



Edify™

Billilingra Solar Farm Scoping Report

Billilingra, NSW

Request for Secretary's Environmental Assessment Requirements (SEARs)

June 2022



Table of Contents

1	Introduction	6
1.1	Project Overview	6
1.2	Purpose	9
1.3	Applicant – Edify Energy Pty Ltd	9
2	Strategic Context	10
2.1.1	Technical Feasibility	10
2.1.2	Contributions to Federal and State Climate Change Targets	10
2.1.3	Electricity Market Benefits	12
2.1.4	Socio-economic Benefits	12
2.1.5	Land Use	13
2.1.6	Site Suitability	13
3	Project	15
3.1	Location	15
3.2	The Development Site	15
3.3	The Locality	26
3.3.1	Cooma	26
3.3.2	Population	27
3.3.3	Climate	27
3.3.4	Geology and Vegetation	28
4	Proposed Works	28
4.1	Site Selection	28
4.2	Project Components	28
4.2.1	Proposed Infrastructure	28
4.2.2	Construction	31
4.2.3	Operation	31
4.2.4	End of Life	31
4.2.5	Capital Investment	31
4.2.6	Subdivision	32
4.3	Alternatives to the Proposal	32
4.3.1	Alternative Sites	32
4.3.2	Alternative Technologies	33
4.3.3	The ‘Do Nothing’ Option	33
5	Statutory Context	33
5.1	Strategic Justification	33

5.2	Local Government	38
5.2.1	Cooma-Monaro Local Environmental Plan 2013	38
5.3	Commonwealth Legislation	40
5.3.1	Environmental Protection and Biodiversity Conservation Act 1999	40
5.3.2	Native Title Act 1993.....	41
6	Engagement	41
6.1	Aboriginal Community Consultation.....	44
6.2	Consultation to date	45
6.2.1	TransGrid	45
6.2.2	Snowy Monaro Regional Council	45
6.2.3	State and Federal Members.....	46
6.2.4	Industry	46
6.3	Community Investment.....	46
7	Preliminary Environmental Assessment	47
7.1	Methodology.....	47
7.2	Proposed Assessment of Impacts	47
7.2.1	Biodiversity	47
7.2.2	Aboriginal Heritage	53
7.2.3	Traffic and Transport	54
7.2.4	Visual Amenity and Landscape Character	55
7.2.5	Noise	56
7.2.6	Land Use and Resources.....	57
7.2.7	Watercourses and Hydrology	58
7.2.8	Groundwater Dependent Ecosystems (GDEs)	60
7.2.9	Cumulative Impacts	61
7.3	Other Environmental Issues	62
8	CONCLUSION	69
9	References	70
Appendix A	Scoping Summary Table	72
Appendix B	Social Impact Scoping Worksheet	75
Appendix C	Consultation Records	76
Appendix D	AHIMS Searches	77
Appendix E	NSW Transport map – for potential access route/s to site	78
Appendix F	Historic Heritage database search result.....	79
Appendix G	Contaminated Land Register search result	82
Appendix H	NSW Rural Fire Service – Bushfire prone land search result.....	83
Appendix I	Crown Roads within Proximity to Development Area	84
Appendix J	Preliminary Ecology Assessment, OzArk Environment & Heritage.....	85

Figures

Figure 1 - Subject Land in regional setting	6
Figure 2 - Cooma Monaro Renewable Energy Zone (AEMO, 2020)	11
Figure 3 – Subject Land Lots	17
Figure 4 - Category 1 - exempt land on Subject Land	18
Figure 5 - Preliminary Project Layout.....	19
Figure 6 - View of typical grassland with electricity transmission line in view on Subject Land.....	20
Figure 7 - View of isolated paddock trees in non-native pasture on Subject Land.....	20
Figure 8 - View of isolated paddock trees within Subject Land	21
Figure 9 - View of grasslands on Subject Land.....	21
Figure 10 - View of grassland on Subject Land.....	22
Figure 11 - Land and Soil Capability Mapping	23
Figure 12 - Development Footprint in relation to nearby receivers (less than 4km)	25
Figure 13 - Cooma-Monaro Local Environmental Plan (LEP) with biodiversity.....	26
Figure 14 - Rainfall 2020 statistics for Cooma	27
Figure 15 - Indicative battery storage system enclosures	30
Figure 16 - Threatened Ecological Communities (TECs) and Plant Community Types (PCTs) - ground-truthed by Ecologists (North).....	50
Figure 17 - Threatened Ecological Communities (TECs) and Plant Community Types (PCTs) - ground-truthed by Ecologists (South)	51
Figure 18 – Threatened Flora and Fauna Species indicated in database searches and ground-truthing by ecologists	52
Figure 19 - Typical view from Monaro Highway	55
Figure 20 - Watercourses proximate and traversing Subject Land	59
Figure 21 - Watercourses and Groundwater Dependent Ecosystems proximate to Subject Land	60

Tables

Table 1 - Surveyed Lots	7
Table 2 - Key Site Constraints with Justification	13
Table 3 - Lots Impacted by Development.....	15
Table 4 - Project Neighbouring Receivers.....	24
Table 5 - Statutory Requirements	33
Table 6 - Summary of EPBC Protected Matters Search Report	40
Table 7 - Consultation and Community Engagement	43
Table 8 - Other Environmental Issues	63

Abbreviations

ACHA	Aboriginal Cultural Heritage Assessment
AEMO	Australian Energy Market Operator
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
ALC	Aboriginal Land Council
ARTC	Australian Rail Track Corporation
BC Act	<i>NSW Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
BSAL	Biophysical Strategic Agricultural Land
CLM Act	<i>NSW Crown Land Management Act 2016</i>
CMA	Catchment Management Authority
DA	Development Application
DIRN	Defined Interstate Rail Network
DoEE	Department of the Environment and Energy
DPE	NSW Department of Planning and Environment
DRC	NSW Department of Resource & Geoscience
DRE	NSW Department of Industry – Division of Resources and Energy
EMMP	Environmental Management and Monitoring Plan
EIS	Environmental Impact Statement
EMS	Environmental Management System
EP&A Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
ETL	Electricity Transmission Line
GWh	Gigawatt hours
ICNG	Interim Construction Noise Guideline
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
LVIA	Landscape and Visual Impact Assessment
MDBA	Murray-Darling Basin Authority
MNES	Matters of National Environmental Significance
MW	Megawatt
NSW	New South Wales
O&M	Operations and Management
OEH	NSW Office of Environment and Heritage
PAC	Planning Assessment Commission
PCT	Preliminary plant community type
POEO Act	<i>NSW Protection of the Environment Operations Act 1997</i>
PV	Photovoltaic
REAP	Renewable Energy Action Plan
RF Act	<i>NSW Rural Fires Act 1997</i>
RFS	Rural Fire Service
RMS	NSW Roads and Maritime Service
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SPIC	State Power Investment Corporation
SSD	State Significant Development
TIA	Traffic Impact Assessment
TSR	Travelling Stock Reserve
WM Act	<i>NSW Water Management Act 2000</i>

1 Introduction

1.1 Project Overview

Edify Energy Pty Ltd (ABN 85 606 684 995; Level 1 34-35 South Steyne Manly 2095) proposes to develop a Solar Farm in the township of Billilngira, New South Wales, to be known as the Billilngira Solar Farm (referred to as the proposal or the project). The objective of the proposal is to generate new and dispatchable carbon-free electricity supply for NSW. Subject to necessary approvals, Edify Energy (Edify) anticipates construction to commence in 2024.

The Solar Farm would occupy a development footprint of approximately 244 hectares (ha) of rural land currently used for grazing of sheep and cattle. The indicative disturbance (impact) area is approximately 194 ha. The proposal is expected to have a generation capacity up to 150 Megawatt (MW) alternating current (AC). The site is located approximately 20 kilometres (km) north of Cooma, located within the Snowy Monaro region. Figure 1 illustrates the Subject Land in relation to Cooma, Canberra and the East Coast of New South Wales.

