



NGH



SCOPING REPORT

Blind Creek Solar Farm

January 2021

Project Number: 20-403



DOCUMENT VERIFICATION

Project Title: Blind Creek Solar Farm

Project Number: 20-403

Project File Name: Scoping Report

Revision	Date	Prepared by	Reviewed by	Approved by
Draft v1	10/12/2020	Rory Taylor Jane Blomfield	Nick Graham-Higgs	Brooke Marshall
Final v1	21/12/2020	Rory Taylor Jane Blomfield	Minor changes	Brooke Marshall
Final v1.1	06/12/2020	Rory Taylor Jane Blomfield	Minor Changes	
Final v1.2	08/01/2021	Rory Taylor Jane Blomfield	Minor Changes	

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ABN 31 124 444 622 ACN 124 444 622

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Acronyms and Abbreviations

AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
BC Act	<i>Biodiversity Conservation Act 2016</i> (NSW)
BOM	Australian Bureau of Meteorology
Cwth	Commonwealth
DECCW	Department of Environment, Climate Change and Water (NSW) now EES
DoEE	Department of the Environment and Energy (Cwth)
DPIE	Department of Planning, Industry and Environment (NSW)
EEC	Endangered ecological community – as defined under relevant law applying to the proposal
EES	Department of Environment, Energy and Science (NSW) (formerly OEH, and, prior, DECCW)
EIA	Environmental impact assessment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwth)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
ESD	Ecologically Sustainable Development
ha	hectares
Heritage Act	<i>Heritage Act 1977</i> (NSW)
ISEPP	State Environmental Planning Policy (Infrastructure) 2007 (NSW)
KFH	Key Fish Habitat
km	kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
NES	Matters of National environmental significance under the EPBC Act (<i>c.f.</i>)
NPW Act	<i>National Parks and Wildlife Act 1974</i> (NSW)
NSW	New South Wales
NV Act	<i>Native Vegetation Act 2003</i> (NSW)
SEPP	State Environmental Planning Policy (NSW)

1. INTRODUCTION

1.1. Purpose of this document

This Scoping Report supports a request to the NSW Department of Planning Infrastructure and Environment (DPIE) for the Secretary's Environmental Assessment Requirement (SEAR's) in relation to the proposed Blind Creek Solar Farm. The SEAR's would guide the preparation of an Environmental Impact Statement (EIS) for the proposal, pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This Scoping Report provides a description of the Blind Creek Solar Farm proposal, including the site and its surroundings, the environmental planning pathway for approval and identification of key potential environmental issues that may be associated with the proposal.

1.2. The proponent

The proponent, Blind Creek Solar Farm Pty Ltd (BCSF), is a farmer-led consortium made up of local landholders and renewable energy experts with strong historical and ongoing personal connections to the proposal site and local area.

The proponent has a strong commitment to implement a new approach to renewable energy that combines local knowledge of the land, farming practices and community engagement with renewable energy expertise for the benefit of the environment, land productivity and the local community.

At the heart of the project is the desire for a more sustainable future. To this end, the proposed site will be used for solar energy production but will be designed and operated to ensure concurrent continued agricultural land use. Examples of this will include the panel spacing and heights suitable for continued grazing. Additionally, the landholder intends to incorporate regenerative agriculture practices, a soil carbon project, biodiversity restoration and compost production. These agricultural land use practices are compatible with Blind Creek Solar Farm. They will maximise agricultural and land capability benefits alongside the operational solar farm. As the landholder, Dominic Osborne says:

"Blind Creek Solar Farm is part of a broader program to increase the resilience of our property while enhancing its carrying capacity and addressing climate change.

We have shifted our approach to help with the move towards a more sustainable future. This includes rehabilitating environments, rebuilding the soil and sequestering carbon while improving our land for animal production.

As part of this refocus, it makes sense to use degraded country to become renewable energy farmers. The solar farm will co-exist with lamb production, regenerative agriculture, a soil carbon project, a green-waste humus compost facility and restoration works to improve the biodiversity and water-holding capacity of the catchment. Blind Creek Solar Farm is part of that vision." — Dominic Osborne, farmer.

2. THE PROPOSAL

2.1. Project context

From the outset of the proposed project, the landholders have said they want Blind Creek Solar Farm to be the benchmark for how renewable energy projects are developed in rural communities. This new approach to renewable energy combines knowledge of the land, farming practices and community with renewable energy expertise. Solar energy will co-exist with prime lambs, regenerative agriculture, a soil carbon project, restoration of biodiversity and green waste humus compost production as part of their existing operations. These activities will be implemented within the solar farm site once commissioned but do not form part of the solar farm project.

Blind Creek Solar Farm will have a positive impact on not only the environment, but also the local community. The economic benefits of the project will be significant, and will include local jobs during construction and operation. This will have flow-on benefits to local business in the current bushfire recovery, drought and COVID pandemic context.

Blind Creek Solar Farm would create a benefit sharing model which includes close neighbours and those within a 6.5 km radius with a visual impact. Based on a 350MW project, the community and neighbours will be able to share between \$2 and \$3.4 million, depending on whether the funds are distributed upfront or over the 30 year project life. This money will be spent in ways directly benefiting the local region.

Existing approval has been granted by the NSW State Government for the 50MW Capital Solar Farm (App. No. MP10_0121) ("Capital Solar"), on land neighbouring the Blind Creek proposal site. If viable development approval is gained for the 350-400MW AC capacity Blind Creek Solar Farm, there is no intention to build Capital Solar. There is also a legacy planning approval from DPIE for nine turbines on site as part of Capital Wind Farm 2 (App. No. MP10_0135), but these are not the subject of this Scoping Report. Since approval, both technology and market conditions have changed such that the currently approved turbines are no longer considered a commercially viable prospect. A modification of the existing approval for those turbines would be required before they could be developed. As such consideration of those turbines should not form part of the consideration of the Blind Creek Solar Farm.

2.2. Site context

The proposed Blind Creek Solar Farm is located along Tarago Road, approximately 8 kilometres (km) north of Bungendore, NSW, and 50km east of Canberra, Australian Capital Territory (ACT) as shown in Figure 2.1.

The site is within the Queanbeyan-Palerang Local Government Area (LGA), which has an area of 531,888 hectares (ha). The Queanbeyan-Palerang LGA is situated in the South Eastern and Tablelands region of NSW, which has close economic and social ties to the ACT and has been targeted by NSW government as a strategic hub for renewable energy innovation and generation in the *South East and Tablelands Regional Plan 2036* (DPIE, 2017).

Queanbeyan is the closest major regional centre to the proposal site. According to the 2016 Census (ABS, 2016), Queanbeyan accommodated 57,331 people and has a number of facilities, including hospitals, banks, a church, and primary and secondary education institutions.

The nearby town of Bungendore has a population of 4,178 (ABS, 2016). The proposal site is located on the edge of the Lake George, and within the Lake George locality, which had a population of 98 people in 2016 (ABS, 2016). Lake George is the most significant natural feature in the locality.

2.3. Proposal site

The Blind Creek Solar Farm would be located within the following lots, as illustrated in Figure 2-3:

- Lot 1 DP237079, DP456698, DP1154765
- Lot 2 DP1154765, DP1167699
- Lot 2 DP237079
- Lot 3 DP237079
- Lot 4 DP237079
- Lot 9 DP237079
- Lot 10 DP237079
- Lot 11 DP237079
- Lot E DP38379

The proposal site is approximately 1,183ha. It is owned by the landholders and the proponent, who would reside long-term on site and continue co-located farming operations in conjunction with solar energy operations. The solar farm development footprint is still being determined so the entire site has been assessed for this scoping report. To support co-located grazing activities, the proponent has a general preference to space panels far apart (up to 7m between tracking centrelines) in order to maximise agricultural production under the panels. This will slightly increase the development footprint.

There is one existing residence owned by involved landholders within the proposal site. Site access is off Tarago Road and along Currandooley Road, an unsealed private road that forms part of the southern section of the project boundary. Tarago Road links to both Bungendore Road and Braidwood Road, which provide access to Canberra and Sydney via the Federal Highway and Hume Highway.

The proposal site is primarily zoned RU1 Primary Production and E3 Environmental Management under the *Palerang Local Environmental Plan 2014*. The majority of the site is clear of woody vegetation and has been modified through historical farming practices. It is currently used for grazing, primarily sheep and cattle.

One 6th order stream traverses the site accompanied by one 4th order and one 5th order tributary. The 6th order stream discharges into Lake George, on the north-western boundary of the proposal site. There are 16 dams and/or ephemeral wetlands within the site. Lake George forms the north-western boundary of the proposal site.

An existing TransGrid 330Kv transmission line traverses the far southern portion of the proposal site. It will likely be used to as the grid connection for the proposal site and to the national electricity grid. The site is in close proximity to Infigen Energy's operational Capital Wind Farm.

The proposal site's regional location and land zoning are depicted in Figure 2-1. and Figure 2-2. respectively.

2.4. Proposal description

The Blind Creek Solar Farm would involve the construction, operation and decommission of a photovoltaic (PV) solar array with a capacity to generate approximately 350-400MW that would supply electricity into the national electricity grid. When built, the solar farm will produce up to 735,000 Mega Watt hours (MWh) per year. The proposal site is a maximum of approximately 1,183 ha. Across the site, the project is likely to include:

- Up to 130 inverters.
- Up to 1 million PV modules.
- Single axis tracking with a preferred 7m spacing between panels and a 4 m height.
- Onsite substation with a 300MW and 300MWhr inertial or electrochemical storage Battery Energy Storage System (300MW, 300MWhr).
- Cabling network (preferably underground) between panels and substation.
- Internal laneways for maintenance and for movement of stock.
- Fencing for rotational grazing
- Internal gravel roads and carparking.
- Possible control centre/small office.
- On site water storage, inclusive of hydrant points for the RFS.

The proposal site would combine rows of solar panels laid out approximately in north to south axis, separated by approximately seven metres to allow grass for grazing lambs. Solar panels are likely to be mounted on a single-axis tracking system, enabling the panels to track the sun throughout the day in an east-west direction.

The proposed connection to the grid would be via construction of a new onsite substation and battery storage pad located adjacent to the existing TransGrid 330 kV transmission line. The proposal currently has two site access options including:

1. Existing site access off Tarago Road, which is a sealed public road linking Bungendore Road and Braidwood Road.
2. Currandooley Road, an unsealed private road that forms part of the southern section of the project boundary.

The proposed development is being led by the farmers, but it is likely that a larger investment partner will be required to build and operate the project. This would be handled via a lease with the farmers retaining the rights to farm under the panels. A subdivision may be required. This will be determined following further consultation with landowners and TransGrid.

The construction phase is anticipated to take between 12-18 months, with a similar peak construction phase. It is anticipated that the Blind Creek Solar Farm would operate for 30 years, after which time the solar farm would be decommissioned or repowered subject to landowner and planning consents. The decommissioning phase would involve removal of all above ground infrastructure and return of the site to its existing land capability.

It is assumed the project would have a capital investment value (CIV) greater than \$30 million and therefore would need be submitted as a State Significant Development for approval to the NSW Department of Planning, Infrastructure and Environment (DPIE).

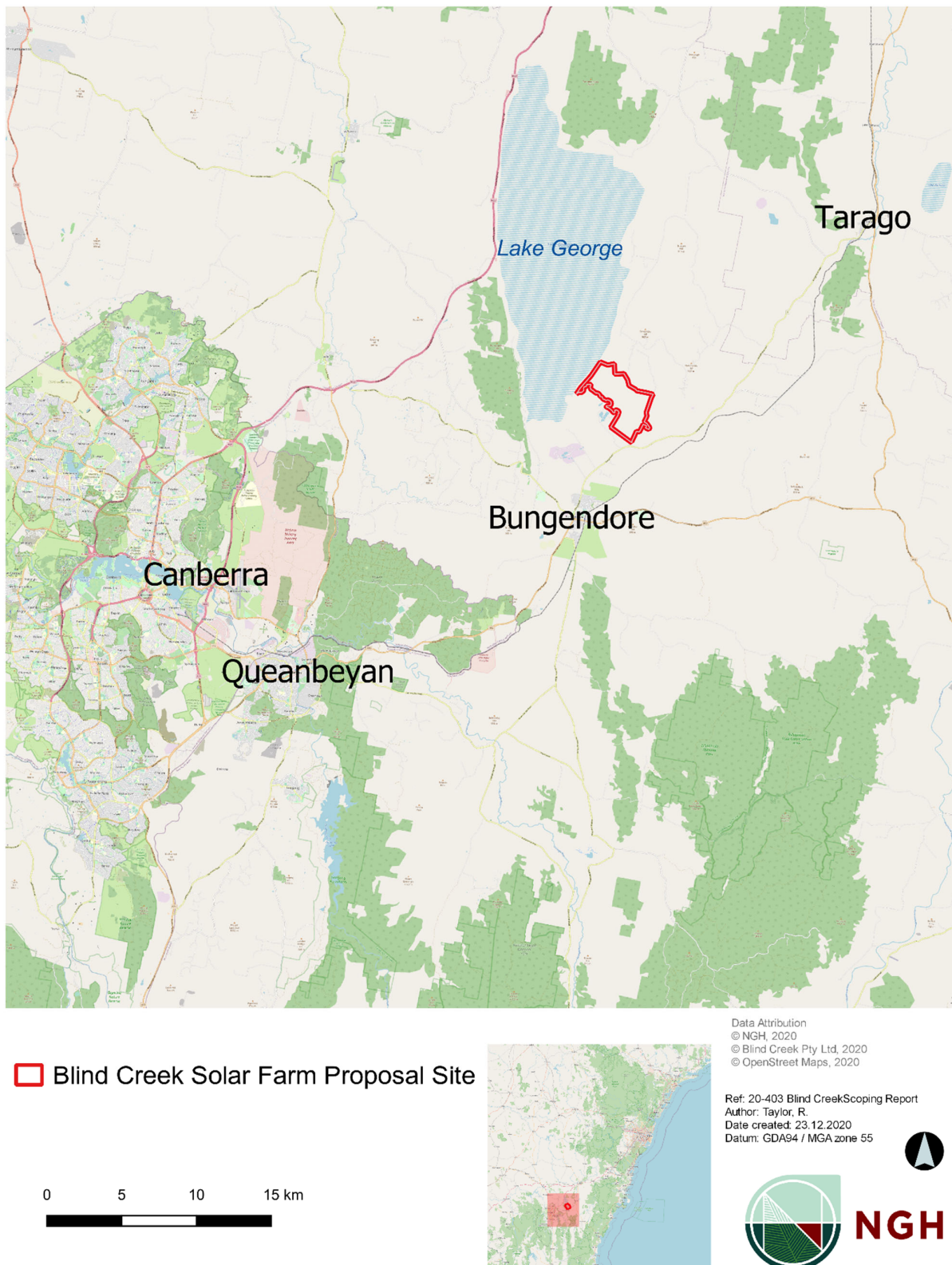


Figure 2-1 Location of proposal site and proximity to closest towns.

Scoping Report

Blind Creek Solar Farm

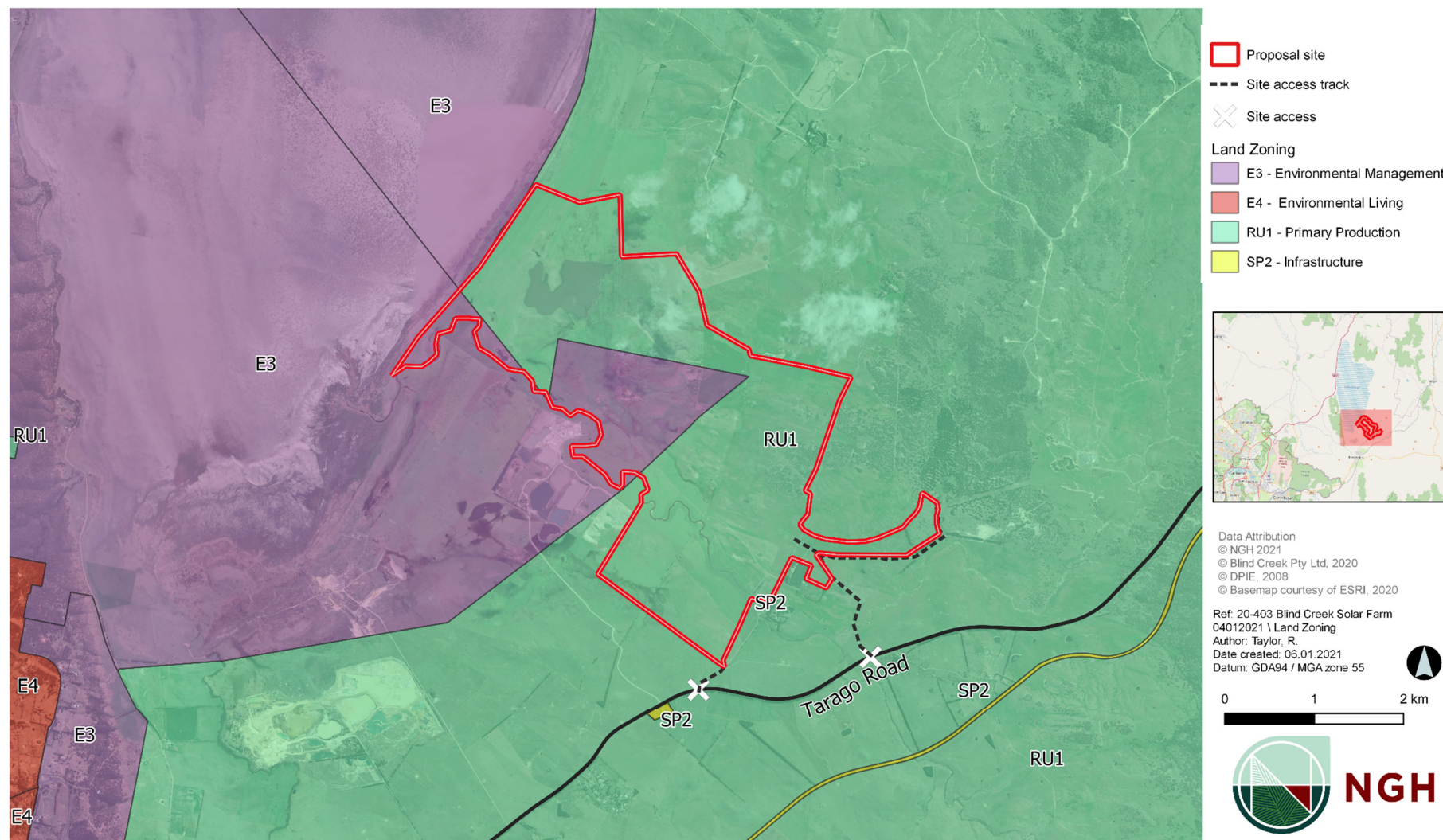


Figure 2-2 Land zoning of proposal site and surrounding areas.

