERSITY CONSTRAINTS MAPPING



## Biodiversity background searches

## EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 09/03/20 13:19:22

[Summary](#)

[Details](#)

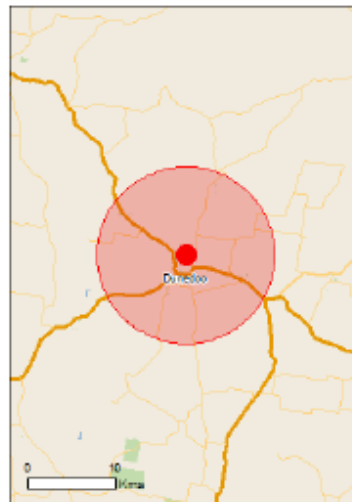
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

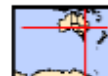
[Acknowledgements](#)



This map may contain data which are  
©Commonwealth of Australia  
(Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 10.0Km





## Summary

### Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	4
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	6
<a href="#">Listed Threatened Species:</a>	29
<a href="#">Listed Migratory Species:</a>	10

### Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

<a href="#">Commonwealth Land:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	17
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

### Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

<a href="#">State and Territory Reserves:</a>	None
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	26
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine):</a>	None

## Details

### Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[ Resource Information ]
Name	Proximity
<a href="#">Banrock station wetland complex</a>	800 - 900km upstream
<a href="#">Riverland</a>	800 - 900km upstream
<a href="#">The coorong, and lakes alexandrina and albert wetland</a>	900 - 1000km upstream
<a href="#">The macquarie marshes</a>	150 - 200km upstream

### Listed Threatened Ecological Communities [ Resource Information ]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
<a href="#">Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions</a>	Endangered	Community may occur within area
<a href="#">Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia</a>	Endangered	Community likely to occur within area
<a href="#">Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland</a>	Critically Endangered	Community may occur within area
<a href="#">Poplar Box Grassy Woodland on Alluvial Plains</a>	Endangered	Community may occur within area
<a href="#">Weeping Myall Woodlands</a>	Endangered	Community may occur within area
<a href="#">White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</a>	Critically Endangered	Community likely to occur within area

### Listed Threatened Species [ Resource Information ]

Name	Status	Type of Presence
<b>Birds</b>		
<a href="#">Anthochaera phrygia</a> Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris femuginea</a> Curlew Sandpiper [858]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Grantiella picta</a> Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area



Name	Status	Type of Presence
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Polytelis swainsonii</a> Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
<b>Fish</b>		
<a href="#">Galaxias rostratus</a> Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Maccullochella peelii</a> Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
<a href="#">Macquaria australasica</a> Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dasyurus maculatus maculatus (SE mainland population)</a> Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
<a href="#">Nyctophilus corbeni</a> Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Phascogale cinerea (combined populations of Qld, NSW and the ACT)</a> Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pteropus poliocephalus</a> Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
<b>Plants</b>		
<a href="#">Andropogon procumbens</a> [87153]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dichanthium setosum</a> bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Euphrasia arguta</a> [4325]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Homoranthus darwinoides</a> [12974]	Vulnerable	Species or species habitat may occur within area
<a href="#">Leucocorydium albicans var. tricolor</a> Hoary Sunray, Grassland Paper-daisy [56204]	Endangered	Species or species habitat may occur within area
<a href="#">Prasophyllum petilum</a> Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area
<a href="#">Prasophyllum sp. Wybong (C. Phelps ORG 5269)</a> a leek-orchid [81984]	Critically Endangered	Species or species

Name	Status	Type of Presence
<a href="#">Swainsona recta</a> Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
<a href="#">Tylophora linearis</a> [55231]	Endangered	Species or species habitat may occur within area
<b>Reptiles</b>		
<a href="#">Aprasia parapulchella</a> Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1685]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Delma impar</a> Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area
<b>Listed Migratory Species</b>		
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		<b>[ Resource Information ]</b>
Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat likely to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

## Other Matters Protected by the EPBC Act

### Commonwealth Land [\[ Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

#### Name

Commonwealth Land - Australian Telecommunications Commission

### Listed Marine Species [\[ Resource Information \]](#)

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Chrysocolaptes osculans</a> Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat likely to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat may occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