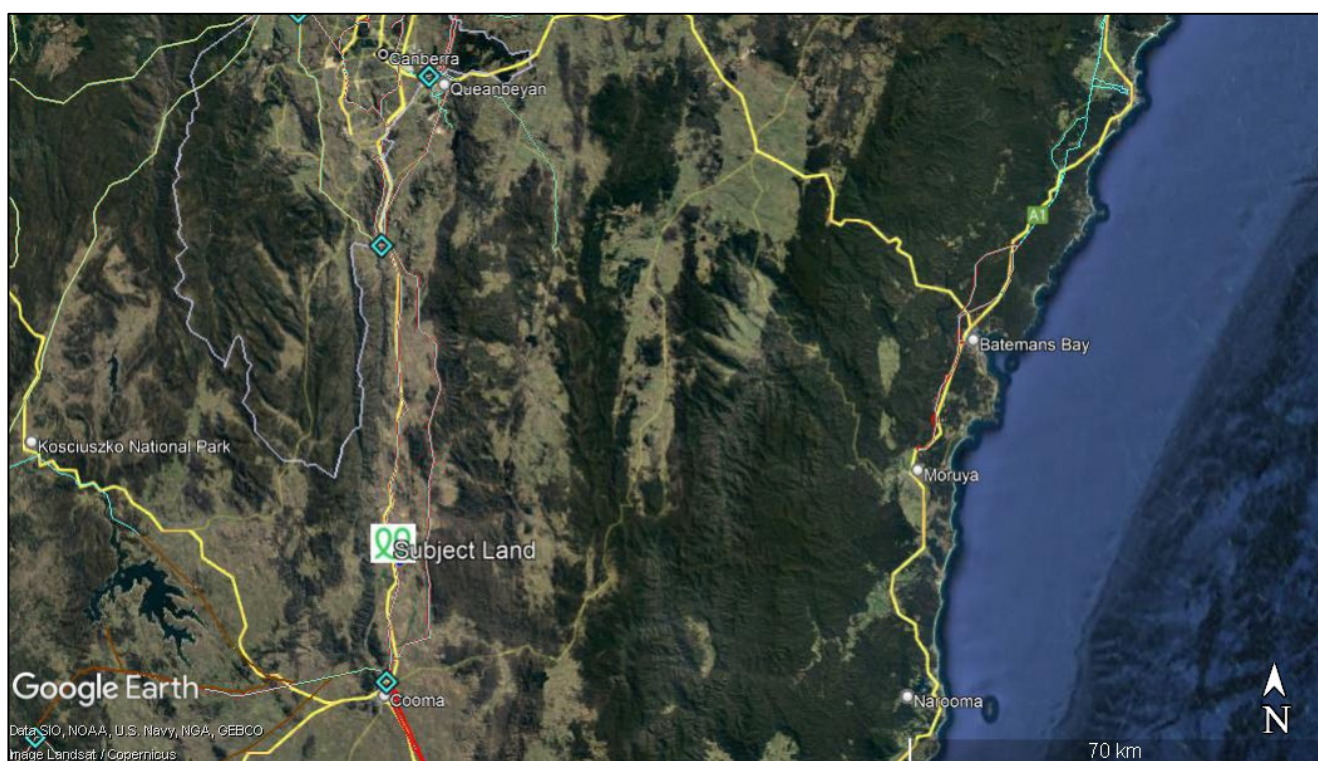


Figure 1 - Subject Land in regional setting

The proposal occupies a larger 'Option Area' of approximately 491ha across 23 lots, which has been surveyed to determine the ideal Development (Impact) Area, based on geological and biodiversity factors. The Surveyed lots (Subject Land) are summarised in Table 1 below.

Table 1 - Surveyed Lots

Lot	Deposit Plan	Development (Impact) Area
1	750523	Yes
39	750523	No
40	750523	Yes
49	750523	Yes
52	750523	Yes
7	1106250	No
8	1106250	Yes
9	1106250	No
10	1106250	Yes
11	1106250	Yes
8	750531	Yes
9	750531	Yes
10	750531	Yes
11	750531	Yes
14	750531	Yes
55	750531	Yes
78	750531	Yes
113	750531	Yes
101	750531	Yes
102	750531	No
1	449605	No
22	712987	Yes
31	1113179	No

The affected lots are proximate to an existing 132kV transmission line which crosses north-south through the development site. This overhead transmission line runs from Williamsdale to Cooma, with the transmission line owned and operated by TransGrid. This transmission line presents a suitable connection point for the

proposal due to its current and forecast network capacity, which requires no additional easements when establishing a new point-of-connection for the solar and battery assets.

The proposal includes infrastructure such as solar panels, inverters, transformers, underground cabling, an integrated battery storage system (up to 150 MW / 600 MWh), site office and maintenance building, dataroom and communications centre, access tracks, road and electrical easement crossings, perimeter security fencing, and a substation to connect the Solar Farm to TransGrid's existing 132kV transmission line.

The project represents Edify's continued investment in renewable energy projects throughout regional NSW. Similar to Edify's prior success in the State, the development will be consistent with the *NSW Large-Scale Solar Energy Guideline for State Significant Development* (NSW Government, 2018) and is expected to deliver several benefits including:

- the creation of local employment opportunities, including approximately 250 full-time equivalent jobs during the peak construction period
- approximately 5 permanent jobs during the operation of the project (>30 years)
- direct local investment via a Community Benefit Fund
- increased electricity generation capacity and grid support, via the solar asset
- increased dispatchable electricity, firming and system strength services, via the battery energy storage system; and
- a Voluntary Planning Contribution to be negotiated with the Snowy Monaro Regional Council

The project will have a capital investment of greater than \$30 million and therefore is considered a State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). Edify will prepare a Development Application (DA) for the project that is supported by an Environmental Impact Statement (EIS). This will be submitted in accordance with Part 4, Division 4.1 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act). The NSW Minister for Planning or the Minister's delegate is the consent authority.

1.2 Purpose

The purpose of this scoping report is to request, and inform the content of, the Secretary's Environmental Assessment Requirements (SEARs) for the Billilिंगra Solar Farm project. It identifies the main issues and information requirements for the assessment, considering the values of the site, the nature and extent of potential impacts, planning and regulatory requirements and the results of early consultation. This allows the assessment to efficiently focus on the most important issues.

This Scoping Report intends to:

- Describe the proposal and the site (Section 2 and 3)
- Provide justification of the proposal and alternatives (Section 4)
- Identify statutory approval requirements (Section 5)
- Provide a summary of consultation undertaken to date and proposed further engagement (Section 6)
- Identify key potential environmental issues associated with the proposal (Section 7)
- Conclude with remarks and identification of key issues raised in preparation of the Scoping Report

The Scoping Report has been prepared to support a request to the Department of Planning and Environment (DPE) for the SEARs. The SEARs would guide the preparation of an Environmental Impact Statement (EIS) for the proposal under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.3 Applicant – Edify Energy Pty Ltd

Edify is a market leading, Australian-owned renewable energy company with significant experience in developing and project financing renewable projects across Australia. Edify has financed six large-scale solar generation projects (773MWp), an 84MVA synchronous condenser and two utility-scale battery energy storage systems (175MW / 350MWh) and is the leading developer of utility-scale renewable energy projects in Australia. Edify has broad energy expertise, covering project development, project design and engineering, financing, asset management and construction management.

Edify's management team has in excess of 150 years' experience in the power and renewables sector internationally, raised and deployed around \$3 billion in capital bringing over 40 solar and wind projects into commercial operation, advised on over 10GW (around \$25 billion of projects during development, construction and operation and managed an operational portfolio of more than 1.7GW).

Edify supports the full life-cycle of renewable energy projects during development, construction and operation, including greenfield development, project structuring and financing, construction management and a full asset management offering, including trading and operations.

Edify's philosophy is to ensure that its interests are closely aligned with its investment partners and community stakeholders. In addition to providing long-term asset management services, Edify seeks to maintain a long-term equity interest in its projects, ensuring that Edify's long-term project view is aligned with that of its investors and host community, resulting in best-in-class assets. This long-term business model is a distinguishing feature of Edify and should further instil confidence that the community is entering into a credible, long-term partnership. This also makes an important difference in our community engagement approach, due to the fact that we are establishing relationships with various local stakeholders during the development phase. These relationships will endure for the lifetime of the projects, with Edify acting as Asset Manager once the project is operational.

2 Strategic Context

2.1.1 Technical Feasibility

The site comprises both flat or gently undulating and predominantly clear terrain, making it an ideal location for a utility scale solar project.

The proposal will utilise proven and mature solar and battery technologies. The site is well suited to efficient and high-yielding output of solar generation. Battery storage would also aid in storing and managing energy flows to the grid during times of grid constraints (charging) and peak electricity demand (discharging). This dispatchable capability allows the project to de-couple its output from typical, weather dependent generation profiles, for example by allowing the project to service periods of high demand during the evening (post sunlight) hours.

Furthermore, the NSW electricity market is undergoing significant change, with a number of major energy generators scheduled to reach the end of their lifespan and are likely to be retired. The first of which large generators to be retired is located at the Liddell coal-fired power station which is to be closed in 2022. This forecast closure will be followed by Vales Point, Eraring and other major generating units later this decade. There is a risk that without new investment in sufficient generation capacity, these retirements have the potential to lead to interruptions in energy security.

The proposed investment's connection would be achieved by cutting into the 132 kV line (TransGrid owned) crossing the site, with the majority of generation exported north towards Queanbeyan and Sydney. A substation would be constructed in the development site. It is noteworthy that the electricity grid in New South Wales can present challenges in terms of having the capacity to connect utility scale renewable energy projects. The proposal benefits from having good connection options adjacent to the site with sufficient capacity and system strength in the transmission network to allow power generated at the Billililingra site to be exported to wider NSW. The site also has relative proximity to major load centres, when compared to other solar projects currently operating or proposed within the broader South Eastern and Riverina regions.