Scoping Report Blind Creek Solar Farm



Figure 2-3 Lot and DP's located within and near the proposal site.

3. PROPOSAL NEED AND BENEFITS

3.1. Proposal need

Climate change refers to the warming temperatures and altered climatic conditions associated with the increased concentration of greenhouse gases in the atmosphere. Climate change projections for Australia includes more frequent and hotter hot days and fewer frost days, rainfall declines in south eastern Australia and more extreme weather events including intense rainfall, severe drought and harsher fires (CSIRO, 2018). The renewable energy generated by the Blind Creek Solar Farm would support efforts to mitigate the effect of climate change by:

- Assisting the NSW and Commonwealth Governments to meet Australia's renewable energy targets.
- Assist the NSW Government meet its 2050 net zero emissions target.
- Providing a clean and renewable energy source to assist in reducing greenhouse gas (GHG) emissions.

3.1.1. Commonwealth commitments

The proposed Blind Creek Solar Farm supports Commonwealth climate change commitments including:

- United Nations Paris Climate Change Agreements.
- Renewable Energy Target (RET) Scheme.

A legally binding and universal agreement on climate was reached at the 2015 Paris Climate Conference, with the aim of keeping global warming below 2°C, by reducing greenhouse gas emissions. Australia has committed to reducing greenhouse gas emissions by aiming for the following targets:

- 5% below 2000 levels by 2020.
- 26 to 28% below 2005 levels by 2030.
- Net zero emissions in the second half of this century.

The proposed Blind Creek Solar Farm would contribute to Australia's effort in helping meet these targets.

The RET was established under the *Renewable Energy (Electricity) Act 2000*. The RET scheme creates a market for renewable energy with the goal of ensuring that by 2020, around 23.5% of electricity will be generated from renewable sources. The proposed Blind Creek Solar Farm would contribute directly to meeting the scheme goal.

3.1.2. NSW commitments

The proposal is also consistent with the current goals and targets for renewable energy generation in NSW. These include:

- *coal dependence, increasing energy efficiency and moving to lower emission energy sources.*
- Contributing to achieving the NSW target of zero net emissions by 2050.

- Consistent with the NSW Electricity Strategy (NSW Government, 2019), that outlines the NSW Governments plan for reliable, affordable and sustainable electricity, which builds on the NSW Transmission Infrastructure Strategy.
- Building on the vision and impetus of the new NSW Electricity Infrastructure Roadmap and coordinated framework it provides to support energy transition across the State (NSW Energy, 2020). Supporting legislation, *Electricity Infrastructure Investment Bill* 2020 (NSW), is currently in the NSW Legislative Assembly and is highly likely to be passed in the near future.
- Goal 22 of the NSW 2021: A plan to Make NSW Number One (DPC, 2011):
Contribute to the national renewable energy target [i.e. 20% renewable energy supply] by promoting energy security through a more diverse energy mix, reducing

In November 2020 DPIE released *NSW Electricity Infrastructure Roadmap*. The roadmap is NSW's plan to transition the electricity sector and seize opportunities associated with this. It focusses on delivery of electricity infrastructure, firming and transmission with the goal of redefining NSW as a modern global energy superpower. An intent is to drive investment in regional NSW, as well as benefit from emerging low cost technologies including solar energy generation. In contrast to many other sites, the proposal site is close to the dominant NSW demand centre, Greater Sydney, on a part of the network deemed high system strength in AEMO's *2020 Integrated System Plan* (AEMO, 2020). It is also likely to be supported electrically and commercially by Snowy 2.0.

3.1.3. Regional and Local area commitments

The proposal further aligns with regional and local area commitments to renewable energy, including:

- Building on the goals of *The South East and Tablelands Regional Plan 2036*, which targets renewable energy as a priority growth sector for the South East and Tablelands region (DPIE, 2019).

3.2. Proposal benefits

In addition to supporting Australia and NSW efforts to mitigate the effect of climate change, the Blind Creek Solar Farm would produce significant and diverse benefits in four major areas:

- Economy,
- Community (society)
- Environment
- Clean energy transitions

3.2.1. Economy

The Blind Creek Solar farm will deliver substantial economic benefits to the local and regional economy.

A solar project of this size generates approximately 300 direct construction jobs, with the construction phase expected to last 12-18 months. During operation there would be approximately 5 full time jobs. The proposal would create local employment and economic stimulus in Queanbeyan and Bungendore, as well as their surrounding localities. It's anticipated that up to half of the resulting employment opportunities will be filled from the local or regional area. These areas

would provide accommodation, food, fuel and trade equipment and services, mostly during the construction phase.

During operation of the solar farm, economic benefits would be less, focussing on monitoring and inspections, maintenance, repair and upgrade of infrastructure, much of which is likely to be provided by the local labour force.

The proponent will work with the local Chambers of Commerce and local Indigenous job networks to ensure local service providers and contractors are aware of opportunities, and actively look for the right skills amongst local residents and businesses to ensure the benefits stay local wherever possible.

Furthermore, the Community Benefit Sharing Program will focus on returning financial benefits back to the community as discussed below.

3.2.2. Community

Community benefit sharing programs (CBSPs) are increasingly common practice in renewable energy projects as an identified pathway to *'integrate renewable energy developments into local communities in ways that are positive, rewarding and beneficial for both project proponents and local communities'* (Clean Energy Council, 2019). A unique, signature element of the Blind Creek Solar Farm proposal is a bespoke Community Benefit Sharing Program which shares the financial benefits with close neighbours and those within 6.5 km who have a visual impact. The funds will be distributed according to impact. This program does not prevent a neighbour from objecting to the project. A requirement of the program is for recipients to spend the money in the local town on improvements for their property.

Underpinning the Blind Creek CBSP is a focus on sustainable agriculture, environmental restoration and community building. The proposed CBSP will establish a fund of \$330.00 per MW per annum from the proposal project. For a 350MW solar farm this equates to approximately \$115,500 per annum, equating to \$3.45m over the 30-year project operational lifetime. A committee will be formed to discuss the scheme and community input will be sought into these options via a community feedback survey. Funds wherever possible will be required to flow back to the community.

More broadly, large-scale solar farm proposals also have potential to benefit the Australian community by reducing average household electricity bills and power disruptions. The Australian Electricity Market Commission (AEMC) predicts residential electricity prices will fall 7.1% on average between 2019 and 2022, a reduction primarily driven by an 11.6% reduction in wholesale prices as 8,594 MW of new, mostly renewable energy comes online (CEC, 2020). The commissioning of new renewable energy facilities will increase competition in wholesale energy markets and, as with any market, increased competition will tend to reduce prices. Photovoltaic solar farms operate with no fuel costs and can, with the correct policy framework, be used to reduce the overall wholesale prices of electricity. Both the Commonwealth and State Governments have established frameworks to support this objective.

3.2.3. Agriculture and environment

Blind Creek Solar Farm will co-exist with ongoing agricultural activities including grazing, lamb production and regenerative agriculture. Regenerative agriculture involves rehabilitating environments, rebuilding the soil and sequestering carbon while improving the land for animal production. Diverse grassland species will be used to improve the soil's moisture-holding capacity,

organic matter and microbial activity. The grass's recovery periods will be maximised using intensive rotational grazing. Additionally, the landholder is separately pursuing approval for a green-waste humus compost facility. Once the solar facility is developed, management of productive farmland beneath the solar panels will incorporate soil carbon farming and restoration works. This will allow the landholder to continue their pursuit to improve the productivity, biodiversity and water-holding capacity of the soils and the catchment. These activities are likely to be implemented in part within the solar farm site once commissioned but do not form part of the solar farm project.

Within the existing farmland environmental zones 12% of the total area of the property is excluded from agriculture and other enterprises to promote diverse birdlife and native animal populations. Creeks will be rehabilitated and revegetated using the principles of Natural Sequence Farming, with more than 4000 trees already planted along Blind Creek to reduce erosion and restore the riparian environment.

3.2.4. Clean energy transitions

Blind Creek Solar Farm will contribute to enhancing the reliability, security and affordability of NSW electricity supply.

Renewable energy currently contributes to 24% of total electricity generation in Australia, (2.2% of which is generated by large-scale solar PV) an increase of 2.7% on 2018. In 2019, there were 34 large – scale projects completed, increasing Australia's large – scale renewable energy capacity by 2.2 GW and generating \$4.3 billion in investment and more than 4000 new jobs (CEC, 2020).

While most of Australia's electricity is currently provided by coal-fired power stations, as many as three-quarters of these plants are operating beyond their original design life (DIS, 2015). Nine coal-fired power stations have closed since 2011-2012, representing around 3,600 MW of installed capacity (AER, 2015 in Commonwealth of Australia, 2016). The reduction in energy supply from coal-fired power stations requires the development of reliable and sustainable energy supply. Large-scale solar farm proposals such as Blind Creek provide an alternative power generation source that can support a transition to more clean energy futures.

When operational, Blind Creek Solar Farm will produce 735,000 MWh per year – enough energy to power more than 124,000 houses – and reduce greenhouse gas emissions by 700,000 tonnes - equivalent to the pollution produced by almost 220,000 cars.

Together, these benefits derived from the activities of the proposed Blind Creek Solar Farm will maximise the property's ability to play a responsible and positive role in climate change mitigation and support more sustainable agricultural and regional futures in NSW.

4. SITE SELECTION AND SUITABILITY

The *Large Scale Solar Energy Guidelines for State Significant Development* (NSW Government, 2018) notes the importance of demonstrating the suitability of the selected solar farm location and outlines key constraints that should be identified and considered. This process allows the opportunity to avoid or minimise negative impacts at the outset. Design and assessment of the proposal can then be undertaken with a focus on mitigating and managing unavoidable impacts. Table 4-1 and Table 4-2 summarise the suitability of the proposal site for the proposed solar farm.

Table 4-1. Site selection criteria: preferable site conditions

Preferable site condition	Applicability to the proposal
Optimal solar resources	The baseline solar resource was calculated using PVsyst Software and its Meteoronorm database. This site is further south and more coastal than others in Australia which may be a cause for concern over solar production. This is compared to the resource at Dubbo. This site loses about 7% in energy versus a comparable system located at Dubbo. This 7% handicap is offset by the site's superior connection.
Suitable land	The land is treeless, sandy and is not prime agricultural land. It is currently used for cropping and grazing, which will continue concurrent with the operation of the proposed solar farm.
Capacity to rehabilitate	Proposal would involve pile driven arrays, which have minimal ground disturbance. Groundcover beneath panels would be retained. Once the solar farm reaches the end of its operational life, the site can be remediated to its existing condition so that land capability is at least retained and it is considered likely that it will be significantly increased.
Proximity to electrical network	An existing 330kV transmission line from the Canberra to Capital Wind Farm traverses the southern section of the proposal site. Connection to the network can be made onsite or nearby without the need to construct further transmission lines. The solar farm neighbours the approved 50MW Capital Solar Farm. Blind Creek Solar Farm also encompasses sites with approval for nine (9) turbines as part of the legacy Capital 2 Wind Farm.
Connection capacity	Connection to Line 6 of the 300Kv TransGrid network may not require augmentation to the shared network.

Table 4-2 Site selection criteria: areas of constraint

Areas of constraint	Applicability to the proposal
Biodiversity	The majority of the proposal site consists of exotic pasture and cropland on flats. These areas have a long history of cultivation, cropping, pasture improvement and grazing, and no longer support viable natural vegetation communities and offer no potential habitat for threatened flora or fauna. Remnant woody vegetation and mixed exotic-native pastures are present in the proposal site. Section 7.1.5 considers the biodiversity of the proposal site.
Potential residences	Existing screening and landform prevents the site being visible to most residences. Only three receivers will have partial views of the site. All three are involved landholders. Less than 1km: Three receivers (2 residences and a sand mine) are located within 1km of the proposal site. All three are involved landholders. Between 1km – 2km: An additional 23 residences are located between 1km and 2km of the proposal site. Two are involved landholders. 21 are non-involved. None were assessed to experience visual impact from the proposal. More than 3km: Some residences much further away (3-7kms) will see the site and the proponent has included these residences in community consultation as outlined in Section 5. Visual amenity and potential sensitive receivers of the proposal site are considered further in Section 7.1.1.
Waterways	Three named watercourses traverse the proposal site, ranging from 4th to 6th order streams. In addition, an ephemeral wetland is present on the site. These are all identified as key fish habitats. The proposal site is located on the south eastern edge of Lake George. Hydrology, groundwater and water quality are considered further in Section 7.1.8
Aboriginal/Heritage Significance	A desktop AHIMS search identified 18 listed Aboriginal Heritage sites and places within the proposal site. Aboriginal Heritage is considered further in Section 7.1.7 Desktop searches revealed one non-Indigenous item of significance overlapping with part of the proposal site and another within a couple of hundred metres of the proposal site.

Areas of constraint	Applicability to the proposal
	The original NSW Baseline towers¹ are on the site (Gowans <i>et al</i>,. 2015) and the ruins of the original Currandooley homestead. Both of these sites will be avoided. Non-Indigenous heritage is considered further in Section 7.2
Agriculture	There is no mapped Biophysical Strategic Agricultural Land (BSAL) within the proposal site. The proposal site is mapped within the Land and Soil Capability (LSC) Assessment Scheme state-wide mapping as 6 Low capability land and 5 Moderate – low capability land. Land use is considered further in Section 7.1.4 Soil and landforms are considered further in Section 7.1.6.
Resource development	No mineral exploration licence exists over the proposal site.
Crown lands	There is Crown Land within the proposal site along Butmaroo Creek and small paper road within the centre of the site. Crown land also exists over Lake George, adjacent to the proposal site.

5. CONSULTATION

5.1. Community Consultation Strategy

Genuine community engagement and benefit sharing is an important cornerstone of the proposed project. A Blind Creek Solar Farm Community and Stakeholder Engagement Strategy (CSES) has been established. Overall, the CSES aims to:

- Identify effective methods to inform the community which foster trust and build positive long-term relationships with community stakeholders.
- Identify ways to facilitate engagement, including input into the environmental assessment and project development.
- Empower stakeholders to inform other community members with concerns about the project.

This plan identifies:

- Relevant local community and regulatory stakeholders.
- Possible concerns related to the engagement of each stakeholder group.
- A tailored consultation strategy for each stakeholder group.
- Ongoing consultation.

The proponent has conducted research into the development of other solar projects to gain understanding of the main concerns of community stakeholders. Information garnered about common worries, viewpoints and feared impacts has been used to inform the proponent's knowledge of the local community and key concerns. The Blind Creek Solar Farm community consultation strategy prioritises addressing these concerns so that the community is informed and can participate in the early stages of planning and assessment.

Keeping the local community informed is fundamental to the project and will shape the project's development during the formal planning process. Consultation will be broad, and include: neighbours, community members, Aboriginal community representatives, Rural Fire Services, local business owners, traffic authority, advocacy groups, council, state and federal members. Community input into the project and CBSP is being actively sought.

Consultation with Representative Aboriginal Parties will occur as part of the Aboriginal Heritage assessment that will be carried out as part of the preparation of the EIS but has not yet commenced.

The goal of Phase One of the CSES is to move towards gaining a social license to operate the solar farm from the community. This will engender better long-term relationships with the local community stakeholders and support more positive community and project outcomes.

This will be underpinned by:

- Genuine community consultation.
- Tangible financial benefits to be used to strengthen the local community through the Community Benefit Sharing Program.
- Actively looking for the right skills amongst local residents and businesses to ensure the benefits stay local wherever possible.
- Optimising the flow-on financial benefits to the community.

The CSES has been prepared considering the following guidelines and references:

- *Community and Stakeholder Engagement Guideline 2017*, NSW Department of Industry, Planning and Environment.
- *Community Guide to EIA 2017*. NSW Department of Industry, Planning and Environment.
- *Community Consultative Committee Guideline 2019*, NSW Department of Industry, Planning and Environment.
- *Aboriginal cultural heritage consultation requirements for proponents 2010*, NSW Government.
- *Beyond Public Meetings: Connecting community engagement with decision making*, Twyford Consulting 2007.

5.2. Consultation to date

The consultation process for Blind Creek Solar Farm was designed to ensure a high level of understanding and awareness amongst the local community and stakeholders of the solar farm.

Consultation to date has been undertaken with nearby landowners, Queanbeyan-Palerang Regional Council, the Rural Fire Service, special interest groups and the local industry. A summary of the consultation and key issues raised during the consultation activities are outlined in Table 5-1.

Table 5-1 Consultation to date.

Key stakeholder	Date	Consultation undertaken (and responses where raised)
Nearby Landowners (near neighbours and those with potential visual impacts)	From 15 November 2020 (ongoing)	Direct contact via phone, email or in person with 103 nearby landowners and landowner groups, Chamber of Commerce, local businesses, real estate agents, Landcare and local climate action groups with the aim of introducing the proposed project. The key generalised points from these consultations so far are summarised below. Positive feedback includes: • The project is good, and QPRC should use the project to exhibit their renewable energy credentials. • Strong interest in the environment outcomes of the project, and its integration with sustainable agricultural practices. • Interest in negotiating shared benefits program. • Good project because of the potential to create new local jobs. Issues raised include: • Concern over possible visual impacts. • Concern over cumulative impacts (visual from solar, wind and local quarries). • Proposal site is too large – predictions of community backlash based on its size. • Concern over glare from panels. • Impact of project on value of surrounding land.