## Extra Information

### Invasive Species [ Resource Information ]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
<b>Birds</b>		
<i>Acridotheres tristis</i> Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
<i>Carduelis carduelis</i> European Goldfinch [403]		Species or species habitat likely to occur within area
<i>Columba livia</i> Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
<i>Passer domesticus</i> House Sparrow [405]		Species or species habitat likely to occur within area
<i>Streptopelia chinensis</i> Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
<i>Sturnus vulgaris</i> Common Starling [389]		Species or species habitat likely to occur within area
<i>Turdus merula</i> Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
<b>Mammals</b>		
<i>Bos taurus</i> Domestic Cattle [16]		Species or species habitat likely to occur within area
<i>Canis lupus familiaris</i> Domestic Dog [82854]		Species or species habitat likely to occur within area
<i>Capra hircus</i> Goat [2]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
<i>Felis catus</i> Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
<i>Lepus capensis</i> Brown Hare [127]		Species or species habitat likely to occur within area
<i>Mus musculus</i> House Mouse [120]		Species or species habitat likely to occur within area
<i>Oryctolagus cuniculus</i> Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
<i>Rattus rattus</i> Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
<i>Sus scrofa</i> Pig [6]		Species or species habitat likely to occur within area
<i>Vulpes vulpes</i> Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
<i>Asparagus asparagoides</i> Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
<i>Nassella trichotoma</i> Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
<i>Opuntia</i> spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
<i>Pinus radiata</i> Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
<i>Rubus fruticosus</i> aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
<i>Salix</i> spp. except <i>S. babylonica</i> , <i>S. x calodendron</i> & <i>S. x reichardtii</i> Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
<i>Solanum elaeagnifolium</i> Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area
<i>Tamarix aphylla</i> Athe Pine, Athe Tree, Tamarisk, Athe Tamarisk, Athe Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area



# APPENDIX C HERITAGE BACKGROUND SEARCHES

## D.1 AHIMS



### AHIMS Web Services (AWS) Search Result

Purchase Order/Reference : 17-362 Dunedoo SF  
Client Service ID : 490472

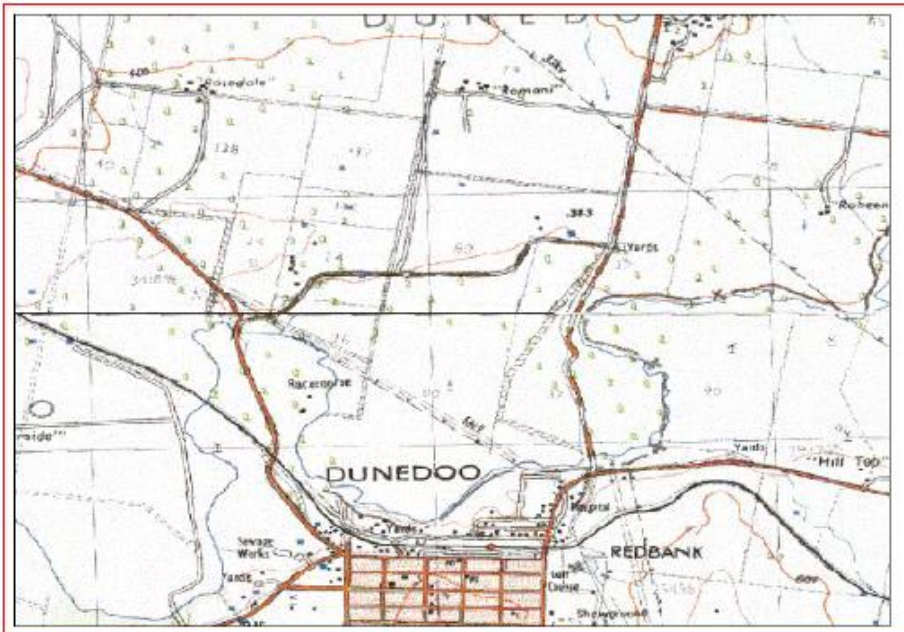
nghenvironmental - Surry Hills  
18/21 Mary St  
Surry Hills New South Wales 2010  
Attention: Martin Kim  
Email: martin.k@nghenvironmental.com.au

Date: 11 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat. Long From : -32.0094, 149.3783 - Lat. Long To : -31.9886, 149.4114 with a Buffer of 1000 meters, conducted by Martin Kim on 11 March 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

2	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

## D.1 AUSTRALIAN HERITAGE DATABASE

### Search Results

2 results found.

<a href="#">Dunedoo Railway Station and Yard Group</a> , Bolaro St	Dunedoo, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Weetalibah Nature Reserve</a>	Weetaliba, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)

Report Produced: Mon Mar 9 13:28:59 2020