2.1.2 Contributions to Federal and State Climate Change Targets

Electricity generation is the largest individual contributor of greenhouse gas emissions in Australia, accounting for 32.7 per cent of emissions in the year to March 2020 (Department of Industry 2020). This proposal contributes to the decarbonisation of this emissions intensive sector, with bulk supply of firm and dispatchable renewable energy sources, all of which are required to replace traditional, thermal electricity generators that are approaching their intended design-life.

2.1.2.1 Renewable Energy Target

The Clean Energy Regulator (CER) introduced the Renewable Energy Target in 2001, which is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources.

In the context of this proposal, the Renewable Energy Target works by allowing large-scale generators to create large-scale generation certificates for every megawatt hour (MWh) of energy they generate. Certificates are then purchased by electricity retailers (who supply electricity to householders and businesses) and submitted to the Clean Energy Regulator to meet the retailers' legal obligations under the Renewable Energy Target.

The COP21, also known as the 2015 Paris Climate Conference, achieved a legally binding and universal agreement on climate, with the aim of keeping global warming below 2°C, chiefly by reducing greenhouse gas emissions (Australian Government, Department of Industry, Science, Energy and Resources, 2020). The proposal would form part of the Australian effort to help meet this binding, international target.

2.1.2.2 NSW Net Zero Plan Stage 1: 2020-2030

The NSW Department of Planning, Industry and Environment (NSW DPE) Net Zero Plan Stage 1: 2020–2030 is a commitment to taking decisive and responsible action on climate change. The *Plan* has the goal of reducing the State's emissions by 35% by 2030, compared to 2005 levels, whilst supporting regional investments that total \$7 billion and create approximately 1700 regional employment opportunities (NSW Government 2020).

The NSW Government has also set a broader goal of net zero emissions by 2050 and has released these policies to fast-track emissions reduction over the next decade and prepare the State to take further action in the decades to follow.

The Billilingra Solar Farm proposal would contribute towards both the Renewable Energy Target and the *New South Wales Electricity Strategy* and *Net Zero Plan*, with the latter representing a State-based initiative designed to support the national target of achieving 33,000 gigawatt hours of renewable electricity generation (approximately 26-28%) renewable energy by 2030 (Clean Energy Regulator, 2018).

The Billilingra Solar Farm proposal is also located in proximity to the Cooma Monaro Renewable Energy Zone, as defined by AEMO (2020) (Figure 2).



Figure 2 - Cooma Monaro Renewable Energy Zone (AEMO, 2020)

Due to the proximity of the project to one of the priority Renewable Energy Zones in New South Wales, the proposal will support the four goals of the NSW Electricity Strategy, which includes:

- delivering various Renewable Energy Zones
- saving energy, especially for times of peak demand
- supporting the development of new electricity generators
- setting a target to bolster the state's energy resilience

2.1.3 Electricity Market Benefits

Australian Energy Market Operator (AEMO 2020) forecasts that grid-supplied electricity consumption will remain flat for the next 20 years, despite projected 30% growth in population. Although not required to meet projected electricity demand, the proposal would benefit the network by shifting electricity production closer to local consumption and regulating inputs to the grid using a Battery Energy Storage System.

The electricity network was designed to deal with a small number of very large power generating stations. The increasing localisation of power generation helps the grid to cope with the supply from diversified renewable energy projects, such as intended via this proposal.

2.1.3.1 Electricity prices

According to Deloitte, Australian households will pay \$510 million more for power in 2020 without renewable growth through the RET and up to \$1.4 billion more per year beyond 2020.

Renewables increase competition in the wholesale energy market – and, as in any market, more competition means lower prices. This is particularly true in the case of the dispatchable capability provided by the battery energy storage system, which will increase competition and capacity to satisfy peak demands and place downward pressure on electricity prices.

2.1.4 Socio-economic Benefits

2.1.4.1 Employment

In 2018/19, 26,850 Australians were directly employed in the renewable energy sector with an additional 5,770 jobs created since the 2017/18 financial year (ABS 2020).

This proposal would generate a significant number of new jobs (up to approximately 250 full-time employees) during the peak construction phase in regional NSW, in addition to indirect employment opportunities supported from the ancillary supply chain.

The proposal will create a range of permanent employment opportunities (approximately five employees) and indirect full time equivalent staff during the operation and maintenance phase (expected to be approximately 30 years).

The employment benefits for construction extend through the local supply chains to fuel supply, vehicle servicing, uniform suppliers, hotels/motels, cafés, pubs, catering and cleaning companies, tradespersons, tool and equipment suppliers and many other businesses.

Further extension of employment benefit extends through the operation of the proposal, such as panel cleaning and maintenance, electrical maintenance, fence supplies and maintenance, road grading, plus the grazing and shearing of sheep.

2.1.4.2 Economic diversification

The proposal would diversify the use of land in the area, with the predominant land use in the area being agricultural usage. The proposal would add to that and provide both local land holders and businesses in the

broader area with an additional source of income and economic activity. The income created in the locality from the proposal would be consistent and stable. This income will be of greater security being removed from the normal cycle and risks of agricultural activity (like flood and drought).

2.1.5 Land Use

It is also important to note that Solar Farms do not preclude the use of land for agriculture. Some agricultural activity is still possible whilst a Solar Farm is operating (e.g. grazing). Additionally, the degree of permanent land disturbance in the construction and operation of Solar Farms is small, and it is expected that agricultural activities that were occurring before the Solar Farm was constructed would be able to be continued once the project is decommissioned and removed.

2.1.6 Site Suitability

Key considerations for site selection are detailed within the NSW Large-scale Solar Energy Guideline for State Significant Development (DPE 2018). The key site constraints with justification as to why the site is suitable is detailed in Table 2 below:

Table 2 - Key Site Constraints with Justification

Areas of constraint	Site justification
Visibility and topography - Sites with high visibility, such as those on prominent or high ground positions, or sites which are located in a valley with residences with elevated views looking towards the site. This is particularly important in the context of significant scenic, historic or cultural landscapes.	<p>The development area has been modified to reduce the visibility of the proposed site from the Monaro Highway, by maintaining a 100m 'scenic protection' buffer, in addition to potential planting of native vegetation that would offer a visual screen for proximate residents and motorists.</p> <p>Discussions are ongoing with Snowy Monaro Regional Council, in relation to the Cooma-Monaro Local Environmental Plan (2013), which considers a 400m 'scenic protection' buffer that precludes developments adjacent to the Monaro Highway.</p> <p>Edify will prepare a detailed Visual Impact Assessment, Viewshed Analysis and Landscape Management Plan to illustrate the potential viewpoints of the project from the Monaro Highway.</p>
Biodiversity - Areas of native vegetation or habitat of threatened species or ecological communities within and adjacent to the site, including native forests, rainforests, woodlands, wetlands, heathlands, shrublands, grasslands and geological features.	<p>Areas of high biodiversity value, such as riparian vegetation and native grasslands have been excluded from the development footprint. Preliminary ecological surveys indicate no native forests, rainforests, woodlands, wetlands, heathlands, shrublands or significant grasslands are located adjacent to the site.</p> <p>Edify will establish 30m setback distance buffers to ensure the Protected Riparian Lands within the Development Area (i.e. Billililgra Creek) are not disturbed by the project's infrastructure and construction.</p>

Areas of constraint	Site justification
	Furthermore, Edify will establish an extended 40m buffer from 4th order streams to provide additional protection.
Residences - Residential zones or urbanised areas.	<p>The proposal is not likely to generate land use conflicts with surrounding land uses and is compatible with land use zoning. The proposed development site is within land zoned RU1, Primary Production under the Cooma-Monaro Local Environmental Plan (LEP).</p> <p>Edify has prepared register of all neighbours within 4km of the project boundary, noting the closest residence is setback approximately 0.96km from the Development Area.</p>
Agriculture - Important agricultural lands, including Biophysical Strategic Agricultural Land (BSAL), irrigated cropping land, and land and soil capability classes 1, 2 and 3. Consideration should also be given to any significant fragmentation or displacement of existing agricultural industries and any cumulative impacts of multiple developments.	<p>The proposal is not located on important agricultural land, including industry clusters and biophysical strategic agricultural land. The proposal is also located on land classed as Soil Capability Class 5 and 6 land and Category 1 – exempt land. Therefore, the proposal:</p> <ul style="list-style-type: none"> • Is not expected to adversely affect the biophysical nature of the land. • Would positively affect soils by providing many of the benefits of long-term fallow, including increasing soil moisture, building soil carbon levels, allowing structural recovery and improving soil biota. • Will not result in the permanent removal of agricultural land. • Would not result in rural fragmentation given it will not alter the existing or surrounding environment. • Adjacent farming operations are compatible. • Strategic sheep grazing may be used within the development site. Grazing would be used to reduce vegetation biomass and put grazing pressure on weeds adjacent to the solar panels.
Natural Hazards – Areas subject to natural hazards, such as flooding and land instability.	<p>The site has not been identified as flood prone in the Cooma-Monaro LEP (refer to Figure 10).</p> <p>The site also has not been identified as bushfire prone (refer to Appendix H).</p>
Resources - Prospective resources developments, including areas covered by exploration licences and mining and petroleum production leases, Solar development applicants should seek advice from the Department of Planning, Division of Resources and Geoscience (GSNSW) about the coverage of resources related licences.	<p>The development area is covered by two exploration leases.</p> <p>Edify has established contact via phone and email with the two proponents, with introductions supported by the Department of Regional NSW (Mining, Exploration and Geoscience). Please refer to Section 7.2.6.</p>
Crown Lands – If any part of the project or associated transmission or distribution	Five Crown Lands or Crown Roads are present within the proposed development area (refer to Appendix I). Edify

Areas of constraint	Site justification
infrastructure will cross Crown Lands, it may be subject to legislative requirements that restrict access to the land.	will engage with Crown Lands to ensure suitable measures are implemented to avoid being impacted by the proposal.