Key stakeholder	Date	Consultation undertaken (and responses where raised)
		General feedback/comments included: • Many landowners were aware of Capital Solar and also supported the proposed Blind Creek Solar Farm. • Some expressed interest in having panels on their land. • Wanted further information on the development team. • Suggested new planting to provide screening. • Raised possible perceptions of community benefits scheme.
Special Interest Groups	25-Nov-2020	Powerpoint presentation to the Executive Committee of Buckingham Estate Community Association. to introduce project, including proposal site, potential visual and glare impacts, and the community benefit sharing scheme. Group interested and supportive of the project. Asked to be kept informed of developments.
Queanbeyan-Palerang Regional Council (QPRC)	From 17 November 2020 (ongoing)	Direct individual contact (in person, email or phone) with several QPRC councillors including mayor and deputy mayor, and staff members. Key points raised were: • Council would have little involvement as the project is SSD and DPIE are the approval authority. Recommended that the proponent seek meetings with Regional Development Australia southern Inland and John Barilaro. • Interest in supporting efficient engagement with Council, for the benefit of both parties. Recommended to seek opportunity to brief Councillors as a group (e.g. presentation). • Appreciation expressed for giving council members a heads up about the project. • Need to be aware of upcoming Sept 2021 council elections.
Rural Fire Service	16 and 25 November 2020	Taylors Creek RFS • Aware of Capital Solar • They have an existing community benefits program with Infigen • Brigade reasonably well-funded from Capital Wind Farm and Veolia. Not in need of extra funding. • Suggested it would be a good thing to install extra water tanks in strategic locations to support brigade fire fighting efforts. Bungendore RFS • Aware of Capital Solar • Expressed interest in organising site visit. Mt Fairy RFS

Key stakeholder	Date	Consultation undertaken (and responses where raised)
		- Expressed interest in project, but clarified that Blind Creek Solar Farm was not in the Mt Fairy RFS area. Proponent informed them that their community consultation strategy would look to include all three local fire bridges in the area. - Broadly supportive of project, explored potential of project supporting the brigade's own community consultation
Local industry	24-Nov-2020	Bungendore Sand mine In person meeting to introduce project and share project map. No objections raised, but concerned that dust from mine might affect solar panels. Does not want to receive complaints from solar farm in the future. Holcim (sand quarry) In person meeting to introduce project and share project map. No objections raised, would likely supply a letter of support at DA stage. Asked to be kept informed.
Kristie McBain, Federal member for Eden-Monaro	27-Nov-2020	Introduced project, including possible impacts and mitigation measures. Was generally supportive. Keen to be kept informed.

6. PLANNING CONSIDERATIONS

6.1. Key NSW environmental planning instruments

6.1.1. *Environmental Planning and Assessment Act 1979*

Development in NSW is subject to the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and its associated regulations. Environmental planning instruments prepared pursuant to the Act set the framework for approvals under the Act. The Blind Creek Solar Farm proposal would be assessed under Part 4 of the EP&A Act.

6.1.2. *State Environmental Planning Policy (State and Regional Development) 2011*

Clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* 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 Blind Creek Solar Farm proposal would have a capital investment cost estimate of more than \$30 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 NSW Minister for Planning, Industry and Environment. While the Minister for Planning, Industry and Environment is the consent authority for State Significant Development, the Minister may delegate the consent authority function to the Independent Planning Commission of NSW (IPC) in certain circumstances.

An EIS is required to be prepared in accordance with the requirements of the Secretary's Environmental Assessment Requirements (SEARs) of Department of Planning, Industry and Environment. 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.

6.1.3. *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, being zoned as RU1 Primary Production and E3 Environmental Management is therefore permissible with consent.

6.1.4. Primary Production and Rural Development SEPP 2019

The Rural Lands SEPP 2008 has been repealed and replaced by the Primary Production and Rural Development SEPP 2019. The aims of this new Policy are as follows (those in bold being relevant to the proposal):

- a) To facilitate the orderly economic use and development of lands for primary production.
- b) To reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources.
- c) To identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations.
- d) To simplify the regulatory process for smaller-scale low risk artificial waterbodies, and routine maintenance of artificial water supply or drainage, in irrigation areas and districts, and for routine and emergency work in irrigation areas and districts.
- e) To encourage sustainable agriculture, including sustainable aquaculture.
- f) to require consideration of the effects of all proposed development in the State on oyster aquaculture.
- g) To identify aquaculture that is to be treated as designated development using a well-defined and concise development assessment regime based on environment risks associated with site and operational factors.

The aim of this project is for a more sustainable future, which includes agricultural activities. The farm will be used for both solar energy production and grazing, incorporating regenerative agriculture, a soil carbon project, restoration of biodiversity and compost production. The project is led by farmers. The proposal would be designed to allow ongoing agricultural activities specifically grazing.

Specific to this proposal, it is anticipated that:

- The land capability of the site would be retained, with reference to baseline soil testing prior to construction and rehabilitation commitments post decommissioning. The proposal site is not mapped as BSAL. Post decommissioning the site may return cropping and grazing.
- For the operational life of the solar farm, the resting / shading impacts of the solar farm combined with operational management to protect groundcover may actually improve soil health and capability, in comparison to current agricultural activities, particularly in drought conditions.
- The site is sufficiently small that it does not represent a significant proportion of the local agricultural economy and would therefore not affect harvest logistics in the locality.
- The economic benefits of the proposal will exceed benefits of the returns received from current agricultural activities, in terms of employment during operation and other economic stimulus, occurring mostly during construction.

The proposal is considered compatible with the relevant aims of this policy.

6.1.5. State Environmental Planning Policy No. 33 (Hazardous and Offensive Development) (SEPP33)

SEPP33 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.

This is generally required for solar farms with energy storage systems i.e. batteries.

6.1.6. Roads Act 1993

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

Intersection treatments and road upgrades may be required to obtain site access. Final access will be determined by further traffic investigations. Approval from the roads authority (Transport for NSW and/or Queanbeyan-Palerang City 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.

Access and traffic are further discussed in Section 7.1.2.

6.1.7. Crown Lands Management Act 2016

The main objectives 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 DPIE - Crown Lands is responsible for the sustainable and commercial management of Crown Land.

An easement, licence or permit would be required if the proposed works are within Crown Land. Consultation would be required with DPIE – Crown Lands. Crown lands permits would be investigated as part of the EIS.

6.1.8. Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* relates to the conservation of biodiversity.

The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community consistent with the principles of the ecological sustainable development (ESD).

The Act contains provisions relating to flora and fauna protection (repealing parts of the *National Parks and Wildlife Act 1974*), threatened species and ecological communities listing and assessment (repealing the *Threatened Species Conservation Act 1995* and section 5A of the EP&A Act), a Biodiversity Offsets Scheme (BOS), a single Biodiversity Assessment Method (BAM), calculation and retirement of biodiversity credits and biodiversity assessment and planning approvals. It also requires specific consideration of irreversible impacts.

The proposal would likely impact on native vegetation and biodiversity values, and so, biodiversity assessment and planning approval would be required for the proposal. Given the newness of this

act and complicating factors including drought, consultation with DPIE - Biodiversity Conservation Division (BCD) (formerly Office of Environment and Heritage OEH) would be undertaken as required during the assessment of the project. Biodiversity is discussed further in Section 7.1.5.

6.1.9. National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) establishes the fundamental functions of the NSW National Parks and Wildlife Service.

The NPW Act sets out to protect and preserve Aboriginal heritage values. Part 6 of this Act refers to Aboriginal objects and places and prevents persons from impacting on an Aboriginal place, object or relic, without consent or a permit.

Additional to the NPW Act, Heritage NSW sets out code and guidelines for required assessment and consultation protocols for Aboriginal heritage impact assessments. Aboriginal Heritage is discussed further in Section 7.1.7.

6.1.10. Heritage Act 1977

The *Heritage Act 1977* 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 4.41 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 potential to impact environmental heritage is discussed in Section 7.2 of this report.

6.2. Local instruments

6.2.1. Palerang Local Environmental Plan 2014

The proposal site is located within the Queanbeyan-Palerang Local Government Area (LGA), which has seven Local Environment Plans (LEPs). The proposal site is subject to the provisions of the *Palerang Local Environmental Plan 2014*. The solar farm is zoned as RU1 Primary Production and E3 Environment Management (Figure 2.3).

The objectives of this zone are:

- a) to protect and improve the economic, environmental, social and cultural resources and prospects of the Palerang community,
- b) to encourage development that supports the long-term economic sustainability of the local community, by ensuring that development does not unreasonably increase the demand for public services or public facilities,
- c) to retain, protect and encourage sustainable primary industry and commerce,
- d) to ensure the orderly, innovative and appropriate use of resources in Palerang through the effective application of the principles of ecologically sustainable development,
- e) to retain and protect wetlands, watercourses and water quality and enhance biodiversity and habitat corridors by encouraging the linking of fragmented core habitat areas within Palerang,
- f) to identify, protect and provide areas used for community health and recreational activities,

- g) to ensure that innovative environmental design is encouraged in residential development.

Electricity generation is prohibited within this land zoning, however the ISEPP allows the development for the purpose of a solar energy system on any land with consent, which prevails over the local provisions (Clause 8 ISEPP).

Note, however, that in response to the merger of the Queanbeyan and Palerang Councils in 2014, the new Queanbeyan Palerang Region Council (QPRC) is currently in the process of developing a comprehensive LEP for the Queanbeyan-Palerang LGA under the *NSW Environmental Planning and Assessment Act 1979*. Currently in draft stage, the *Draft Queanbeyan Palerang Comprehensive Local Environmental Plan 2020* intends to combine the seven respective LEPs that applied to the formerly separate Queanbeyan and Palerang Council areas to ensure more consistent land use planning across the Queanbeyan-Palerang LGA (QPRC, 2020).

6.3. Commonwealth legislation

6.3.1. *Environment 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 and Energy (DoEE). 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 Minister.

The EPBC Act identifies nine MNES, outlined in Table 6-1. Actions that adversely affect these matters may be deemed to be a 'controlled action' under the Act.

A search of the Commonwealth Protected Matters Search Tool was undertaken on 3 November 2020 for the proposal site with a 10km buffer. The findings of the search are outlined in Table 6-1.

The potential for these entities to occur will be investigated as part of the EIS. At this stage a significant impact on an MNES and the requirement to refer the proposal under the EPBC Act is not considered likely.

Table 6-1 EPBC Act MNES for the Proposal site.

MNES	Quantity	Description
World Heritage	None	N/A
National Heritage	None	N/A
Ramsar wetlands of international significance	4	The closest is the Hattah-kulkyne lakes system, located 600-700km downstream of the proposal site.

MNES	Quantity	Description
Threatened species and ecological communities	2 threatened ecological communities, 41 threatened species	Discussed in Section 7.1.5
Listed Migratory species	14	Discussed in Section 7.1.5
Commonwealth marine areas	None	N/A
The Great Barrier Reef Marine Park	None	N/A
Nuclear actions (incl. uranium mining)	N/A	N/A
Water resources (in relation to coal seam gas development and large coal mining development)	N/A	N/A

6.3.2. 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.

Where native title does exist in relation to the proposal site, Blind Creek Pty Ltd would comply with the provisions of the *Native Title Act 1993* and undertake consultation with the Native Title holder.

7. SCOPING ASSESSMENT

7.1. Assessment of key issues

Based on preliminary site assessment and desktop review, a summary of the key environmental issues of relevance to the site and its development is provided below. These include:

- Visual amenity
- Access and traffic
- Noise and vibration
- Land use
- Biodiversity
- Soil and landforms
- Aboriginal heritage
- Hydrology, groundwater and water quality
- Social and economic impacts.

Table 7-6 provides an overview of additional environmental issues to consider.

7.1.1. Visual amenity

The proposal site is within the locality of Lake George, just north of Bungendore. One dwelling is located within the proposal site, which has been identified as involved landowners.

Within 1km there are 3 involved landholders and no potential sensitive receivers. Within 1-2km there are 2 involved landholders and a further 21 potential sensitive receivers, some of which have zero visual impact.

In relation to visual impacts, aerial imagery and desktop analysis indicates that the landform and existing vegetation extent would provide screening for most non-involved receivers, with the exception of R9 and R41, which are located within 763m and 586 metres respectively of the site. R9 is south-west of the site. R41 is north of the proposal site. Both are involved landholders. The closest receiver is R2, 249m south of the proposal site. R2 is an involved landholder. All other receivers are likely to have a limited view of the proposed solar farm due to established native and exotic vegetation. Table 7-1 below shows the number of potential sensitive receivers within 2km of the proposal site and the likelihood that these would have a view of the solar farm infrastructure. The locations of receivers have been mapped in Figure 7-1. Sensitive receivers likely to have a view of the site are mapped as moderate on the constraints map provided in Figure 8-1.

Table 7-1 Distance between proposal site and sensitive receivers within 2km.

Receiver Id	Distance from proposal site (m)	Potential for view of solar farm infrastructure
Involved landowners		
R2	250	Involved
R9	763	Involved
R41	586	Involved

Receiver Id	Distance from proposal site (m)	Potential for view of solar farm infrastructure
R42	1118	Involved
R43	1199	Involved.
R48	0	Involved

Non-involved landowners

R1	1866	Unlikely due to existing screening.
R10	1784	Unlikely due to existing screening.
R11	1792	Unlikely due to existing screening.
R12	1798	Unlikely due to existing screening.
R13	1836	Unlikely due to existing screening.
R14	1863	Unlikely due to existing screening.
R15	1913	Unlikely due to existing screening.
R16	1947	Unlikely due to existing screening.
R17	1971	Unlikely due to existing screening.
R18	1881	Unlikely due to existing screening.
R19	1856	Unlikely due to existing screening.
R20	1814	Unlikely due to existing screening.
R21	1805	Unlikely due to existing screening.
R22	1893	Unlikely due to existing screening.
R23	1952	Unlikely due to existing screening.
R24	1945	Unlikely due to existing screening.
R32	1996	Unlikely due to existing screening.
R36	797	Unlikely due to existing screening.
R37	1115	Unlikely due to existing screening.
R38	1092	Unlikely due to existing screening.

Receiver Id	Distance from proposal site (m)	Potential for view of solar farm infrastructure
R40	1291	Unlikely due to existing screening.

Constraints and need for further assessment

Aerial imagery and desktop analysis indicate a very limited number of uninvolved residences are likely to have a view of solar farm infrastructure or be subject to visual impacts during construction. A precautionary constraint rating is moderate as this will be subject to further investigation and ground truthing.

An assessment of the level of visual impact would be undertaken as part of the EIS process and would include viewshed analysis and consideration of the effectiveness of mitigation options. Impacts would be assessed in terms of the change in visual character produced by a development, the degree of contrast produced and the likely sensitivity of receivers to the change.

Assessment of visual amenity of Blind Creek Solar Farm would not need to consider the potential development of Capital II Wind Farm. The cumulative impact associated with the existing Capital Wind Farm is not necessary due to the likely requirement for a Planning Assessment Modification.

The EIS will consider the potential for the solar farm to affect local landscape character. Consultation will be undertaken broadly to understand the local values of the area, including visual characteristics valued by the community. Additional engagement with specific affected residences identified as likely to have a view of solar farm infrastructure would be undertaken to identify the nature and significance of impacts and the need for mitigation measures.

Mitigation of low-profile solar farm infrastructure in low relief landscapes is highly feasible. Visual impacts attenuate rapidly with distance in these cases. The focus of mitigation would be on close proximity residences.

Scoping Report

Blind Creek Solar Farm

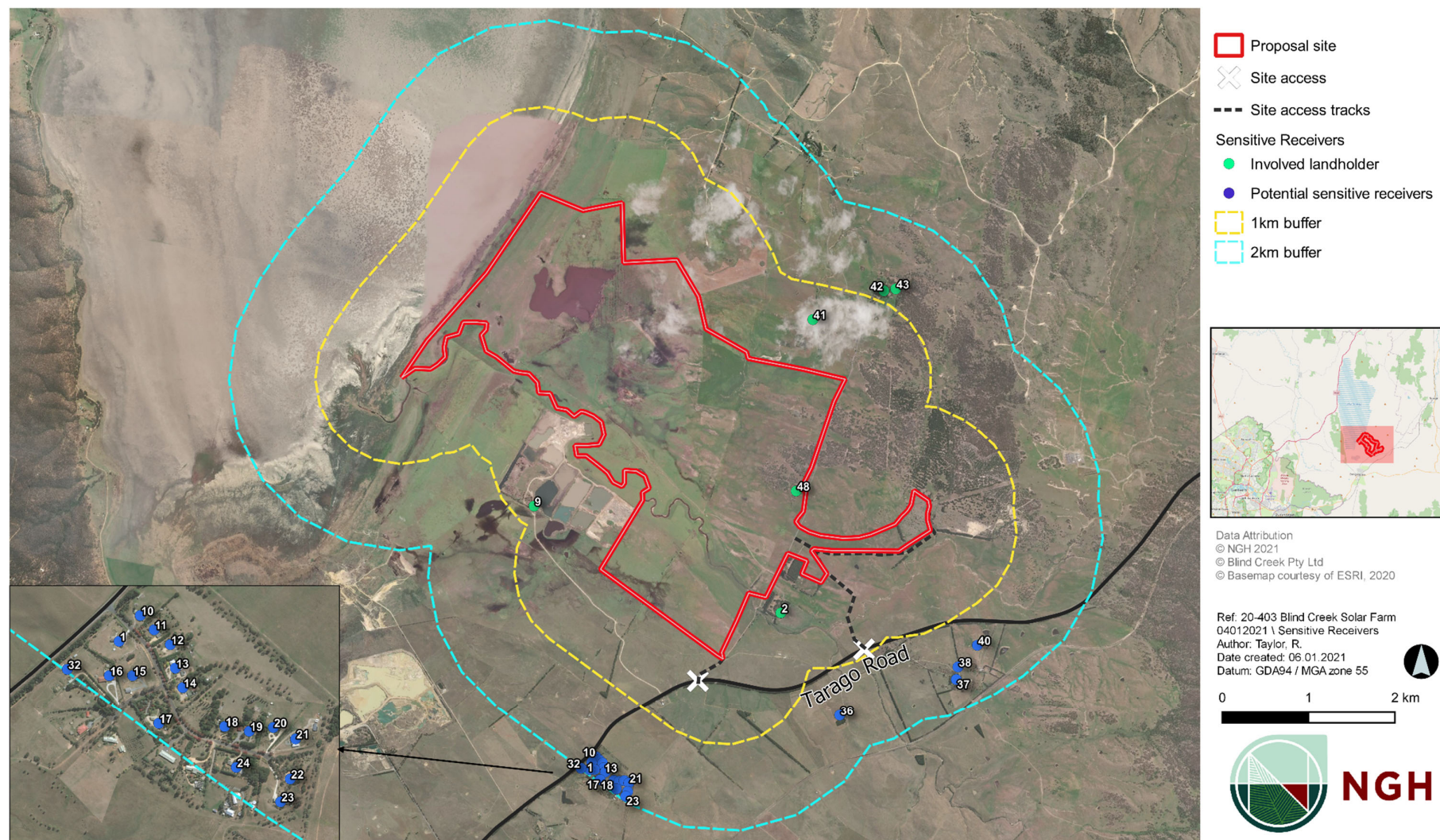


Figure 7-1. Involved landholders and potential sensitive receivers within 2km of the proposal site

7.1.2. Access and traffic

The proposal site is 260km drive south west from Sydney via the Hume Highway, Braidwood Road, Bungendore Road and Tarago Road. The proposal site is approximately 50km from Canberra via Tarago Road, Bungendore Road and the Federal Highway. The Hume Highway and Federal Highway are classified as State Highways within the Transport for NSW Road Classification hierarchy.