3 Project

3.1 Location

The proposal is located within the NSW Snowy Monaro region in the Snowy Monaro Regional Council Local Government Area (LGA), around 20 km north of Cooma and 90 km south of Canberra. The development site is adjacent to the Monaro Highway, which also provides access to the development site. The Proposal would connect to an existing TransGrid 132 kV line crossing the site via a new 132 kV substation. The proposal is located within the South Eastern Highlands Bioregion, with local land use primarily being agricultural grazing of sheep and cattle.

3.2 The Development Site

Within the boundaries of the selected property ('option land'), an area of 491 hectares has been considered for assessment ('subject land'). From this, approximately 244 ha will be required for the development proposal. The indicative disturbance (impact) area is approximately 194 ha. This final development footprint area will be decided during the EIS phase and based on the conclusions of this report and the subsequent feedback from the SEARs.

The area assessed in this report includes all or part of the following lots, as illustrated below in Table 3 and Figure 3:

Table 3 - Lots Impacted by Development

Lot	Deposit Plan (DP)	Impact by Development
1	449605	No impact, Study Area only
22	712987	Part of Lot 22
1	750523	Part of Lot 1
39		No impact, Study Area only
40		Part of Lot 40
49		Part of Lot 49
52		Yes, Lot 52
8		Part of Lot 8
9		Part of Lot 9

Lot	Deposit Plan (DP)	Impact by Development
10	750531	Part of Lot 10
11		Part of Lot 11
14		Part of Lot 14
55		Part of Lot 55
78		Part of Lot 78
101		Part of Lot 101
102		No impact, Study Area only
113	1106250	Part of Lot 113
7		No impact, Study Area only
8		Part of Lot 8
9		Part of Lot 9
10		Part of Lot 10
11	1113179	Part of Lot 11
31		No impact, Study Area only

Local Conditions

The development site is agricultural land comprising large paddocks, in addition to undulating slopes, with sections that are generally flat and largely cleared and cultivated primarily for agricultural purposes (Figure 6 through Figure 10). To the maximum extent possible, the Development Area has specifically targeted Category 1 – exempt land, with the intention to develop upon areas with low impact to native vegetation and biodiversity.

Based on the ecological survey findings, which surveyed the broader 491 hectares (subject land), Edify has elected to refine the intended Development Area to avoid developing the northern and eastern most portions of the Subject Land, as these are not considered to be Category 1 – exempt lands (Figure 4). Furthermore, Edify has elected to avoid developing on the eastern sections of the Subject land, due to the presence of biodiversity and due to the relative distance from the remainder of the Development Area and transmission network.

In doing so, native woody vegetation is largely absent from the central-western section of the subject land, with few isolated trees detected within this area. In the eastern section, which is to be excluded, isolated native trees in the north-eastern and south-western corners constitute Category 2 – regulated land. For this reason, the Development Area primarily includes the Category 1 – exempt land, located in the central-western section of the subject land.

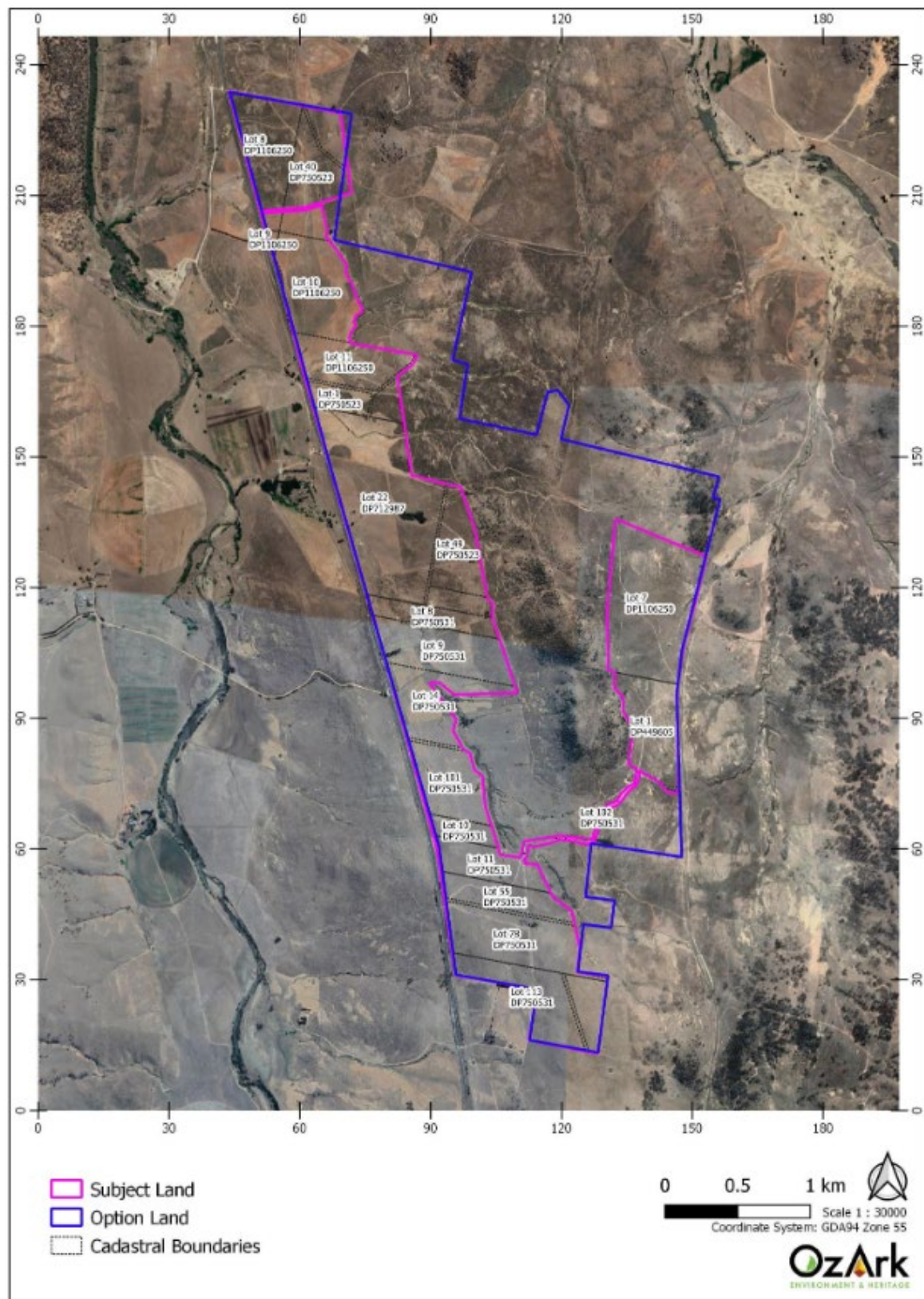


Figure 3 – Subject Land Lots

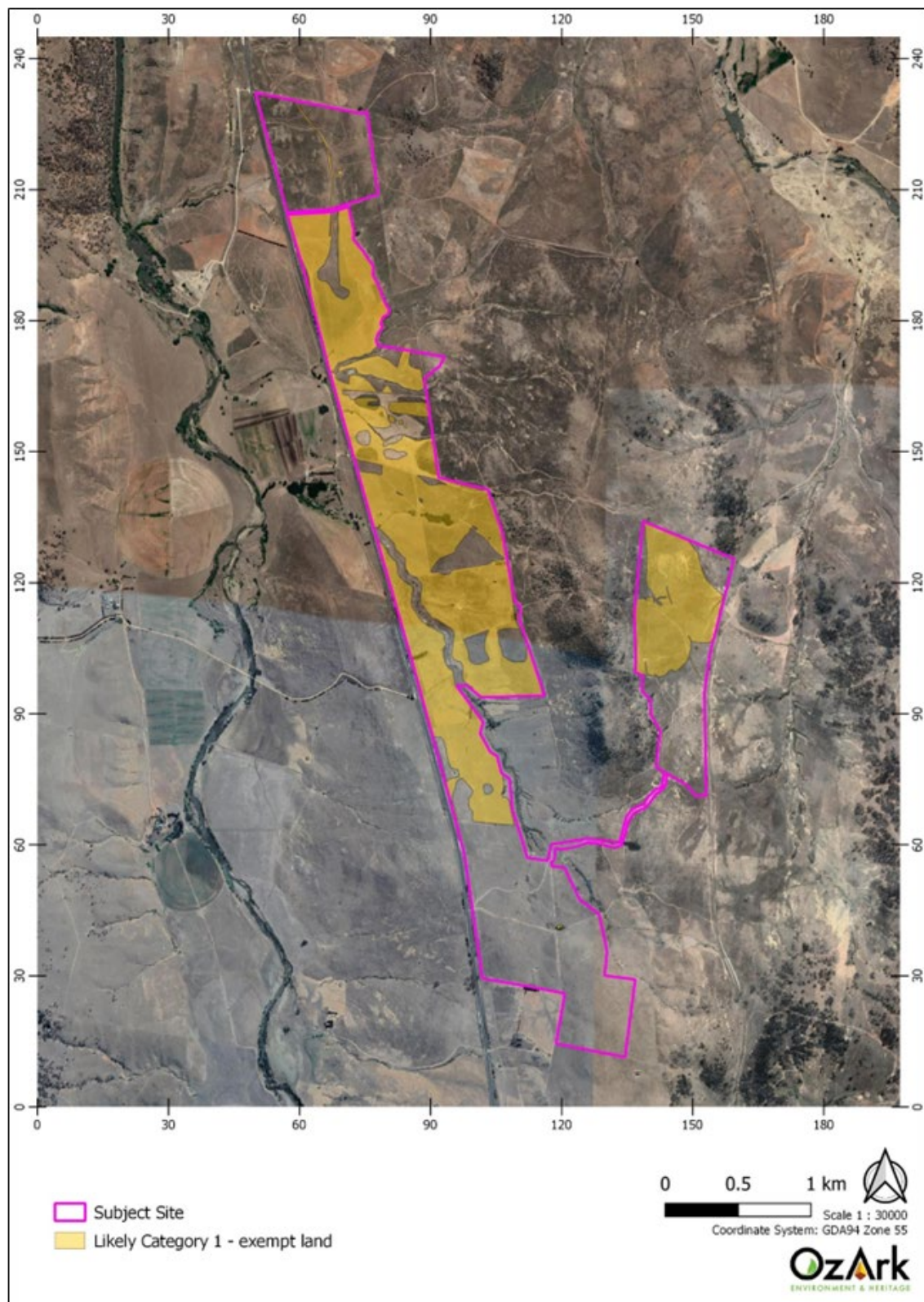


Figure 4 - Category 1 - exempt land on Subject Land

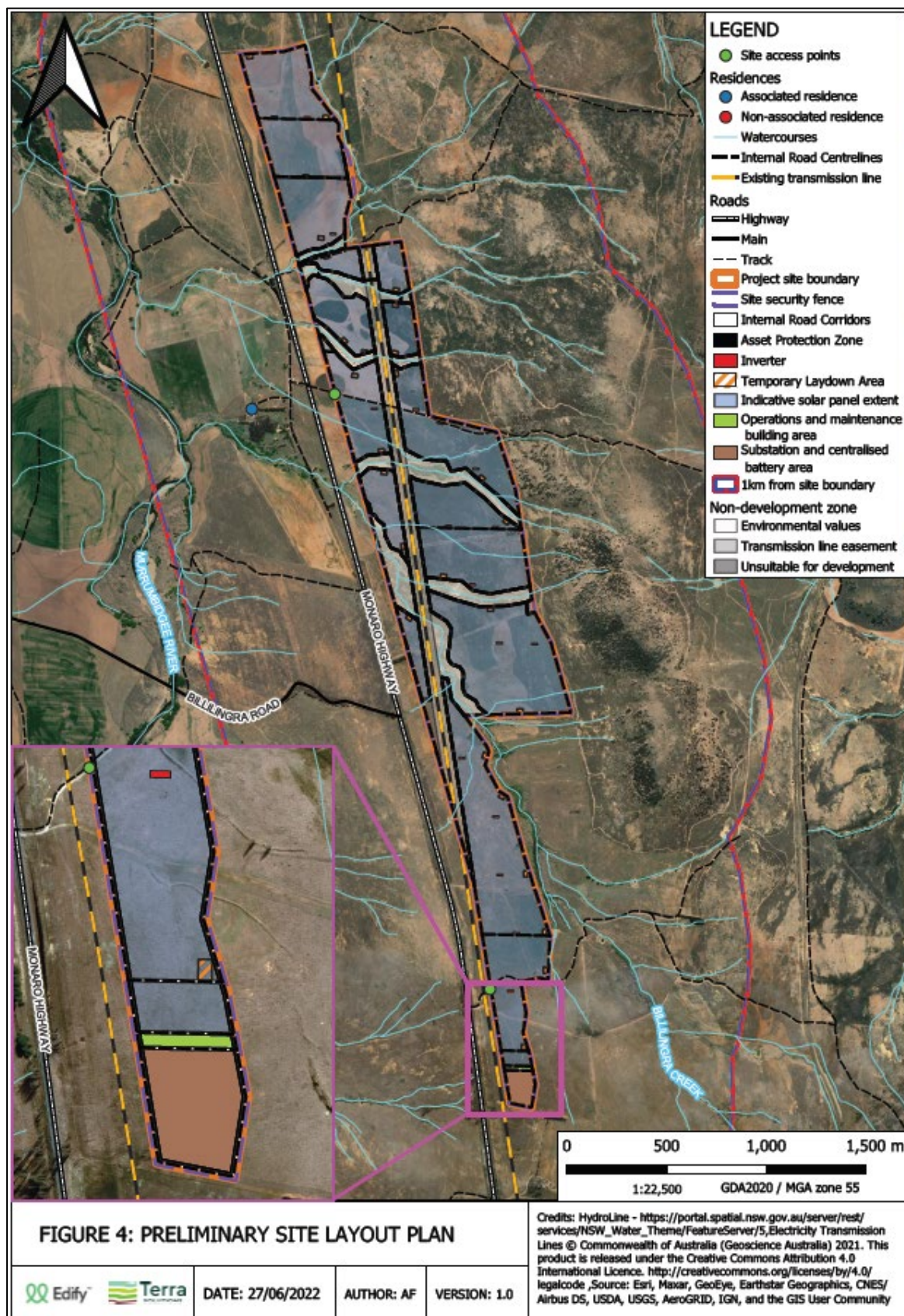


Figure 5 - Preliminary Project Layout



Figure 6 - View of typical grassland with electricity transmission line in view on Subject Land



Figure 7 - View of isolated paddock trees in non-native pasture on Subject Land



Figure 8 - View of isolated paddock trees within Subject Land



Figure 9 - View of grasslands on Subject Land



Figure 10 - View of grassland on Subject Land

Within the development site, there are 8 farm dams, with Billilingra Creek as a tributary that passes through the subject site. The development site is zoned RU1 - Primary Production under the *Cooma Monaro Local Environmental Plan* (LEP)¹, with a minimum lot size of 80 ha.

The development footprint is identified as a combination of Class 5 and 6 Land and Soil Capability Land under the Land and Soil Capability Assessment Scheme (Figure 11), which is defined as:

- Class 5: has severe limitations for high impact land management uses such as cropping. There are few management practices generally available to overcome these limitations. However, highly specialised land management practices can overcome some limitations for high value crops or products. This land is generally more suitable for grazing with some limitations or very occasional cultivation for pasture establishment.
- Class 6: has very severe limitations for a wide range of land uses and few management practices are available to overcome these limitations. Land generally is suitable only for grazing with limitations and is not suitable for cultivation. This land includes other limitations such as shallow soils with rocky outcrop coverage.

Land that is classified as severe has severe limitations for high-impact land uses. It restricts land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture (OEH 2012).