Construction and operational access would be off Tarago Road. Tarago Road is a local council road that is sealed two laned and estimated to be 7m wide. Access is also proposed off Currandooley Road which is an unsealed private road that forms part of the southern section of the project boundary.

The access route is mapped as a Transport for NSW approved Restricted Access Vehicle route. Tarago road is an approved route with travel conditions.

Heavy vehicles would be required for transportation of solar farm infrastructure. Construction staff would be accessing the site via light vehicles and shuttle buses. There are approximately 300 staff expected to be working on the construction of the solar farm at peak construction periods and it is expected that shuttle buses would move the majority of staff members in the morning and night. It is expected to be approx. five staff members travelling in light vehicles in the morning and night during operation of the solar farm.

Constraints and need for further assessment

The entrance to Blind Creek Solar Farm from Tarago Road and Currandooley Road may require improvements and/or alterations and construction may be required to safely access the site. An assessment of site access will be undertaken early to determine required intersection works or road upgrades to meet Council and Transport for NSW in relation to access to the site.

The access options would be further investigated during the preparation of the EIS. Construction traffic impacts would be considered in the EIS and take into consideration existing traffic volumes and any requirements from the roads authority.

The mitigation measures would require a Traffic Management Plan including haulage routes be prepared.

7.1.3. Noise and vibration

The proposal site is located in a rural setting. The main sources of background noise would include traffic noise from Tarago Road and routine agricultural machinery operation and sand mine operations. The land surrounding the proposal site is used for cultivation and cropping which would contribute to the generation of noise and dust in the vicinity of the proposal.

Receivers within 1km of the site have potential to be impacted by noise, and vibration impacts during construction. There are 3 involved receivers within 1km of the site (Table 7-1). Construction vehicles and machinery during the construction phase would be most relevant in contributing to noise and vibration impacts. During the operation of the solar farm, noise levels would likely be reduced, as agricultural machinery would largely cease. Noise would be generated from the solar tracking system (if a tracking system is decided upon) as well as the substation and switchgear and any maintenance works undertaken at the site.

The location of nearby receivers has been mapped in Figure 7-3. All receivers based on aerial imagery are well screened from noise and vibration by vegetation and the distance between site and receivers.

Constraints and need for further assessment

A construction and operational noise and vibration assessment will be undertaken as part of the EIS to assess potential noise impacts for affected residents. The report would include onsite monitoring to establish baseline noise levels for the assessment and an assessment of road traffic noise and. The assessment will be undertaken in accordance with the Interim Construction Noise Guideline (DECC, 2009), NSW Noise Policy for Industry (EPA, 2017), Assessing Vibration: A Technical Guideline (DECC, 2006) and NSW 'Road Noise Policy' (DECCW, 2011). Measures to minimise noise impacts would be recommended for the construction and operation of the proposal.

7.1.4. Land use

The land use surrounding the proposal site includes:

- Primary production (including grazing and cropping).
- Residential.
- Sand mining.
- Electricity assets and easements.
- Windfarm.

The proposal site is located within the broader Capital region of NSW, which has strong and diverse agricultural industries, and a significant environmental estate. Agricultural land occupies 33,400 square kilometres (or 64% of the region), while high quality conservation and natural environments constitute 12,900 square kilometres (or 25% of the region) (ABARES, 2016). Grazing modified pastures is the most common land use of the region.

Agricultural production within the region, worth \$976 million in 2018-19, contributes 8% of the total gross value of agricultural production in NSW (ABARES, 2016).

Land use categories and areas within the proposal site are identified in Table 7-2 and Figure 7-2 below. On-the-ground much of the land classified as '2.1.0 Grazing native vegetation' consists of mixed native-exotic pasture, as identified by PCT mapping (Figure 7-3) in Section 7.1.5.

Table 7-2 Land use categories within the proposal sit (DPIE, 2017).

Land use category	Area (ha) within proposal site
1.2.0 Managed Resource Protection	2
2.1.0 Grazing native vegetation	402
3.1.0 Plantation forests	14
3.2.0 Grazing modified pastures	750

Land use category	Area (ha) within proposal site
5.2.0 Intensive animal production	<1
5.8.0 Mining	<1
6.3.0 River	15

The proposal site is zoned as RU1 Primary Production and E3 Environmental Management under the Palarang LEP as illustrated in Figure 2-2.

The proposal would capture and utilise a natural resource (solar energy) for the life of the solar farm (anticipated to be 30 years). However, the solar farm will co-exist with lamb production and regenerative agriculture. Grazing currently occurs onsite. This approach of regenerative agriculture with renewable energy includes rehabilitating environments, rebuilding the soil and sequestering carbon while improving the land for animal production. Diverse grassland species will be used to improve the soil's moisture-holding capacity.

There is Crown Land within the proposal site along Butmaroo Creek and small paper road within the centre of the site.

A search of the Department of Planning, Industry and Environment Minview on 26 November, 2020 identified no mineral exploration licences over the proposal site.

Constraints and need for further assessment

The proposal intends to use pile driving to install the array mounts. This construction technique limits soil disturbance and makes the proposal reversible for future agricultural production. Excavation and footings are generally limited to discrete footings for inverters, switch station and office buildings. Building-in strategies to retain land use options post-decommissioning would be part of the assessment and mitigation process.

The impact on agricultural production and electricity assets in the locality and region would be assessed in detail in the EIS and Land Use Conflict Risk Assessment (LUCRA).

Scoping Report Blind Creek Solar Farm

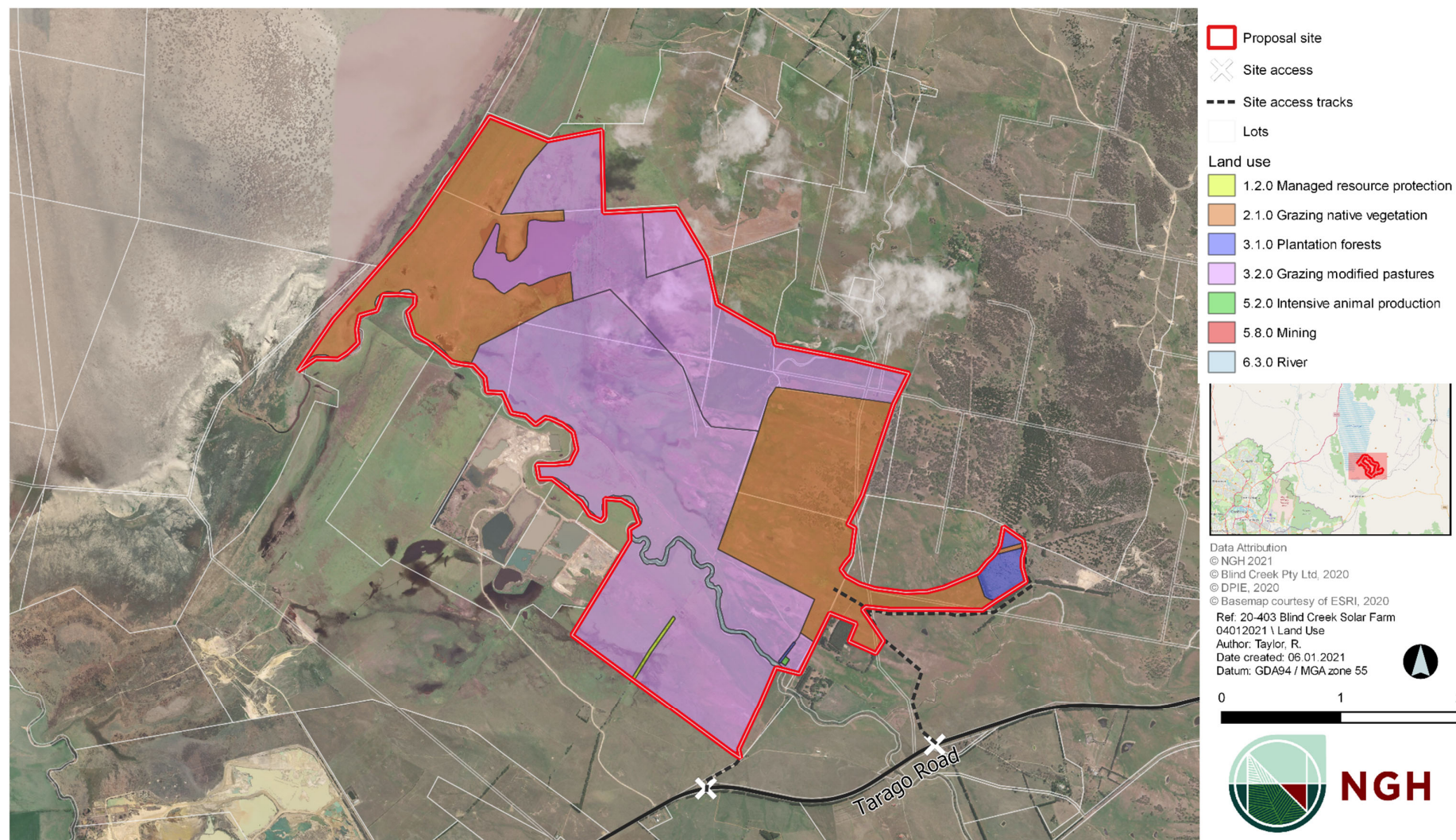


Figure 7-2 Land use within the proposal site

7.1.5. Biodiversity

Approach

Ecological values of the proposal site were investigated at a high level, including:

- Background desktop research of regulatory conditions and existing biodiversity information, outlined in Table 7-3 and with reference to previous surveys and assessment conducted at or adjacent to the proposed site; and,
- Site inspection on 10 November 2020 by an NGH senior ecologist to conduct preliminary assessment of biodiversity values and plan for more detailed field survey.

The site inspection findings are preliminary and are to be reviewed and confirmed using more detailed field investigations and analyses as this work is undertaken.

Background searches

Database searches were completed for records of Commonwealth and NSW listed threatened species, populations and ecological communities. A summary of their results is provided in Table 7-3.

Table 7-3 Database searches and results

Background searches	Search area	Results
DAWE Protected Matters Search Tool (PMST) for species and populations listed as threatened under the <i>EPBC Act</i>.	Proposal site with a 10km buffer	The search results returned the following that have the potential to occur inside the proposal site: • 2 threatened ecological communities • 41 threatened species • 14 migratory species
NSW OEH BioNet species sightings search of flora and fauna and communities listed as threatened under the <i>Biodiversity Conservation Act 2016</i>	Proposal site with a 10km buffer	The search results returned the following recorded threatened species within the search area: • 8 flora species • 16 birds • 2 mammals • 1 amphibian
Biodiversity Values Mapping and areas of outstanding biodiversity value	Proposal site	The map includes Butmaroo Creek along the southern edge of the site, Wrights Creek running through the site, Bridge Creek which crosses the site access, and Lake George to

Background searches	Search area	Results
		the west of the site as high biodiversity value features.
Native Vegetation Regulatory Map Viewer	Proposal site and adjacent surrounds	The map includes woodland and grassland areas at the site in the Werriwa and Monaro Tableland Cool Temperate Grassy Woodland CEEC advisory layer. Butmaroo Creek, Wrights Creek and Bridge Creek are mapped as Vulnerable Regulated Land.

Site inspection

An inspection of the proposal site was undertaken by a senior ecologist on 10 November 2020. Vegetation structure, dominant species, evidence of past tree clearing, disturbance and landscape context were noted at representative sample points distributed across the proposal site. The information collected was used to identify and map key biodiversity features, Plant Community Types (PCTs), Threatened Ecological Communities (TECs) where relevant and constraints classes. With reference to aerial imagery, inspection results were extrapolated across the site to produce a map of vegetation units and development constraint classes.

Vegetation and fauna habitat

The site inspection identified vegetation units, characterised by distinctive vegetation structure, dominant species, fauna habitat values and topography. These units are described below and mapped as PCTs in Figure 7-3.

1. Exotic pasture and cropland

The majority of the proposal site consists of exotic pasture and cropland on flats. These areas have a long history of cultivation, cropping, pasture improvement and grazing. Exotics also dominate areas in the east of the site which were formerly occupied by pine plantations. At the time of inspection, the unit was generally dominated by the pasture species **Lolium perenne*, **Phalaris aquatica*, **Festuca arundinacea*, **Bromus* spp and **Trifolium* spp, with weeds including thistles, **Vulpia* sp, **Erodium botrys*, **Acetosella vulgaris*, **Hirschfeldia incana* and **Nassella trichotoma*. The unit generally no longer supports viable natural vegetation communities and offers no threatened flora or fauna habitat potential. The flats at the site would have supported natural grassland prior to European settlement, particularly lacustrine grassland dominated by Curly Sedge (*Carex bichenoviana*). Sparse Curly Sedge plants persist around the airstrip, which has recently been sown to ryegrass.

2. Wetland and riparian habitats

There is an ephemeral rainfall-dependent wetland on cultivated land sown to pasture on flats in the west of the site. While pasture grasses persist, native wetland herbs including *Lythrum hyssopifolia*

and *Limosella australis* have colonised and dominate the groundcover in some areas. Threatened and migratory waterbirds may utilise this habitat periodically. Flocks of waterbirds were using the wetland at the time of inspection, including the Straw-necked Ibis and Pied Stilt. Frogs may also use the wetland habitat, particularly during the breeding season. It is noted that the ephemeral wetland would be excluded from the proposed development envelope.

Heavily degraded aquatic and riparian habitats associated with Butmaroo Creek and shore berm habitats on the western edge of the site are also located outside the development envelope. The threatened *Dodonaea procumbens* and *Pelargonium* sp. *Striatellum* have moderate potential to inhabit lakebed and shoreline habitats associated with Lake George. These areas are outside the proposal site and property boundary.

3. Snow Gum – Ribbon Gum woodland

E. pauciflora/*E. viminalis* woodland occupies the flats and lower slopes in the east of the site, particularly around the airstrip. Adjacent to the sown pasture on the flats, the woodland trees include *E. pauciflora* and *E. stellulata*. The groundlayer is largely exotic (including **Trifolium* spp, **Vulpia* sp, **Acetosella vulgaris*, **Onopordum acanthium*, **Bromus diandrus* and **Nassella trichotoma*), with the native fern *Pteridium esculentum*. Native understorey flora replaces exotics further into the woodland patch to the east, and includes *Lomandra longifolia*, *Stellaria pungens*, *Dianella revoluta*, *Hydrocotyle laxiflora*, *Oxalis perennans*, *Diuris sulphurea*, *Microlaena stipoides*, *Rytidosperma* sp, *Imperata cylindrica* and *Pteridium esculentum*.

The trees in the forest patch are mature (0.2-1.0 metres dbh) and hollow-bearing. The forest provides habitat for arboreal fauna, foraging woodland birds and hollow-nesting birds and microbats. The Koala may utilise the feed tree *E. viminalis*, while the microbat Eastern False Pipistrelle may use small hollows in forest patches for roosting and breeding. However, the potential for these latter two species to be present is reduced by the level of habitat fragmentation in the locality.

Banksia marginata and *Allocasuarina littoralis* trees are present in the community to the east (outside the proposal site) and may also be present within the site. The *Banksia* trees provide forage resources for birds and arboreal mammals. *Allocasuarina littoralis* trees provide a potential foraging resource for the Glossy Black Cockatoo. Areas with *Leptospermum myrtifolium* shrub cover at the forest-grassland interface may provide potential breeding habitat for the threatened White-fronted Chat, which was recorded by NGH on the Capital Solar Farm site to the south-east.

Weeds

Serrated Tussock (*Nassella trichotoma*) is widespread across the property, as is Scotch Thistle (**Onopordum acanthium*), particularly in the exotic pasture paddocks. African Lovegrass (**Eragrostis curvula*) was seen beside the access road. **Bromus diandrus* and **Acetosella vulgaris*, which are widespread in woodland on the property, and **Lycium ferocissimum* observed near the airstrip, are considered High Threat Exotics for the NSW Monaro Cool Temperate Grassy Woodland CEEC (DPIE, 2019).

Plant Community Types (PCT's) and Threatened Ecological Communities (TEC's)

Likely PCTs were determined based on the presence of diagnostic species via rapid assessment and recording of dominant species within each stratum. Landscape characteristics and evidence of past disturbances assisted with PCT determination.

Based on the preliminary site inspection, the following PCTs were identified as likely present within the proposal site (note that PCTs need to be confirmed by survey data):

- **PCT 1191** Snow Gum – Candle Bark woodland on broad valley flats of the tableland and slopes, South Eastern Highlands Bioregion
 - *At least part of vegetation unit 5 Snow Gum-Ribbon Gum woodland vegetation unit can be attributed to this PCT.*
 - *This PCT belongs to the NSW Monaro Cool Temperate Grassy Woodland TEC.*
- **PCT 1100** - Ribbon Gum – Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion
 - *Vegetation unit 5 may grade into this PCT in the eastern part of the woodland patch.*
 - *This PCT may belong to the NSW Monaro Cool Temperate Grassy Woodland TEC, depending on structure and composition.*

Preliminary mapping of PCTs for the proposal site is provided in Figure 7-3.

Table 7-4 below summarises vegetation and habitat constraints across the proposal site.

Table 7-4 Summary of vegetation and habitat constraints across the proposal site.

Zone ID and PCT	Constraint	PCT	Easting	Northing	Description & dominant native species onsite	Image
Snow Gum-Ribbon Gum Woodland	High	PCT 1191 PCT 1100	726410	6103264	- Woodland patch around airstrip, west side of Currandooley Road. <i>E. pauciflora</i> with <i>E. stellulata</i> with exotic and native understorey at grassland interface, includes <i>E. viminalis</i> with native groundcover to east. - Monaro Cool Temperate Grassy Woodland CEEC (at least part of patch). - Exotic dominant groundcover in west, mostly on eastern side. - Tree hollows (bird, bat and arboreal mammal habitat). - Potential threatened woodland bird habitat. - Swamp Tea-tree patches near grassland to west (possible White-fronted Chat habitat).	
Wetland/riparian	Moderate	NA	724202	6105129	- Ephemeral wetland on flat in west of the site. - Predominantly exotic pasture with some native wetland species (particularly <i>Lythrum hyssopifolia</i> and <i>Limosella australis</i>). - The cleared and heavily degraded Butmaroo Creek borders the south of the site.	