¹ https://eplanningdlprod.blob.core.windows.net/pdfmaps/2050_COM_LZN_012_080_20130906.pdf

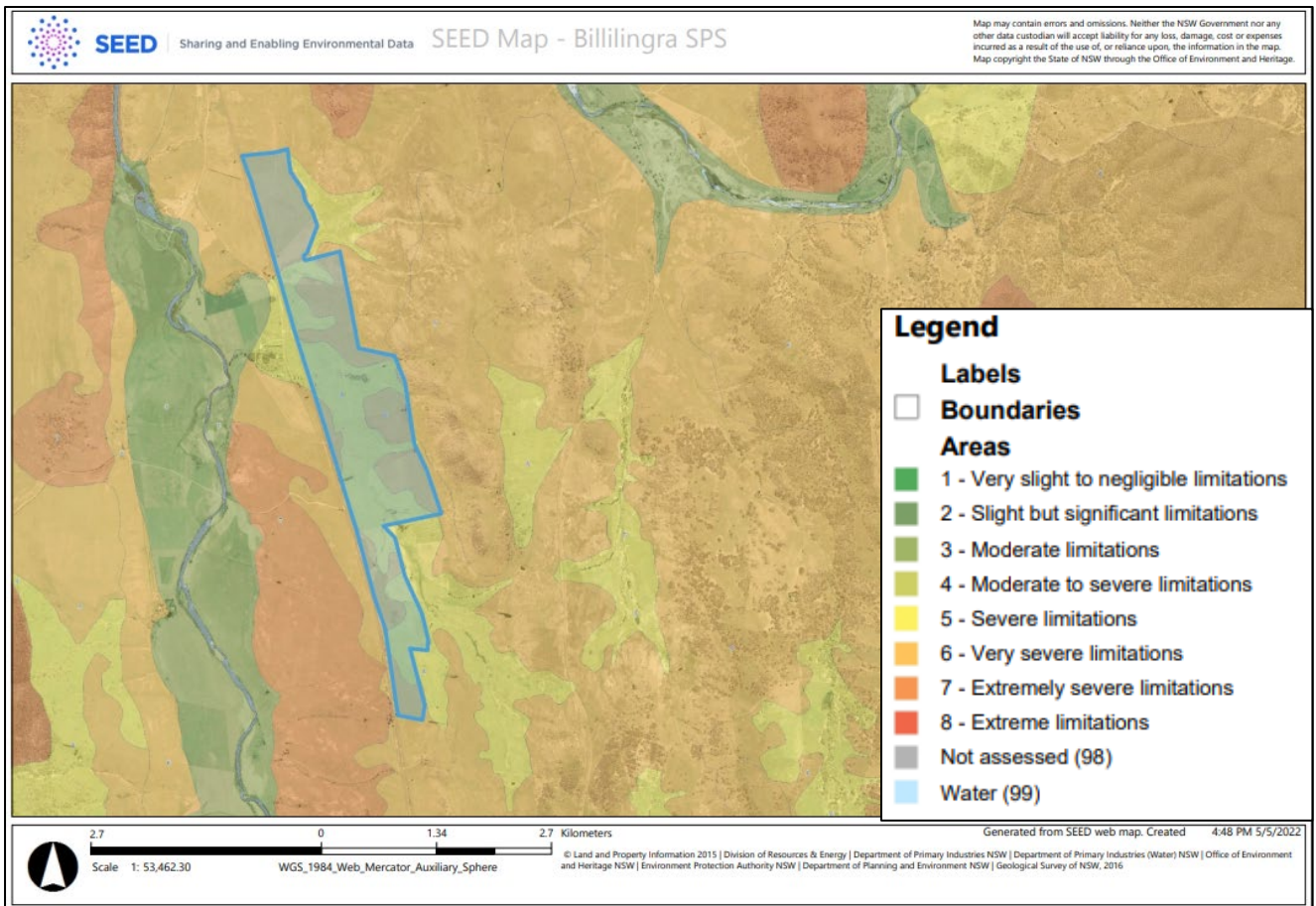


Figure 11 - Land and Soil Capability Mapping

The NSW Government introduced a range of measures designed to deliver greater protection to agricultural land from the impacts of developments. These measures included the safeguarding of 2.8 million hectares of Biophysical Strategic Agricultural Land (BSAL) across the state, and Critical Industry Clusters (CIC). BSAL is land identified with high quality soil and water resources capable of sustaining high levels of productivity, which is critical to sustaining the state's agricultural industry, while CIC are concentrations of highly productive industries within a region that are related to each other, contribute to the identity of that region, and provide significant employment opportunities. The development site is not mapped as being BSAL, therefore the proposal would not impact on land critical for agriculture (DPE 2017).

The land is owned by one family group, who reside proximate to the subject site and undertake intermittent farm sharing practices. Regarding the adjacent community members, 17 non-associated dwellings and two industry participants (mining exploration) are located within 4.0 km of the development site (Table 4 and Figure 9).

Table 4 - Project Neighbouring Receivers

Receiver	Distance from subject land (m)	Receiver	Distance from subject land (m)
Rx² (Landowner)	410		
R1	965	R2	970
R3	1200	R4	1650
R5	1662	R6	1794
R7	1851	R8	1917
R9	2150	R10	2189
R11	2350	R12	2817
R13	2888	R14	3010
R15	3212	R16	3202
R17	3428		

² Involved landholder

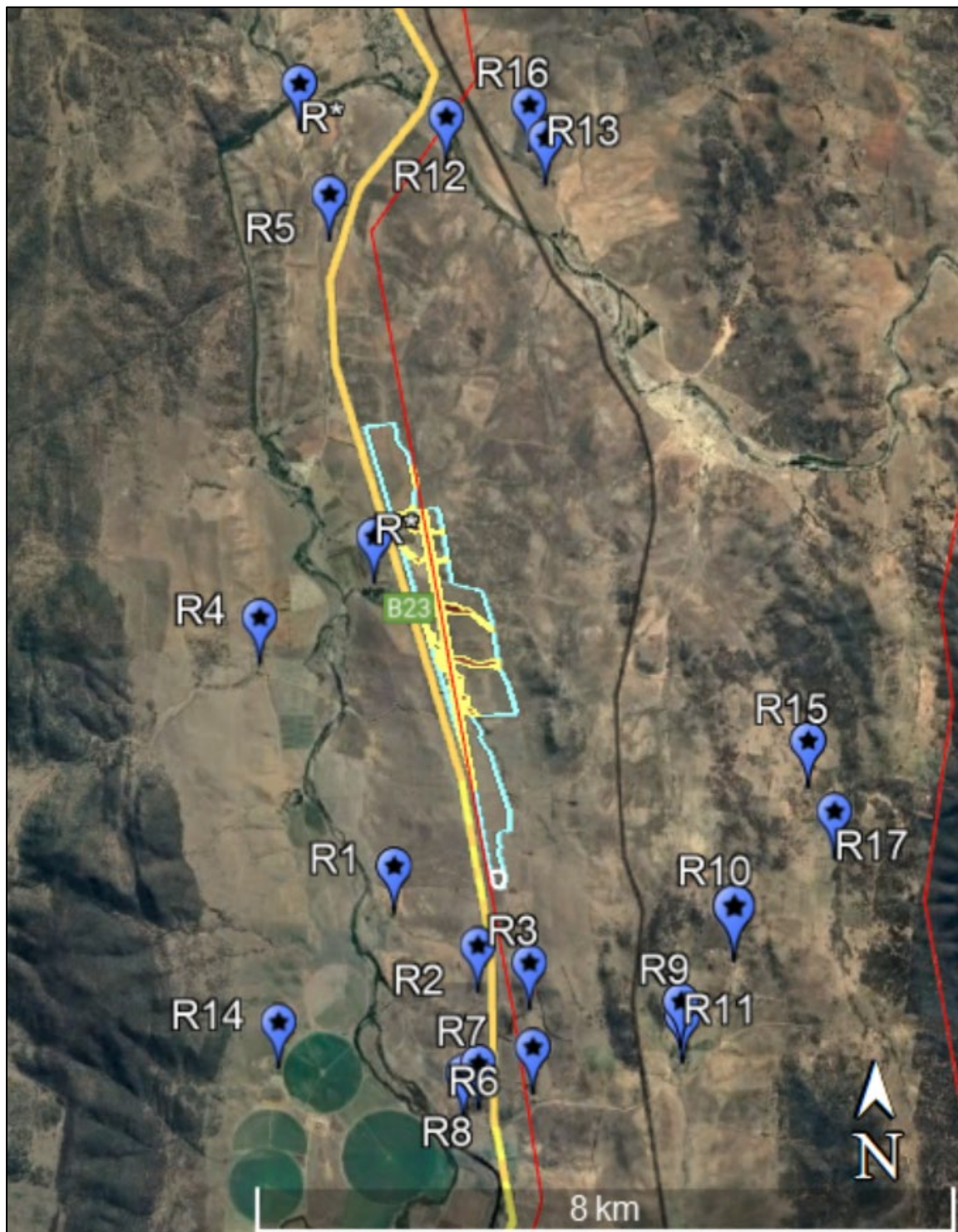


Figure 12 - Development Footprint in relation to nearby receivers (less than 4km)

3.3 The Locality

The proposal is located within the Snowy Monaro Regional Council LGA, located in Beresford County of New South Wales between the major regional centres of Queanbeyan and Cooma. The region has several small towns including Michelago and Bredbo. The LGA is 1,333, km² with a population of 20,733 as at the 2018 Census (ABS 2018).

Major and/or towns in the area that may provide accommodation and services include:

- Queanbeyan
- Canberra
- Cooma

3.3.1 Cooma

The major town of Cooma is located approximately 20 km south of the proposed project, with a population of 6,742 as at the 2016 Census (ABS 2017). Cooma has a number of attractions including the Snowy Hydro Discovery Centre, the railway station – which links transport to Sydney, the Royal Hotel and the Cooma Rock Bolting Development Site.

Figure 13 illustrates the project site (blue polygon) in relation to Cooma, Billalingra and the regional biodiversity.

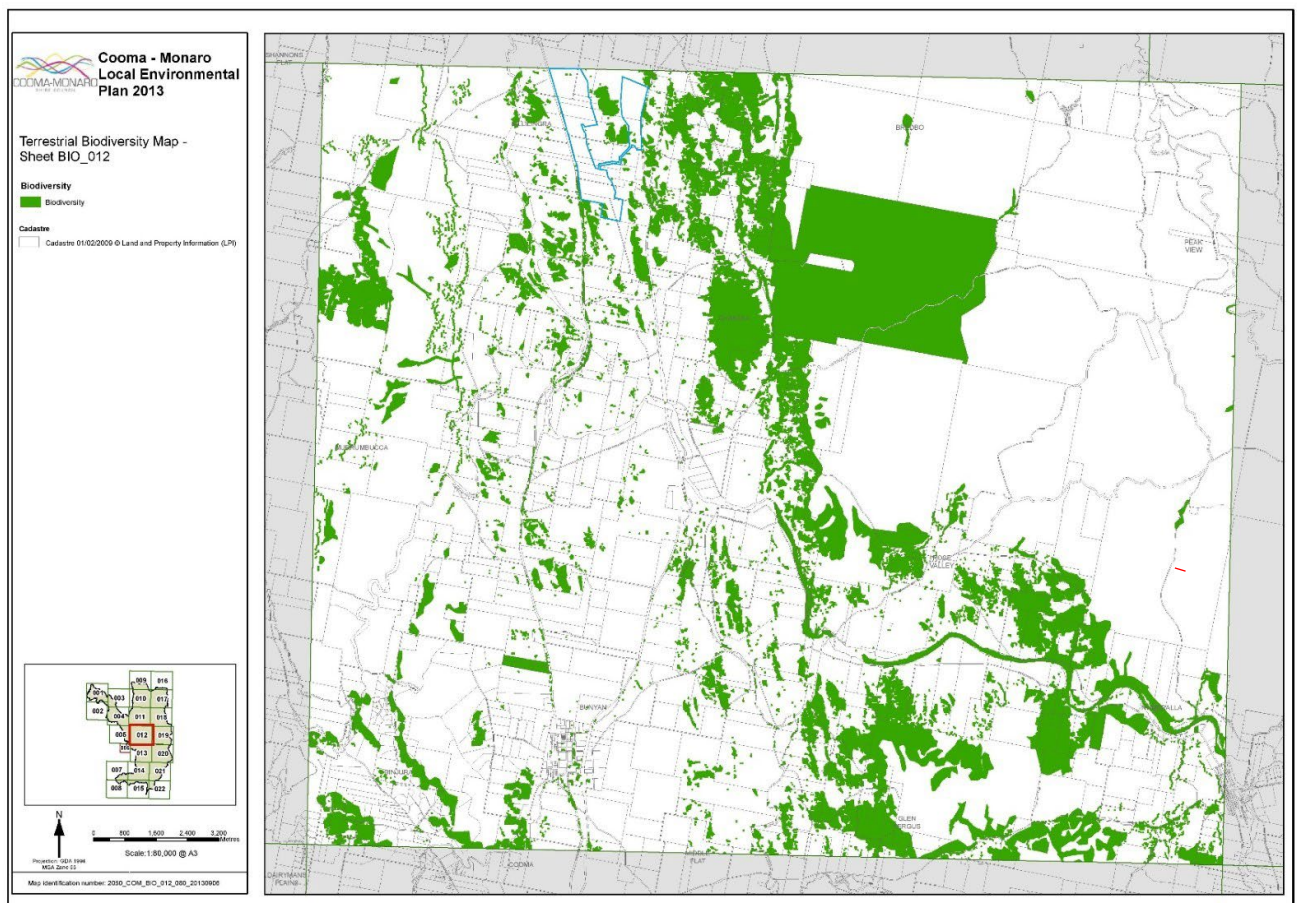


Figure 13 - Cooma-Monaro Local Environmental Plan (LEP) with biodiversity

3.3.2 Population

The median age of persons in Cooma Monaro LGA is 43; this is higher than the Australian average of 38 (ABS 2016). The 2016 census records state that 2.2% of the population are Aboriginal and Torres Strait Islander people (ABS 2016). A large portion, 77.3% of the community were born in Australia. In addition, the community hosts a low unemployment rate, with median household incomes averaging \$1,200 per week.

3.3.3 Climate

The Cooma Monaro LGA is part of the NSW South Eastern Highlands Bioregion. This bioregion is dominated by a temperate climate characterised by warm summers and no dry season (OEH 2016).

The BOM (2021) climate records available from the nearest climate station at the Cooma Visitors Centre (Station number 070278) consists of data recorded since 1973. The station indicates a mean summer maximum of 27.5 °C (January) and a mean winter minimum of -2.7 °C (July).

Further, rainfall records from the station show a mean annual rainfall of 538 mm, and that rainfall is generally greatest over summer and autumn, with the mean number of days of rain being 69.3 (Figure 14).

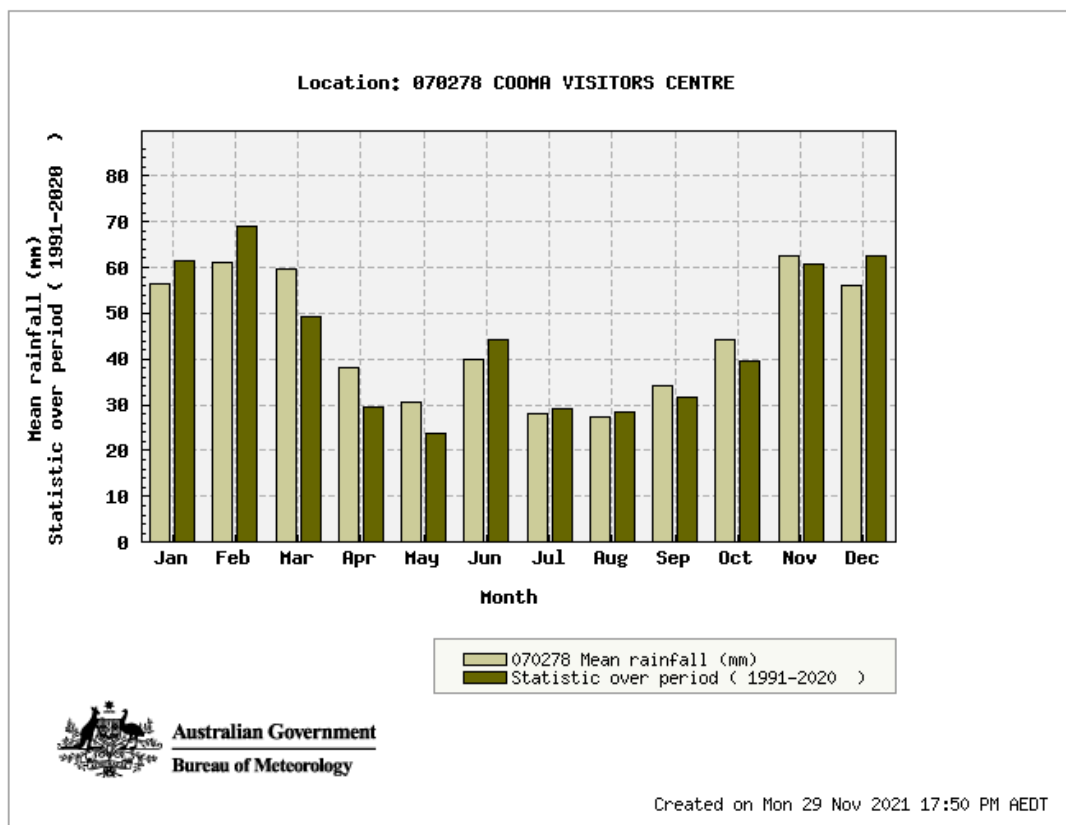


Figure 14 - Rainfall 2020 statistics for Cooma

3.3.4 Geology and Vegetation

The geology characteristics for the South Eastern Highlands bioregion and Monaro subregion comprises block faulted ranges and closed lake basins in Silurian and Devonian acid fine grained sedimentary and metamorphic rocks with some granites. In addition, the subregion is host to extensive areas of thin tertiary basalt flows over lake and river sediments.

The subject land itself was found to possess extensive tracts of embedded surface rock, accompanied in less disturbed areas by loose surface rock. These features were most conspicuous on ridgetops or mid-slopes. Minor rock outcroppings, consisting of solitary rocks or small aggregations of rocky material, were also relatively common. Larger rock outcrops were comparatively scarce but were noted towards the southern extent of the subject land and at the base of range of hills located between the eastern and western sections of the subject land.