Zone ID and PCT	Constraint	PCT	Easting	Northing	Description & dominant native species onsite	Image
Exotic grassland	Low	NA	725518	6101277	• Dominated by exotic pasture and weed species. • Formerly natural grassland on flats. • Former pine plantation in east of site, with noxious weed <i>Nassella trichotoma</i> abundant.	

Scoping Report **Blind Creek Solar Farm**

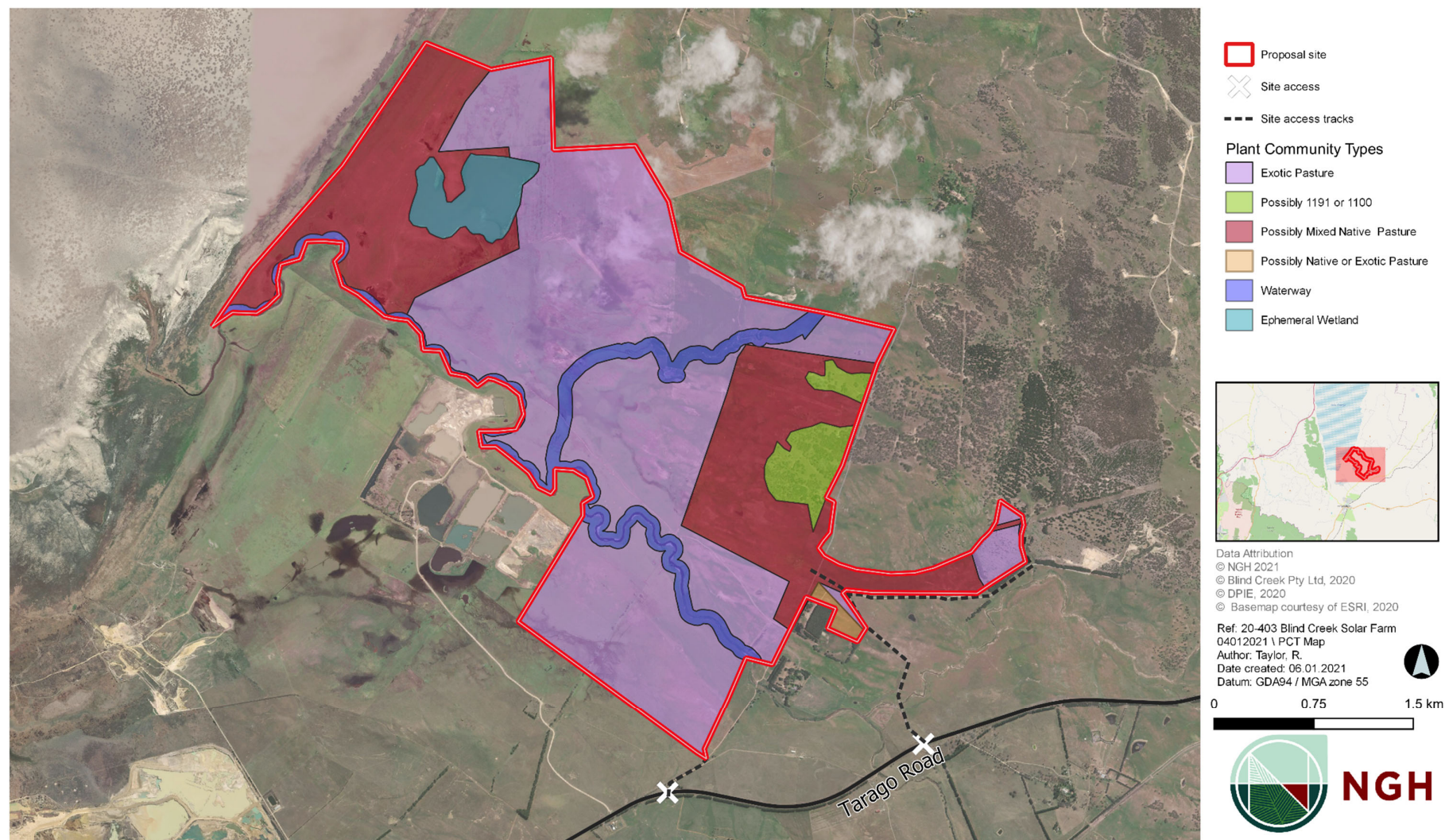


Figure 7-3 Preliminary mapping of Plant Community Types across the proposal site.

Land Category Assessment

Large areas of the site have been cleared and used in a continued manner for agricultural production. To inform this Scoping Report and guide further assessment, a Land Category Assessment (LCA) has been completed (refer to Figure 7-4).

The aim of this assessment is to determine the distribution of Category 1 – Exempt Land (Category 1 Land) and Category 2 – Regulated Land (Category 2 Land) across the proposal site. Category 1 Land is land that has been subject to extensive clearing and modification at 1 January 1990 or lawfully since. Category 1 Land is not required to be assessed under the BAM other than for prescribed impacts. This means that development on Category 1 Land does not generate a credit obligation.

A high proportion of the land has previously been modified and used for grazing and is therefore Category 1 - Exempt Land. Approximately, 729ha occur across the site and would be excluded from biodiversity assessment.

All other areas of the proposal site contain Category 2 – Regulated land and Cat 2 – Vulnerable land (approximately 548 ha). This includes: sections in the western and eastern quarters of the proposal site mapped as PCT vegetation; scattered paddock trees; grazing native vegetation; and vulnerable riverbank areas. If impacted, they are required to be assessed under the BAM.

Constraints and need for further assessment

To inform the early proposal planning process and investigation strategies, biodiversity features within the proposal site have been mapped to areas of High, Moderate, or Low constraints (Figure 8-1) and are detailed in the constraints assessment in Section 8.

The preferred development envelope for the solar farm does largely avoid forest vegetation, remnant secondary grassland, rock habitats and sensitive water features. Nevertheless, as part of the EIS, the detailed ecological surveys, investigation and assessment will be undertaken in the format of the Biodiversity Development Assessment Report (BDAR) in consultation with the Biodiversity Conservation Division (BCD) of DPIE. The assessment would be undertaken in accordance with the NSW Biodiversity Assessment Methodology (BAM). An in perpetuity offset requirement is anticipated to be generated, which may be retired through various options including onsite offsets or purchase of requisite credits from the credit market.

The land categorisation of a small section of the proposal site on its southern boundary (Figure 7-4) will require confirmation of its LCA status.

The LCA will be included with the Environmental Impact Statement, with the BDAR for the final infrastructure layout proposed.

Scoping Report

Blind Creek Solar Farm

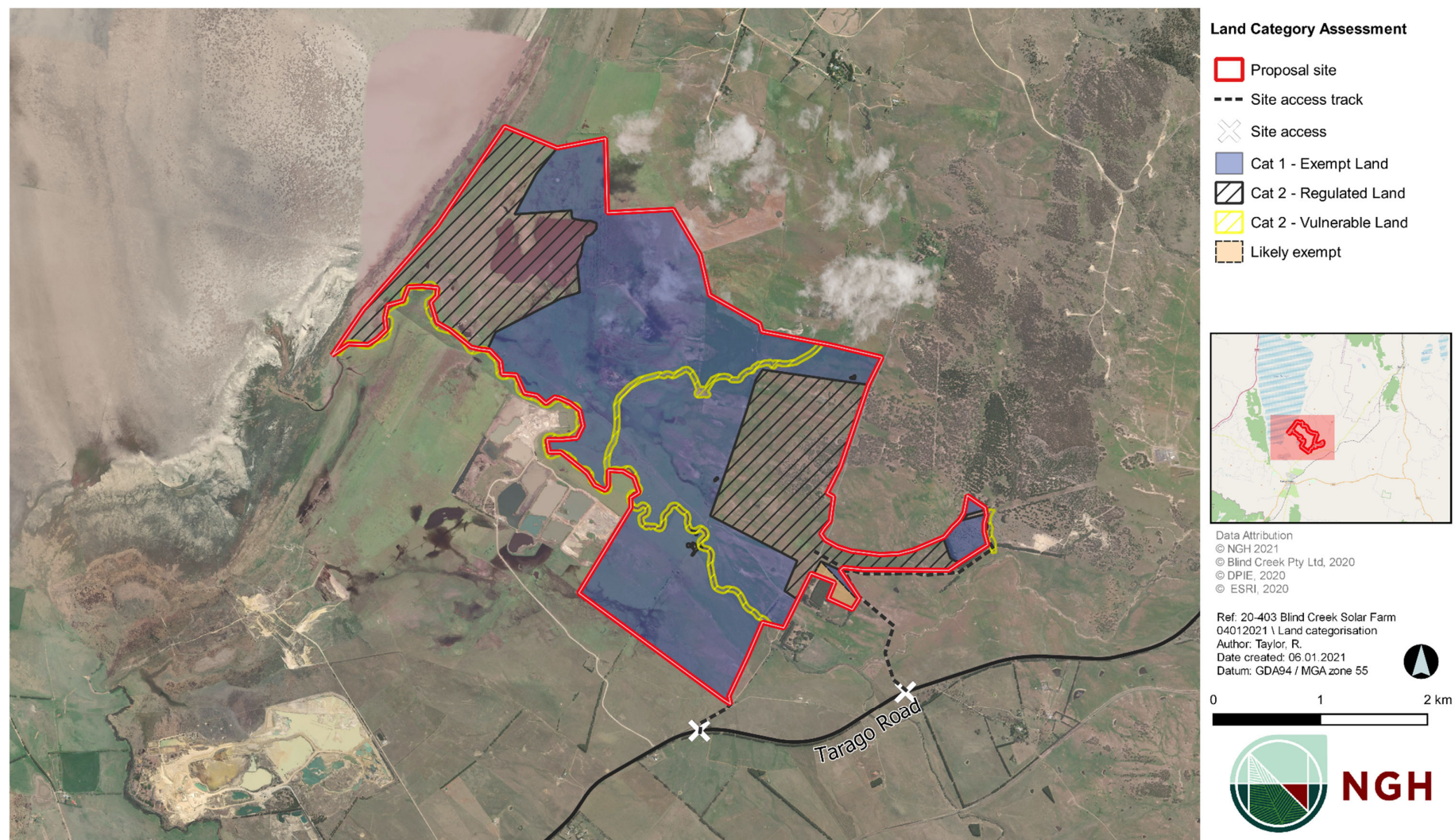


Figure 7-4 Land categorisation assessment of the proposal site

7.1.6. Soil and landforms

The three soil types occur at the proposal site are Rudosols, Sodosols and Kurosols. The characteristics of these soil types include:

- Kurosols – acidic, known as duplex soils, low chemical fertility, sodic and low permeability
- Sodosols – not acidic, poor draining capacity, highly erodible, poor structure, low permeability
- Rudosols – young soils that have negligible pedologic formation.

The proposal site is not mapped as Biophysical Strategic Agricultural Land (BSAL), which is land identified to have high quality soil and water resources capable of sustaining high levels of productivity.

The proposal site is mapped within the Land and Soil Capability (LSC) Assessment Scheme state-wide mapping as 6 Low capability land and 5 Moderate – low capability land:

- The areas mapped as 6 low capability land covers most of the proposal site. LSC class 6 land has very high limitations for high-impact land uses. Land uses are restricted to low impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.
- Areas mapped as 5 Moderate – low capability land cover small portions to the north and east of the proposal site. LSC class 5 land has high limitations for high-impact land uses and largely restricts land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation

Land use capability classes are shown in Figure 7-5.

A search of the NSW OEH Contaminated Sites Register on 6 November 2020 identified two sites within the Queanbeyan-Palerang LGA. One is not in the vicinity of the proposal site (a waste oil storage facility >45km from the site), while the other is approximately 10km from the site (a former timber treatment plant in Bungendore), but poses no risk. The proposal site does not appear on the List of NSW Contaminated Sites notified to the EPA (EPA, 2020) as of 6 November 2020.

Constraints and need for further assessment

Consideration of soil and erosion impacts, and proposed mitigation measures for the construction, operation and decommissioning of the solar farm would be included within the EIS.

Agricultural properties can contain buried contaminants and farming chemicals may have been applied on the land in the past. This can be investigated during the EIS stage. Management plans can be developed to address this risk if confirmed, though the presence of substantive contamination within the proposal site is unlikely.

As solar farm infrastructure is typically located on land with a slope of less than 10%, erosion and sedimentation would be highly manageable. Management of ground cover during operation and restoration of the land capability of the proposal site would be recommended in the EIS and is considered highly feasible. Rehabilitation would be with reference to base line soil testing to guide any remedial management actions that may affect maintaining groundcover during operation or rehabilitation disturbed areas during decommissioning.

Scoping Report

Blind Creek Solar Farm

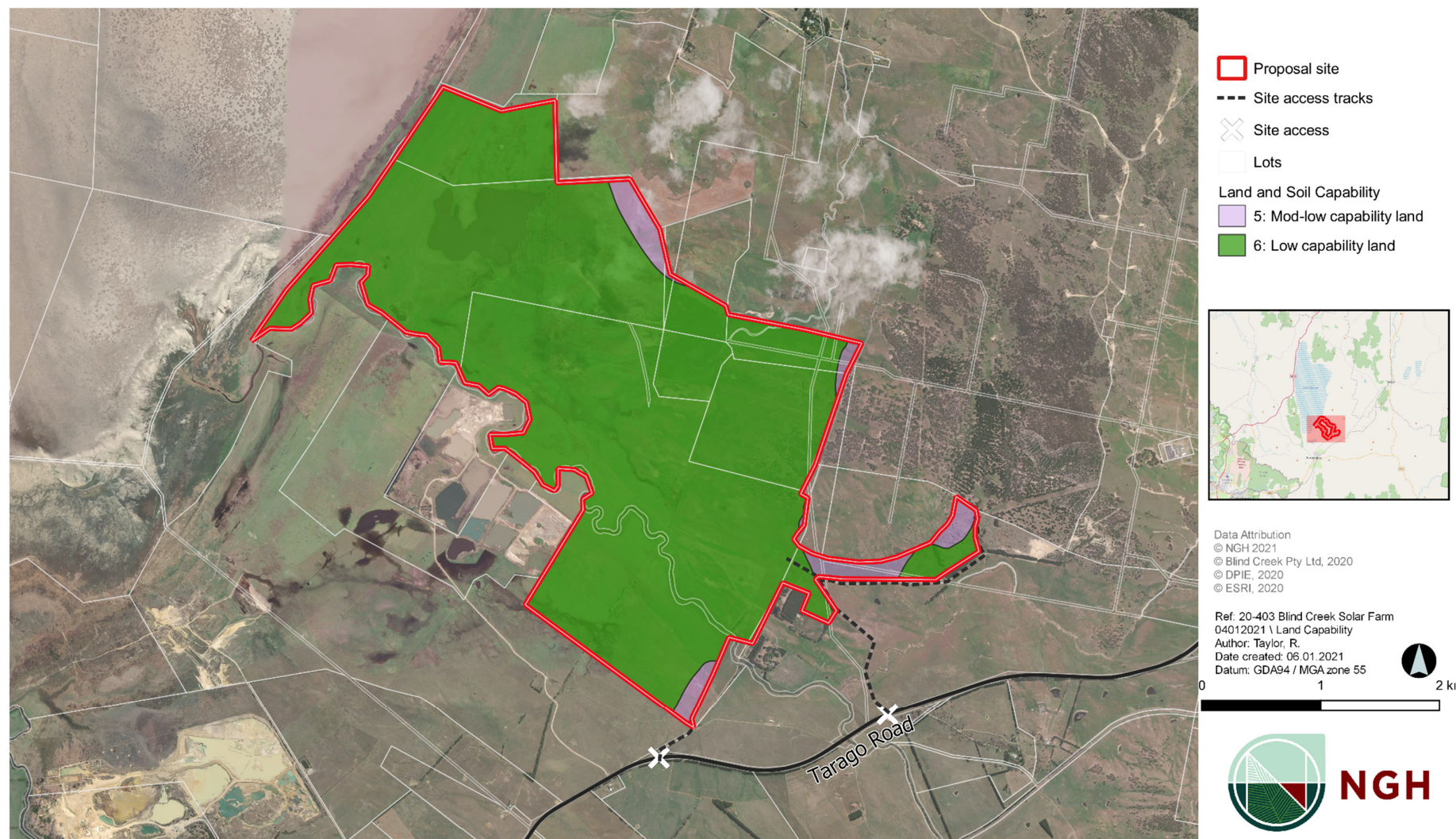


Figure 7-5 Land capability classes associated with the proposal site

7.1.7. Aboriginal heritage

The proposal site exists on the traditional lands of the Ngambri and Ngunnawal people.

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) on 5 November 2020 identified 103 Aboriginal sites or places at the proposal site within 5km of the proposal site. There are 18 records within the proposal site as shown in Figure 7-6. It is noted that this is an indication of previous survey and not current sensitivity.

Historical farming practices, including ploughing and land forming, may reduce Aboriginal heritage sites of significance in these areas but they may also make more sites visible, bringing them to the surface. Areas near waterways within the proposal site, such as along the edges of Lake George and Butmaroo Creek are likely to have a higher potential for Aboriginal heritage significance.

Constraints and need for further assessment

As heritage items are located within the proposed site, risk in relation to Aboriginal heritage is considered high. The specific degree of risk will need to be confirmed based on onsite assessment. Consultation with registered stakeholders will be an important part of the assessment process.

An Aboriginal Cultural Heritage Assessment (ACHA) Report and associated stakeholder consultation process would be completed as part of the EIS. This will require an extensive prescriptive assessment process, and consultation with the relevant LALC (Ngambri Local Aboriginal Lands Council in Queanbeyan). For any identified Aboriginal Heritage sites that may be potentially affected by the proposal site, mitigation measures would be determined in accordance with the *Guide to Investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011). In rare cases, buffer zones or further test pit investigation is recommended based on survey results (high constraints). In most cases a salvage program is proposed as part of preconstruction (moderate constraint) and the issue is considered highly manageable.

Scoping Report
Blind Creek Solar Farm

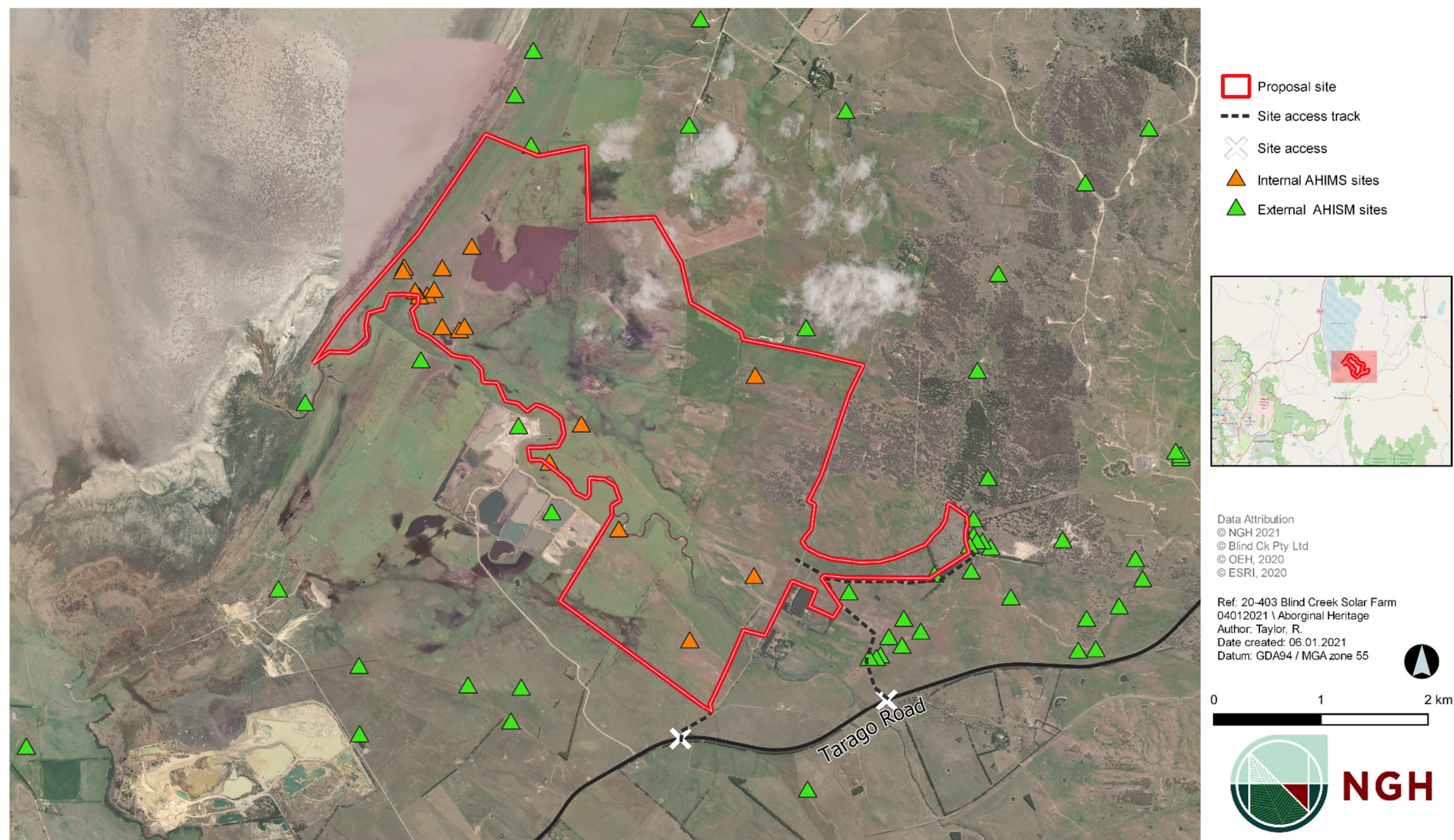


Figure 7-6 Aboriginal Heritage sites and places recorded within and near the proposal site

7.1.8. Hydrology, groundwater and water quality

There are three waterways are located within the proposal site as shown in Figure 7-7. including:

- Wrights Creek - a 4th order stream, which flows south west across the proposal site for 3 kms.
- Bridge Creek - a 5th order stream, which crosses the entrance road to the proposal site.
- Unnamed tributary of Bridge Creek -1st order in the north east of the proposal site.
- Butmaroo Creek – a 6th order stream, along the southern boundary of the proposal site.

Wright's Creek and Bridge Creek are tributaries of Butmaroo Creek. The confluence of Butmaroo and Bridge creek is outside of the proposal site. The confluence of Wright's Creek and Butmaroo Creek is 6kms upstream of Lake George.

The Palerang LEP 2014 doesn't identify the Lake George and its tributaries in the proposal site as flood prone, although an initial assessment of the aerial imagery and shows the potential for low lying areas prone to inundation in high rainfall events. There are approximately 16 dams and/or ephemeral wetlands within the proposal site. The site is also not located within a groundwater vulnerable area.

Lake George, Butmaroo Creek, Wright Creek and a larger wetland area (near Lake George) are identified as key fish habitat within the proposal site. Waterways and key fish habitat areas are mapped as moderate on the constraints map provided in Figure 8-1.

A coordinate search of the EPBC PMST was undertaken on 3 November 2020 with a 10km buffer of the site. It returned four Wetlands of International importance as shown in Table 6-1. The closest is The Hattah-Kulkyne lakes, approximately 600 – 700 km downstream.

Constraints and need for further assessment

Under section 4.41 of the *EP&A Act*, SSD developments do not require a controlled activity approval (other than an aquifer interference approval) under Section 91 of the *Water Management Act 2000*. However, best practice measures are being used to inform site development in accordance with this Act. This Act defines waterfront land as the bed of any river, lake or estuary and any land within 10, 20, 30 and 40 metres of the river banks, lake shore or estuary mean high water mark, in accordance with best practice guidelines. In these areas, permanent infrastructure would be avoided or minimised, as informed by further hydrological studies. In overland flow areas, which do not meet the definition of waterfront land under the WM Act, permanent infrastructure may be considered.

Water quantities and sources required for construction and operation will be required to be detailed in the environmental assessment as part of the project description.

Confirmation of the hydraulic function and ecological value of the waterways will be undertaken as part of the EIS, including a specialist hydraulic and hydrological analysis to address potential flood risks and to identify the impact of infrastructure on hydrological function. Best practice management is recommended with regard to impacts that cannot be avoided (i.e. vehicle crossings) for waterways that qualify as 'water-front land'. Those that are more accurately defined as ephemeral waterways or areas of overland flow with moderate constraint may have PV arrays constructed over, provided that potential impacts have been determined and mitigation strategies prepared as part of the EIS.

The EIS would assess the impacts to waterways and include appropriate mitigation measures, such as buffering these areas for avoidance, where possible, and adherence to best practice guidelines (DPI 2012) where avoidance is not possible. Risk of erosion would also require consideration in the EIS. This should be prioritised as it will assist with layout development.

Scoping Report Blind Creek Solar Farm

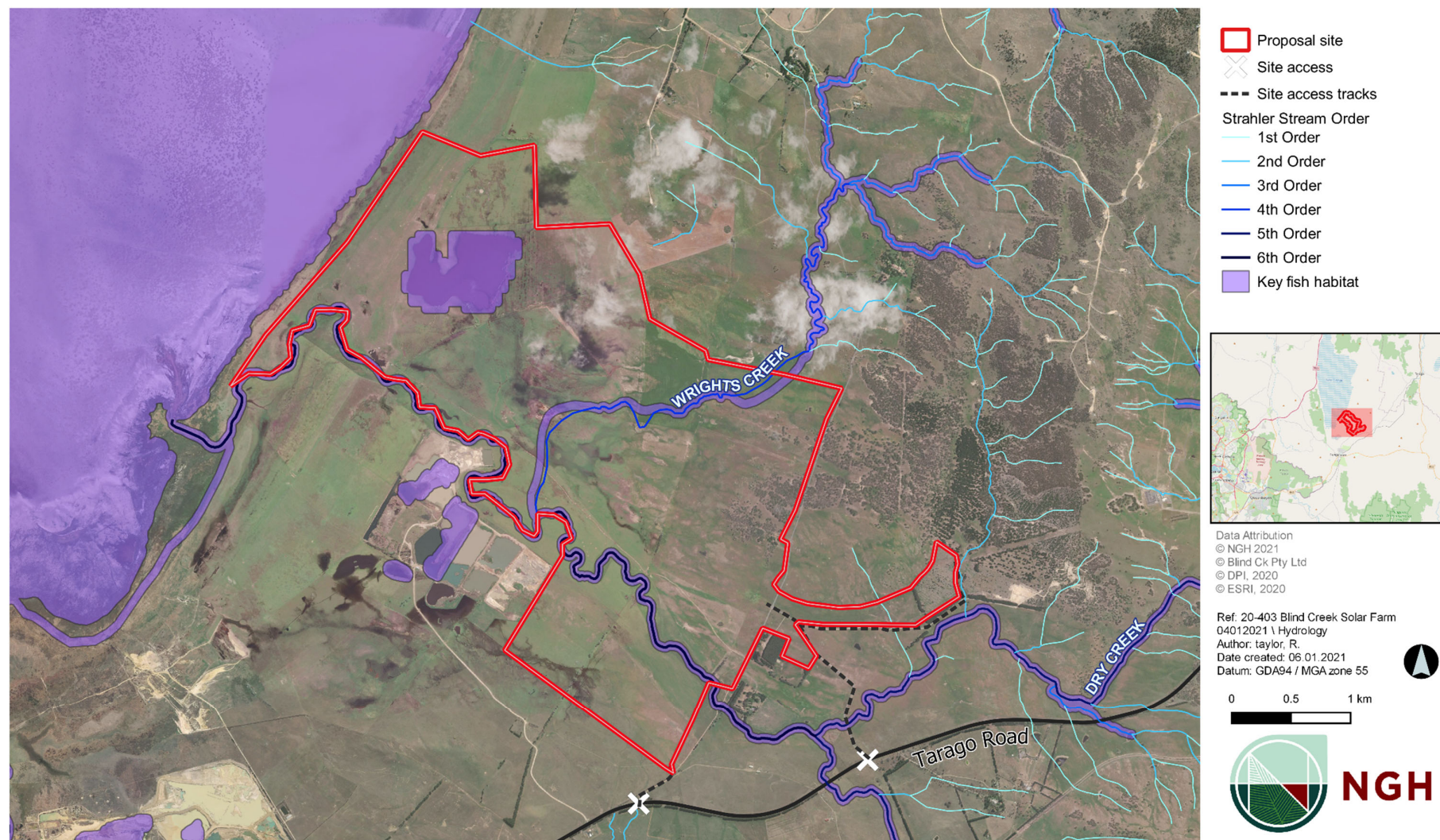


Figure 7-7 Watercourses and key fish habitats across the proposal site.

7.1.9. Social and economic impacts

The proposal site is located within the Queanbeyan-Palerang LGA, which was formed in 2016 by the amalgamation of the Queanbeyan LGA and the Palerang LGA. Table 7-5 provides a statistical overview of the Queanbeyan-Palerang and the nearby regional town of Bungendore.

Table 7-5 Statistical overview of Queanbeyan-Palerang LGA and Bungendore (ABS, 2016).

Measure	Queanbeyan-Palerang LGA	Bungendore
Population	57, 331	4, 178
Median age	38	38
Main industry	• Central Government Administration • Defence • State Government Administration • Hospitals • Supermarkets and grocery stores	• Central Government Administration • Defence • State Government Administration • Hospitals • Cafes and Restaurants
Unemployment rate	4.0%	2.9%

Economic benefits are expected to be generated by the construction, and to a lesser extent operation of the Blind Creek Solar Farm. Benefits would include local employment opportunities and stimulus to the local economy through use by construction staff of local accommodation and recreational facilities.

Access to the site may require road upgrades and intersection treatments. Interruptions associated with these works and during construction may be expected along Tarago Road. Traffic volumes as a result of the construction of the solar farm will increase the volume of daily traffic along Tarago Road, Bungendore Road, Braidwood Road, Federal Highway and the Hume Highway. During operation of the solar farm, increases in traffic volumes are anticipated to be negligible during operation.

Constraints and need for further assessment

The EIS would assess potential social and economic impacts of the proposal, including issues perceived by the community to be of concern and cumulative impacts of other proposed developments in the region. An investigation of ways to spread the benefits of the solar farm into operation would also be included within the EIS. Consultation to date is summarised in Section 5.2 of this report and would continue into the detailed investigation stage.

7.2. Additional environmental issues

Table 7-6 Additional environment issues

Issue	Existing Environment	Potential impacts	Constraints and need for further assessment
Hazards and risks – bushfire and battery storage	The majority of the site is naturally cleared and has been used for historical and ongoing agricultural purposes. Remanent woodland is present in the north east corner of the site. The entire proposal site is mapped as bushfire prone land. The sub-station and battery storage system site would be located after considering bush-fire risks. The proposed battery storage would have a capacity of 300MW and 300MWh	Bushfire Emergency management and response protocols will be required in the event of a bushfire. Battery storage Battery storage can elevate fire ignition risks. Storage, transport and handling must be considered.	Bushfire The potential to increase risk of bushfire would be assessed in the EIS. Emergency protocols would reflect advice from relevant agencies. Battery Storage Storage above 40MW hrs will require substantive specialist assessment. A preliminary risk screening in accordance with <i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development and Applying SEPP 33 (DoP, 2011)</i> would be undertaken within the EIS. Should the preliminary risk screening determine the development as ‘potentially hazardous’, a Preliminary Hazard Analysis (PHA) would be undertaken in accordance with <i>Hazard Industry Planning Advisory Paper No.6 – Guidelines for Hazardous Analysis (DoP,</i>

Issue	Existing Environment	Potential impacts	Constraints and need for further assessment
			<i>2011) and Multi-Level Risk Assessment (DoP, 2011).</i>
Hazards and risks – Electric and magnetic fields (EMF)	EMFs are produced within the vicinity of existing powerlines. Additional infrastructure proposed within the proposal site such as inverters, connecting powerlines and the substation would produce additional EMF within their vicinity.	The EMF levels associated with solar infrastructure are well below the guideline for public exposure and would not be expected to have any adverse impact on human health. There can, however, be perceived impacts for nearby residents.	The EMF levels of the proposal infrastructure would be assessed as part of the EIS. Standard design provisions are expected to ensure impacts comply with relevant guidelines together with communication of the issue as required.
Hazards and risks – glint and glare	The closest airport to the proposal site is the Canberra International Airport, approximately 40kms to the south west of the proposal site. A small airstrip is mapped within the proposal site.	It is understood that concerns relating to glare have been raised for other solar proposals as an issue of interest to neighbours and local communities. This is a perceived issue but requires consideration and assessment. Other infrastructure, such as sheds and panel mounts have greater potential for glare and generating reflections than PV panels which are designed to capture, not reflect, sunlight.	Glare and reflections from solar farm infrastructure would be investigated. It is noted that solar panels are designed to absorb as much sunlight as possible. As such, they reflect a very low percentage of light and are generally not considered likely to result in glare or reflections that would adversely impact traffic or nearby receivers. However further consideration would be required for other infrastructure that have potential to cause glare and glint, ie frames and sheds.

Issue	Existing Environment	Potential impacts	Constraints and need for further assessment
Non-indigenous heritage	Non-indigenous heritage database searches were conducted on 5 November 2020 included: • A search of the NSW OEH Heritage Register for the Queanbeyan-Palerang LGA identified one heritage record within the eastern part proposal site and one within a couple hundred metres of the southern portion of the proposal site. Both are listed under the NSW Heritage Act. • A search of the Palerang LEP 2014 found two heritage sites listed: ○ Currandooley homestead (Palerang LEP I175). Directly north of the proposal site. ○ Werriwa homestead (Palerang LEP I233). South of the proposal site. • A trig station is located in the north west of the proposal area. The trig station should be assessed as part of the EIS non-aboriginal heritage assessment. • A search of the Australian Heritage Database located no items within the proposal site. The closest item is approximately 50km south of the site. • A coordinate search of the EPBC PMST was undertaken with a 10km buffer of the site. No World Heritage or National Heritage areas or items are within the site. Additionally, no areas of Commonwealth land or heritage places were identified. It is understood there is ruins within the proposal site from the original homestead.	No direct impacts are considered likely for listed heritage items. The ruins of the original homestead would be considered in the EIS Other unlisted items are not anticipated to occur within the proposal site. There can be visual, dust and vibration impacts on heritage items adjacent to the proposal site and haulage route.	The potential to impact non-listed heritage items would also be investigated by site inspection; old land holdings can contain buildings or structures of significance. Protections for such features would be commitments of the EIS, as required.

Issue	Existing Environment	Potential impacts	Constraints and need for further assessment
Cumulative impacts	Cumulative impacts refer to the combined effect of impacts from several activities on a particular value or receiver. They may occur concurrently or sequentially. The relevant cumulative impacts are those associated with other known or foreseeable developments occurring in proximity to the proposal. Active Major projects listed on the Major Projects Register within the Queanbeyan-Palerang region (and their current status) are: • Capital Solar Farm- MOD 2: PV Panels (determined 2015) • Capital Wind Farm- MOD 1: Planning Agreement (determined 2007) • Capital Wind Farm – Stage 2: MOD1 MW increase, MOD2: Blade Length, MOD3: Transmission Line, MOD4: Extension of Lapse Date (approved, 2011)	Capital Wind Farm construction is complete. Capital II Wind Farm requires a further modification. The intention is for Capital Solar Farm not to be constructed if a viable development approval is granted for Blind Creek Solar Farm. There is potential for potential cumulative impacts with ongoing agricultural activities within and adjacent to the solar farm.	Potential cumulative impacts, such as cumulative soil and water, biodiversity, traffic, visual impacts, would be assessed within the EIS. The timing of works associated with any new proposed developments that may commence nearby would be monitored throughout the EIS stage to ensure appropriate mitigation measures are implemented, particularly in relation to construction traffic and pressure on local services and facilities within Bungendore and Queanbeyan.

8. CONSTRAINTS ASSESSMENT

8.1. Methodology

Preliminary constraints advice has been informed by a desktop review and the biodiversity component of the constraints assessment supported by site inspection by a senior NGH ecologist in November 2020. The inspection allowed for full traverses of the site and addition vehicle-based surveys in the locality with the aim to:

- Identify key plant community types, their condition and habitat values.
- Identify any other key assessment issues.

As such, they are considered sufficient to provide preliminary constraints advice to inform development of the concept design and investigation strategies.

Low, moderate and high environmental constraints are defined in Table 8-1 and may be viewed in Section 8.2. and Table 8-2 with reference to the 'developability' of the site. Where uncertainty exists, a higher constraint rating has been applied. Further investigation may reduce the constraint level. Mapping of the identified environmental constraints was undertaken for the site and is provided in Figure 8-1.

The development would be designed in consideration of these constraints and will aim to avoid areas of high and moderate environmental constraints.

Table 8-1 Environmental constraints.

Constraint	Definition
Low	Minimal environment impacts anticipated. Most suitable for development. Standard management protocols would be sufficient to manage any impacts. Biodiversity credits are unlikely to be generated within these areas or may have very low biodiversity credit requirements if they do.
Moderate	Impacts should be minimised, where possible. These areas may require specific management protocols and may add some cost and time to the assessment and approval process.
High	Priority for further investigation. These areas may be difficult, expensive or may not be possible to obtain approval to develop. They may require costly additional surveys to understand and manage or offset impacts.

8.2. Results

Table 8-2 Constraints assessment for the proposal site.

Constraint level	Site specific results
High	• Biodiversity areas mapped as 'high constraint' include the woody vegetation in the south east of the proposal site should be avoided. While the PCTs are still being determined, they are either PCT 1100 Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion; or, PCT 1191 Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion. There is potential for both of these PCTs to be an associated threatened ecological community (TEC). Further targeted survey work will determine if this vegetation qualifies as an NSW or Commonwealth TEC. These areas as well as other habitat features observed on site may provide threatened species habitat, including for threatened woodland birds. Threatened plant species, including Black Gum (<i>Eucalyptus aggregata</i>), Aromatic Peppercress (<i>Lepidium hyssopifolium</i>) and Hoary Sunray (<i>Leucochrysum albicans subsp. tricolor</i>) may also be present in these areas. These areas may require further targeted survey work, more onerous impact assessment and will generally require strong justification for impacts and offsets under the NSW BAM. The proposed impact area does avoid most areas of high constraint. • Aboriginal Heritage: There are 18 recorded Aboriginal sites or places located within the proposal site. These are of high constraint, and impacts will require approval. Additionally, areas close to waterways within the proposal site, including the shore of Lake George and degree Creek have higher potential for Aboriginal cultural heritage significance and further assessment and consultation may be required. Mitigation strategies can range from avoidance can range from avoidance, to salvage problems to more intensive survey work including test pits. This can add cost and time to the process.
Moderate	• Biodiversity areas mapped as moderate constraint are categorised as: 1) ephemeral wetlands located close to Lake George (there is a historic record within the wetland of the Yellow-spotted Tree Frog (<i>Litoria castanea</i>) which is critically endangered under the EPBC Act.). • Access and traffic: Road or intersection improvements or upgrades may be required to safely access the proposed site from Tarago road and Currandooley Road. Specific requirements will need to be determined early and consultation with agencies. Access designs have potential to impact survey areas for other specialists (i.e heritage and biodiversity). • Crown Land: Permit/licence is required for works on Crown Land. • Water and hydrology impacts: Waterways and key fish habitat areas, including Lake George, Butmaroo Creek, Wright Creek and a large wetland area near Lake George. Works in or that affect waterways may require additional assessment, justification and management. Works that may affect local hydrology are likely to require specialist input from a hydrologist. This may include modelling to assess impacts in relation to placement of infrastructure in order to

Constraint level	Site specific results
	protect hydrological function of waterways and protect soils from erosion. Construction practices will be subject to best practice methodologies and rehabilitation requirements. • Non-indigenous heritage: Currandooley homestead and Werrwa Homestead, both listed heritage items are adjacent to the proposal site. Further assessment would be required.
Low	• Biodiversity areas identified as low constraint cover the majority of the proposal site. This area may include some scattered trees (paddock trees) that will require further assessment and may require an offset under the Biodiversity Conservation Act. • Category 1 – Exempt Land: land that has been subject to extensive clearing and modification at 1 January 1990 or lawfully since. Not required to be assessed under the BAM other than for prescribed impacts. • Potential receivers: Potential receivers in close proximity (within 2 km) of the proposal site, who may be affected by visual impact, traffic noise and vibration, and dust during construction and operation. Additionally, cumulative visual impacts associated with the nearby Capital Wind Farm and potential development of the Capital II Wind Farm need to be considered.

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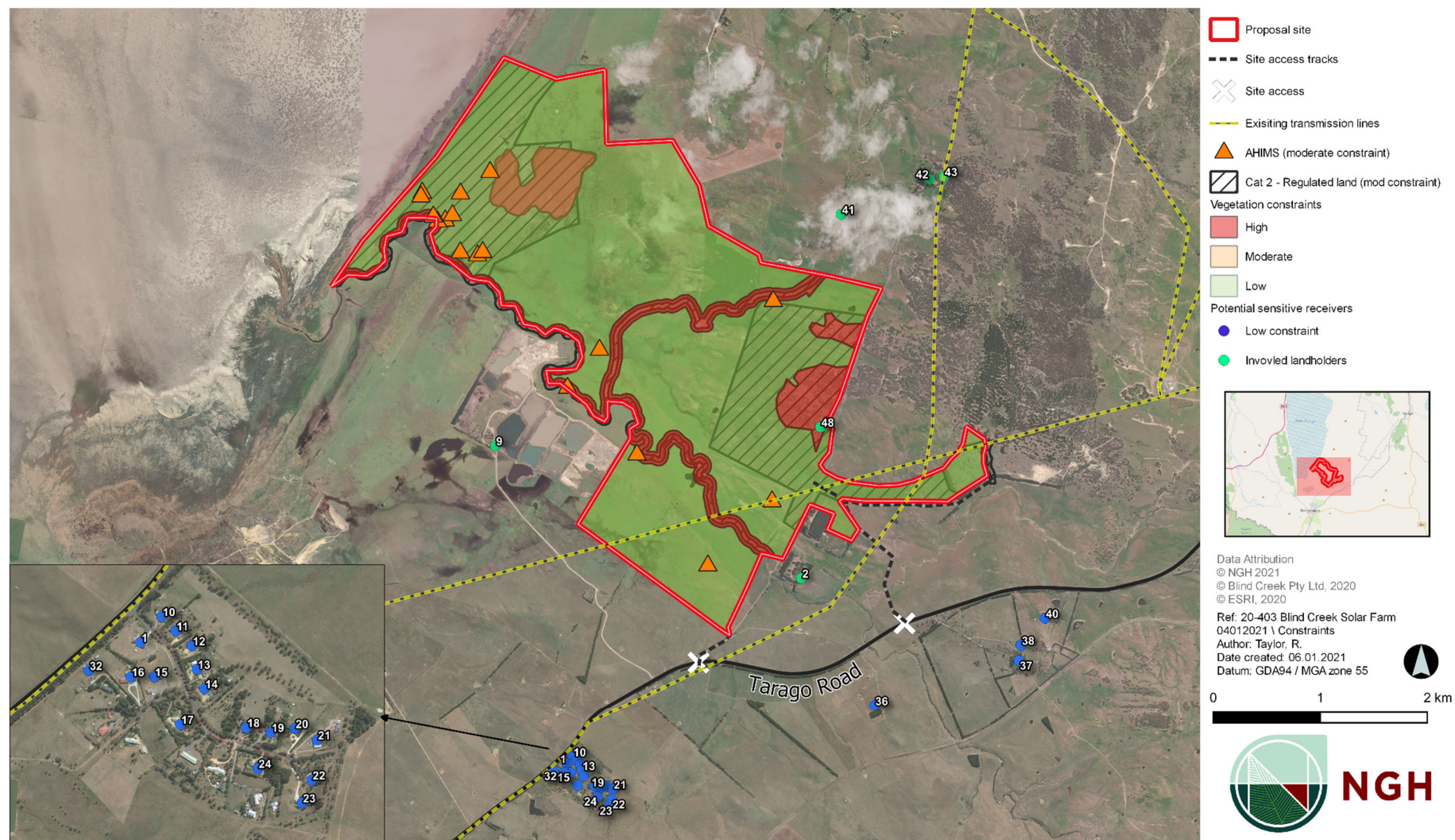


Figure 8-1 Blind Creek Solar Farm constraints

9. CONCLUSION AND RECOMMENDATIONS

The Blind Creek Solar Farm proposal is currently in the early planning phase. This report has outlined and established the planning and general environmental 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 Scoping Report has categorised the potential environmental impacts of the proposal as key issues or other issues. Based on this Scoping Report, an indicative scope for the EIS has been developed, focusing on the key issues:

- **Biodiversity**
 - High constraint vegetation zones
 - For the impact area proposed, a detailed land category assessment has been undertaken. Further BAM plots will be completed in November 2020 to determine whether parts are exempt under the Biodiversity Conservation Act. If high constraints areas can be avoided, the biodiversity constraint can be reclassified to 'Low'. This is the next step as part of the assessment.
 - The proposal impact area is located within areas that are likely to generate the lowest amount of biodiversity credits per hectare, if assuming that offsets are required.
- **Sensitive receivers** (visual, noise and dust) – There are no non-involved receivers within 1km of the proposed solar development footprint (Figure 7-1) and therefore, impact would be considered low. Additional consultation is recommended with identified sensitive receivers within 1 – 2km ensure that their concerns are addressed in the assessment stage, prior to exhibition of the proposal.
- **Traffic and transport** – an understanding of any upgrades should be undertaken early, to ensure biodiversity and heritage impacts as well as traffic impacts are fully investigated as part of the proposal. This is a cross over design / assessment issue.
- **Aboriginal heritage** – this can be a timely assessment process and is often critical path for the assessment although rarely impacts project layout. Testing pitting is sometimes required which can add cost and time to the process.
- **Water and hydrology** – a precautionary buffer has been shown for waterways. Where hydrological advice supports it, these could be reduced.

Early investigation of these areas is recommended to better understand key project risks that may inform the layout and mitigation strategies.

Secondary issues will also be investigated, commensurate with risk, through desktop investigation.

The EIS would be prepared in accordance with the proposal-specific SEARs. Mitigation measures will be developed for inclusion in the EIS and will address the management of key issues and other issues identified in the assessment and community and stakeholder engagement process.

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APPENDIX A SITE PHOTOS



Scoping Report
Blind Creek Solar Farm



Scoping Report
Blind Creek Solar Farm



APPENDIX B LAND CATEGORY ASSESSMENT

LAND CATEGORY ASSESSMENT

Methodology

Assessment of the development site as Category 1 – exempt and Category 2 – regulated land was undertaken using the following data sources:

- 2017 Land Use Dataset (Australian Land Use and Management (ALUM) Classification version 7 (Office of Environment and Heritage (OEH) 2017).
- NSW Woody Vegetation extent and Foliage Projective Cover (FPC) 2011 (OEH 2015).
- Sensitive regulated and vulnerable lands on the Native Vegetation Regulatory Map Portal (LLS 2020).
- 1990 aerial imagery (DSFI 2020).
- Plant Community Types from NGH field assessments.

Results

The following table (Table 1) demonstrates how the above mentioned layers were used in determining land category.

Table 1 Summary of data sources and interpretation

Data Sources	Category 1 – Exempt Land	Category 2– Regulated Land	Excluded Land
Current Aerial is Bungendore Locality	• Clear evidence of cropping. • Clear evidence of significant groundcover modification.	• Woody vegetation present at 1992 demonstrated within woody vegetation extent layer	N/A
1990 aerial imagery	• Clear evidence of cropping and grazing. • Clear evidence of significant groundcover modification.	• Woody vegetation present at 1992 demonstrated within woody vegetation extent layer	N/A
2017 Land Use Dataset	Land use identified as: • Grazing modified pastures	Land use identified as: • Grazing native vegetation • Rural residential without agriculture • Grazing modified pastures where evidence of significant groundcover modification is absent (precautionary principle applied) • Managed resource protection • River	N/A
NSW Woody vegetation extent	• Areas of woody vegetation regrowth that has occurred post 1990 following previous clearing events	• Woody vegetation present as at 1992 inclusive of paddock trees	N/A
Native Regulatory Map • Sensitive regulated land • Vulnerable regulated land • Excluded land	N/A	• Areas identified as vulnerable regulated land within the development site.	N/A
Plant Community Types (NGH)	• Non-native vegetation (Exotic)	• Planted vegetation present at 1992 demonstrated within woody vegetation extent layer • High quality PCT 1191 or 1100	N/A

In summary, the analyses of the above sources identified the following:

- A high proportion of the land has previously been modified and used for grazing and is therefore Category 1 - Exempt Land (Figure 3, Figure 6).
- The preliminary site assessment was conducted on 9 November 2020. Field surveys identified PCT vegetation which has been mapped as Category 2 – Regulated Land (Figure 5). These coincide with areas with a higher density of woody vegetation (Figure 8, Figure 4, Figure 5).
- The field surveys conducted identified evidence of exotic pasture (**Error! Reference source not found.**, Figure 5).
- A determining feature of agricultural use is a lack of woody vegetation regrowth in the majority of areas, as represented in the aerial imagery (both 1992 and current) and field observations (Figure 4, Figure 5). The 2011 Woody Vegetation extent does however identify scattered paddock trees in the development site which have been mapped as Category 2 - Regulated Land (Figure 8).
- The PCT Mapping and BAM Plot Map identified vulnerable lands within the Proposal Site which has been mapped as Category 2 – Regulated Land (Figure 3). These mostly coincide with areas mapped as 'River' landuse (Figure 6).
- The Landuse Map identified areas classed as 'Grazing Native Vegetation' which have been mapped as Category 2 – Regulated Land (Figure 6).

Conclusion

Based on the above data sources, there is evidence to suggest that the far east portion of the site is a pine plantation, and the mid-section of the proposal site has predominantly been used for grazing and crops. These areas consist of exotic vegetation, supported by recent imagery, 1992 aerial imagery, field surveys, and 2017 Land Use and Land Zoning Mapping data. These areas have been mapped as Category 1 – Exempt Land.

Sections in the western and eastern quarters of the proposal site have been mapped following fieldwork as PCT vegetation, which is supported by recent imagery and 1993 aerial imagery. While some of this area is mapped as 'Grazing Modified Pastures' landuse, the presence of PCT vegetation makes this land Category 2 – Regulated Land.

Based on our assessment, a draft map of areas considered to be Category 1 – Exempt Land and Category 2 – Regulated Land has been produced (Figure 3). The relevant datasets used in the assessment are included in Figures 3 and 7.

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Figure 1 Level of exotic vegetation identified throughout the site.



Figure 2 Vegetation patch in the eastern side of the Proposal Site, showing an area mapped as native PCT Vegetation.

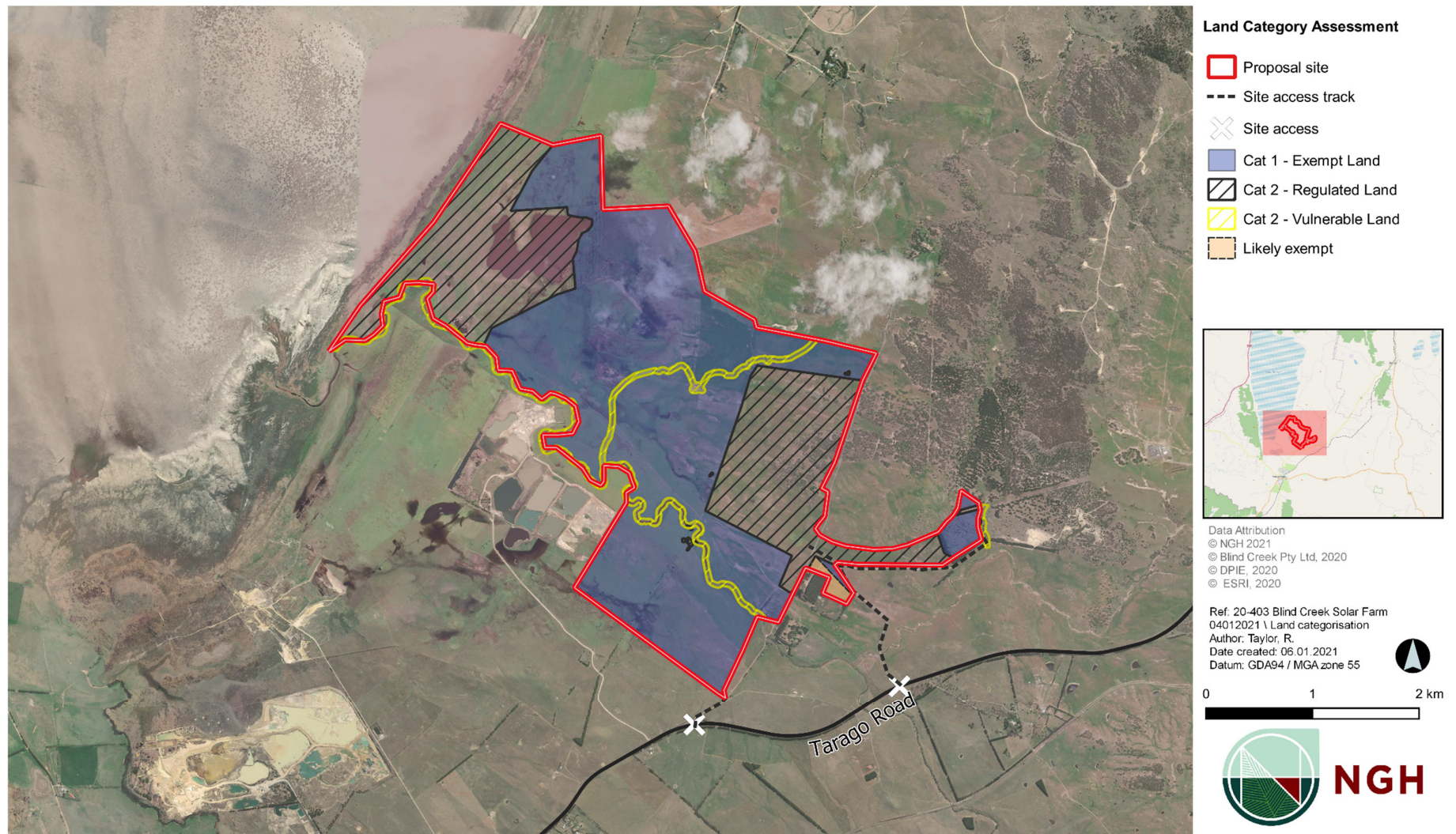


Figure 3. Proposal site and land categorisation

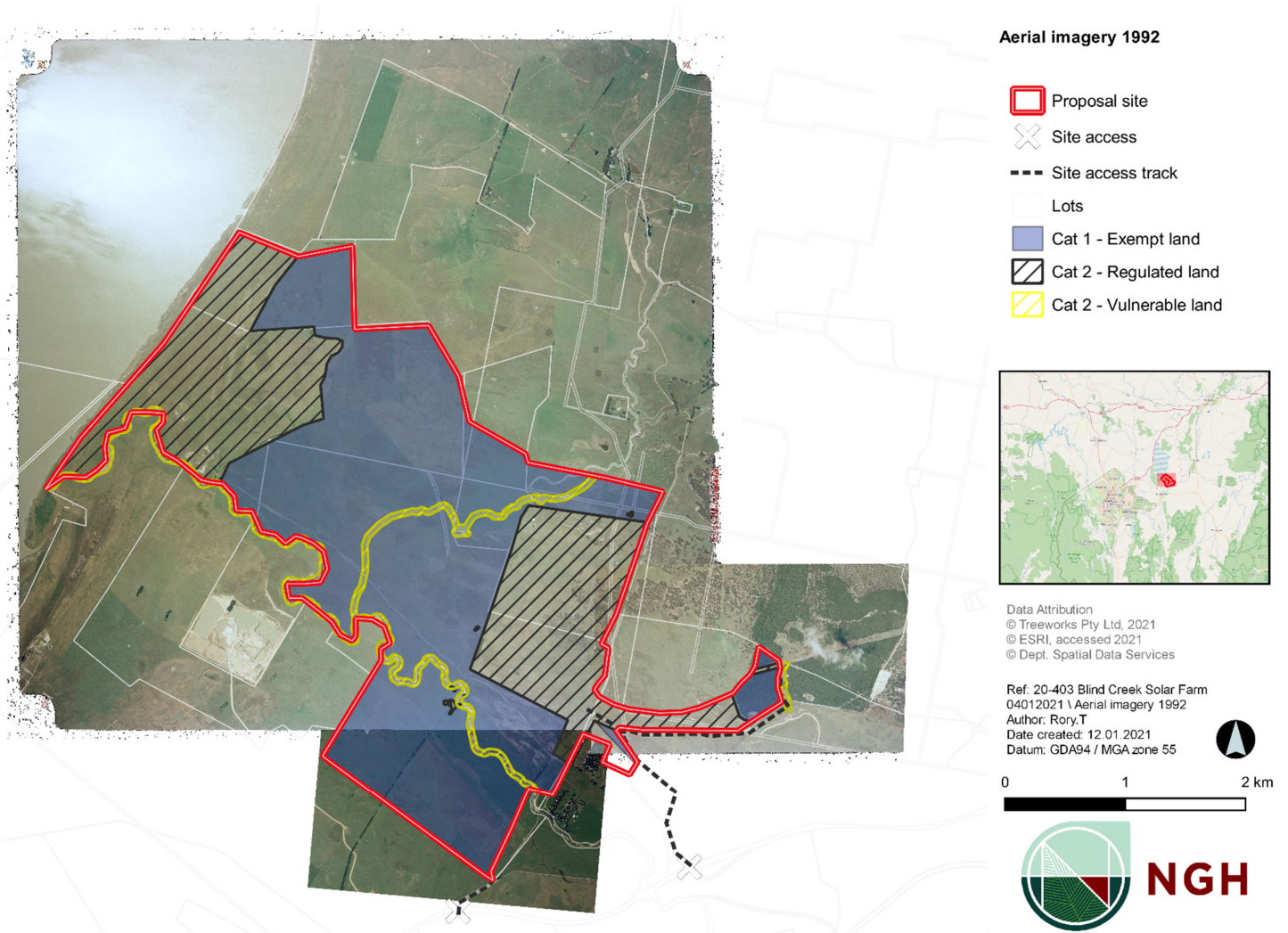


Figure 4 Aerial imagery 1992 (Spatial Collaboration Portal 2020).

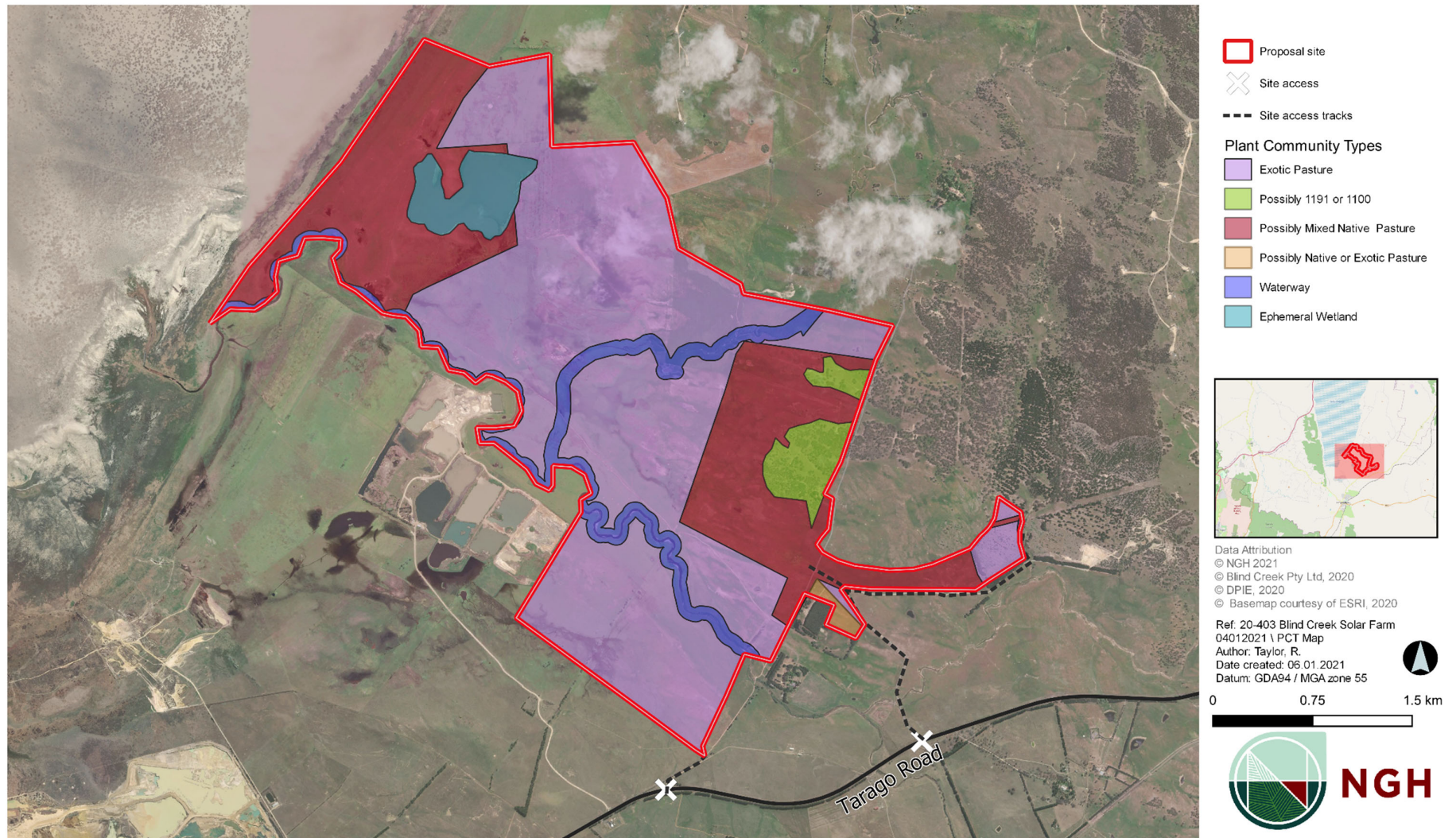


Figure 5. Plant community types map

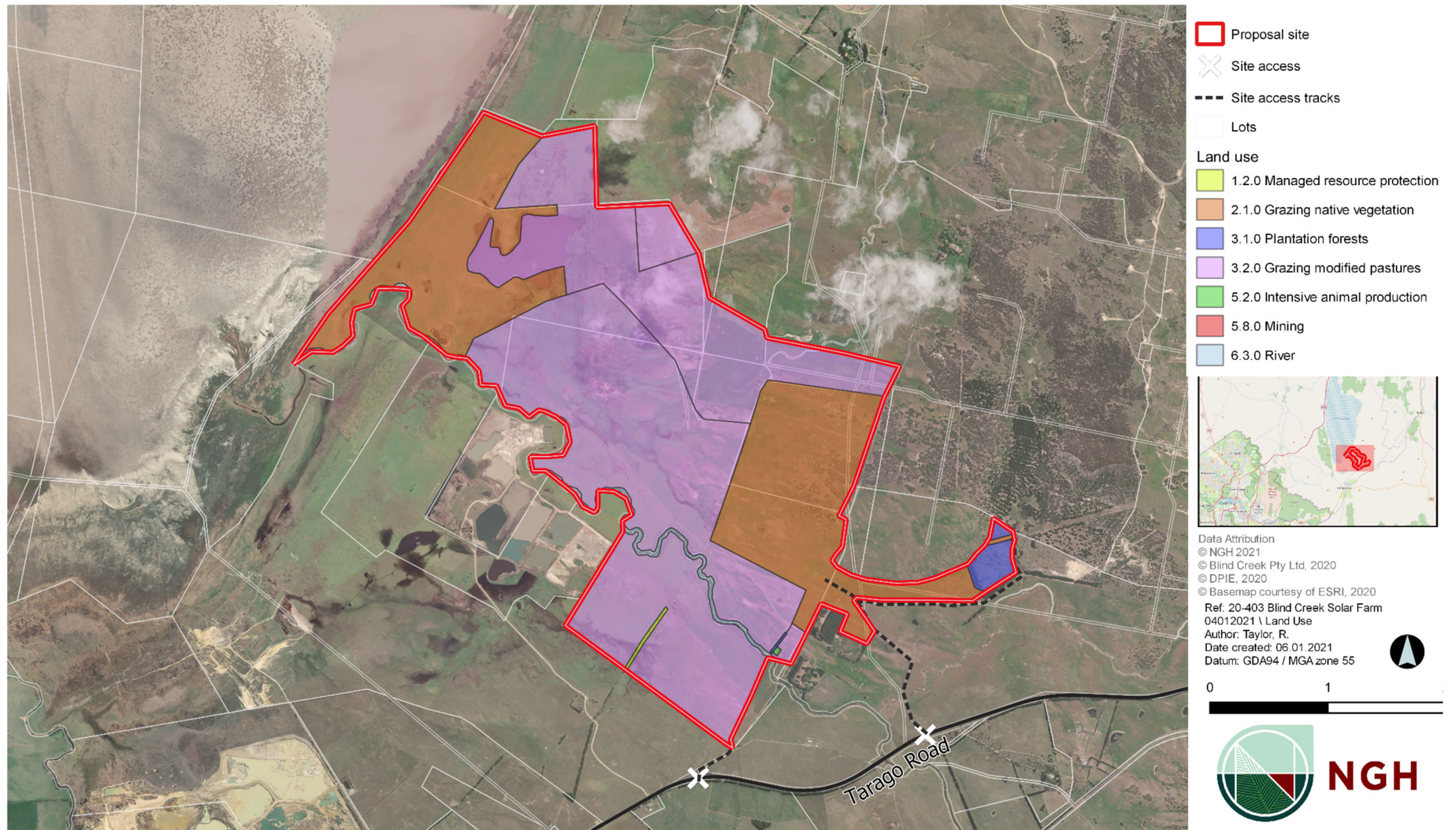


Figure 6. Land use dataset

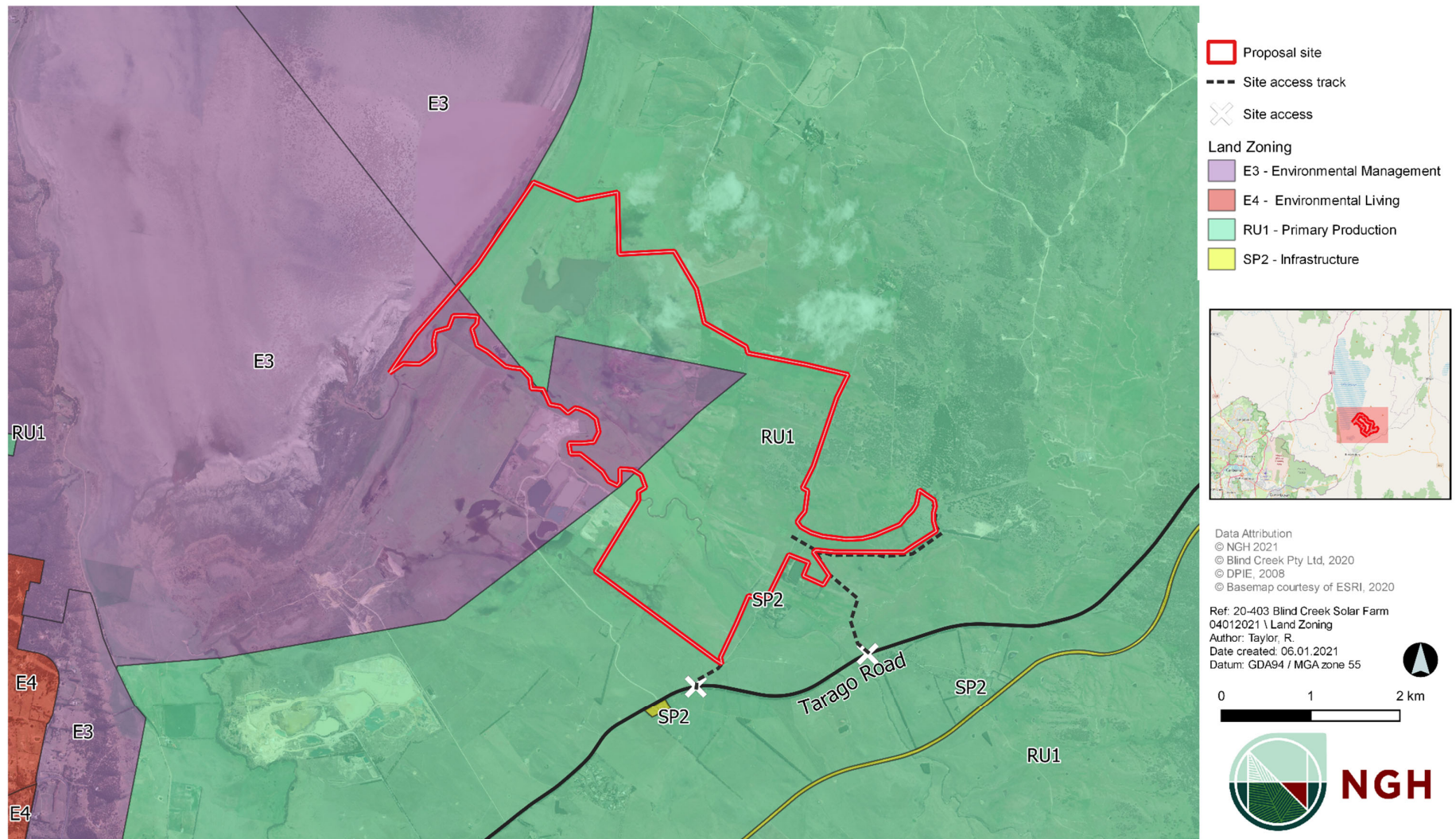


Figure 7 Land Zoning map

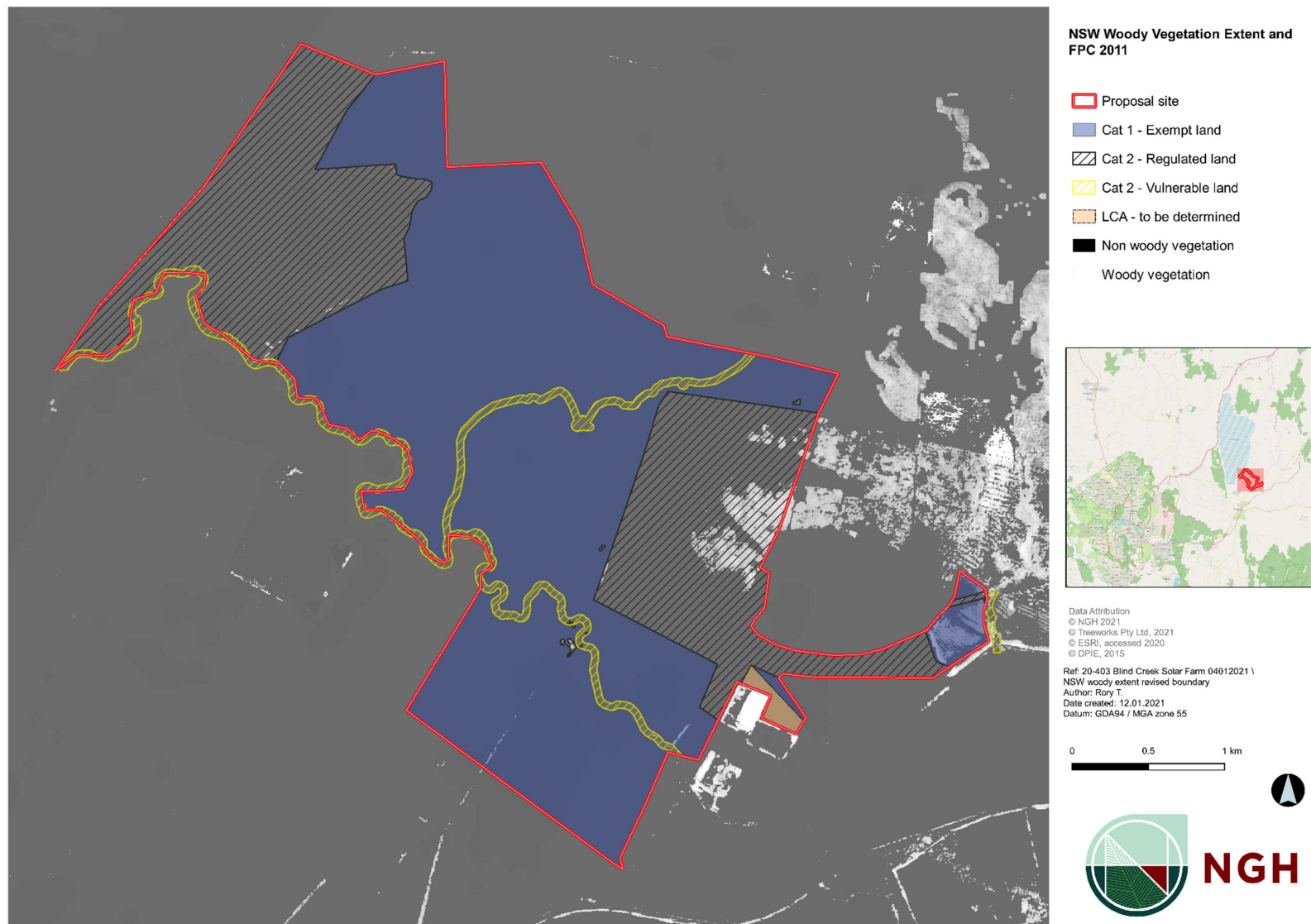


Figure 8 NSW Woody Vegetation Extent and FP