4 Proposed Works

4.1 Site Selection

The site of the Proposal has been selected for the following reasons:

- Excellent solar exposure
- Excellent access to local and major roads
- Excellent access to the grid transmission network
- Likely low level of environmental impact – the site has been largely cleared and heavily disturbed by agricultural grazing activities
- Suitable topography, land size and land zoning, whereby the use of the site would be based on a lease agreement between Edify and the landowner for the life of the project; and
- Severe limitations greatly limit the agricultural land use as an alternative land use

4.2 Project Components

4.2.1 Proposed Infrastructure

The proposal involves the construction of a ground mounted photovoltaic solar array which would have capacity to generate up to 150MW (AC) of renewable energy. The Solar Farm would connect into an existing 132 kV TransGrid transmission line that traverses the proposal. The proposal would consist of the following components:

- Single axis tracker photovoltaic solar panels mounted on steel frames over most of the site (maximum tilt approximately 4.5m in height)
- Battery energy storage systems with a rating of up to 150 MW / 600 MWh
- Underground and overground electrical conduits and cabling to connect the arrays to the inverters and transformers
- Dataroom server with communications-control centre
- Systems of inverter units and voltage step-up throughout the arrays
- On site substation, connecting to the existing 132 kV TransGrid transmission line
- Site office and maintenance building, vehicle parking areas, internal access tracks and perimeter security fencing

- Site access track off Monaro Highway; and
- Road crossing and easement electrical crossing through underground and/or overhead lines.

The Solar Farm arrangement is flexible and adaptable and would be designed to avoid impacts where feasible and minimise and mitigate environmental impacts if avoidance is not possible. The design would consider the results of the Scoping Report, consultation with relevant stakeholders and the EIS to be prepared. The EIS would detail how these studies have been used to produce the final proposal design.

The proposed infrastructure footprint is shown in Figure 5. This includes all land likely to be directly impacted by the construction, operation and decommissioning of the proposal, including auxiliary construction facilities (site compound, laydown, stockpiling, etc.) and all considered options. It is noteworthy that the proposed footprint is indicative only and will be refined as part of the EIS process (considering environmental constraints and engineering studies), with project infrastructure layout to be detailed in the EIS.

4.2.1.1 Solar Array Areas

The development will consist of a number of solar array areas or blocks comprised of photovoltaic modules arranged in a series of long rows. The modules are mounted on frames with tracking systems which follow the sun to optimize energy generation. The frames are fixed to piles driven into the soil. The rows interconnect to form a single array block of up to 4 MW (AC) or 8 MW (AC), depending on the MV enclosure design. In each block there will be a prefabricated, containerized inverter and integrated transformer to convert and step up the voltage level. Electrical connections will also be constructed between the PV arrays, as well as associated monitoring and protection equipment and central inverters via underground or frame secured cabling.

The solar module frames and inverter stations will be installed on piles and sit above ground level, with a maximum height of approximately 4.5m at full tilt. This ensures retention of existing grassland vegetation and habitats in situ with a minimal level of ground disturbance. Regrowth of vegetation will be enabled following temporary disturbance during installation/construction.

4.2.1.2 Medium Voltage Reticulation

Each inverter will be connected to the central 33kV switchboard by underground medium voltage cable reticulation. The cables will be installed in trenches not below 1m in depth and typically 1m in width. The excavation will comply with the Soil and Erosion Sediment Control Report and Regulations for construction within New South Wales. The medium voltage switchboard will be connected through a step-up transformer and connect to the overhead 132 kV transmission line, owned and operated by Transgrid.

Temporary disturbances to vegetation from the underground installation of the cables will rehabilitate naturally.

4.2.1.3 Solar Substation

A high voltage substation will connect the Solar Farm to the national transmission network. The substation footprint will be approximately 150m x 200m. The substation will provide switching and protection of the electrical network and will be fenced separately from the Solar Farm for safety reasons. The T-connection into the existing transmission line will be owned and operated by the Network Operator, Transgrid. This will form part of the National Electricity Network (NEM).

4.2.1.4 Battery Energy Storage System (BESS)

Based on an economic and technical assessment that will be undertaken during the project's Connection Application phase with Transgrid and the Australian Energy Market Operator (AEMO), the BESS would be located either:

- adjacent to the substation in the development site; or

- dispersed in modular enclosures throughout the site, which is similar to the typical solar inverter enclosures.

The project will utilise sealed lithium-ion batteries housed in a secure, climate-controlled Battery Energy Storage System (BESS). Subject to economic and technical considerations, the proposal would include an approximate 150 MW / 600 MWh rated capacity battery storage system, with an enclosure design similar to Figure 15.



Figure 15 - Indicative battery storage system enclosures

4.2.1.5 Operation and Maintenance Facility

The proposed Operation and Maintenance (O&M) building will be a prefabricated design approx. 10m by 8m and single story. The facility will provide a working area for staff, ablutions and amenities including:

- Office
- Toilet
- Kitchen
- First Aid area
- Meeting room
- Reception area.

4.2.2 Construction

The proposal is expected to operate for around 30 years. The construction phase of the proposal is expected to take 10 to 18 months. During the peak construction period, a workforce of approximately 250 personnel will be required onsite.

Minor earthworks would be required for the preparation of the site, including minimal site levelling, laying of access track and site drainage works. Due to the relatively flat terrain of the project area minimal site preparation and civil works are anticipated prior to construction. The PV arrays and site office components will largely be built off-site and transported to the site in modulated sections. Construction on-site will be limited to the unloading and joining together of the modulated sections and trenching electrical and control cabling to the electricity grid and control room. Construction activities are planned to occur during daylight hours only, although there may be some works during the winter months where light/visibility will be poor during twilight. Access to the site will be from the Monaro Highway.

4.2.3 Operation

During the operational phase of the project, approximately five full-time jobs and a number of full-time equivalent roles that support the project's operation will be required.

The primary activities conducted on site will include day-to-day routine operations, maintenance of infrastructure, and general site maintenance and security. Operation of the Solar Farm will also likely be supported by local contractors for tasks such as repairs, minor works, weed/vegetation management, fencing and cleaning.

The operational lifespan of the facility is expected to be circa 30 years, depending on the nature of solar PV and battery technology and energy markets.

4.2.4 End of Life

After the initial operating period, a decision will be made to either decommission or re-power the facility, subject to approval requirements.

If the Solar Farm is to be decommissioned, removing all above-ground infrastructure (and all infrastructure up to one metre below the surface of the Land) and return the site to its existing land capability. All above-ground structures built as part of the project will be removed and the site rehabilitated generally to its pre-existing land use, as far as practicable. The disposal and recycling of project infrastructure will be completed in accordance with contemporary waste management legislation and practices at the time of decommissioning. As far as possible, efforts will be made to reduce wastes disposed to landfill in line with best practice sustainability principles.

Alternatively, the project may be upgraded and re-powered with new PV equipment. If re-powering the project is agreed, an appropriate stakeholder consultation process will be undertaken, and all necessary approvals will be sought and aligned with relevant legislation at such time.

4.2.5 Capital Investment

The proposal would have an estimated capital investment in excess of \$30 million, identifying the proposal as State Significant Development under Part 4 of the EP&A Act. The actual value of the proposal will be in excess of \$100 million, with the total investment value largely determined by the duration of the battery energy storage system, which will be determined during the EIS stage of the development. A quantity surveyor's report would be prepared during the EIS process as part of the proposal which would confirm the capital investment cost.

4.2.6 Subdivision

Edify will initiate a subdivision for the eventual Development Area associated with the project. Engagements with TransGrid are ongoing with respect to how the switchyard infrastructure is to be owned and operated, although it is expected the project substation will require a separate land title to allow for handover to TransGrid. The area of land to be subdivided at the switchyard site is yet to be finalised, however initial plans contemplate Lot 113 in DP750531. The land is zoned RU1 Primary Production with a minimum lot size of 80 ha therefore any proposed subdivision will require the approval of the Minister for Planning under the provisions of section 4.38 of the EP&A Act.

When land is leased from a landowner and the lease affects part of a lot or lots in a current plan, a subdivision under s.7A *Conveyancing Act 1919* (formerly s.327AA *Local Government Act 1919*, which is now repealed) is required when the total of the original term of the lease, together with any option for renewal, is more than five years. When the lease affects the whole lot in a current plan, the body of the lease identifies the area by lot and DP number with a subdivision not required.

As the project will be executed via a long-term lease arrangement, subdivision for the purpose of the internal substation and battery facility will be required. Snowy Monaro Regional Council have indicated their support of subdivision in initial consultation with Edify. An easement may be created by means of an appropriate dealing registered in the NSW Land Registry Service or by the inclusion in a Section 88B instrument lodged with a new deposited plan.

Evidence of engaging with Snowy Monaro Regional Council regarding future requirements of subdivision is provided in Appendix C, with Council offering in-principle support for subdivision.

4.3 Alternatives to the Proposal

4.3.1 Alternative Sites

Edify has reviewed the solar generation potential of many areas in NSW using a combination of computer modelling and analysis, on the ground surveying and observation, and experience of Edify in successfully developing projects in NSW and across Australia. The site was selected because it provides the optimal combination of:

- Low environmental constraints (predominantly cleared cropping land)
- Relatively level terrain for cost-effective construction
- High quality solar resource
- Low density population and limited neighbouring properties
- Suitable planning context
- Acceptable flood risk
- Road access
- Access to the transmission network, and
- High levels of available capacity on the grid transmission system.

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

4.3.2 Alternative Technologies

Photovoltaic solar technology was chosen because it is cost effective, low profile, durable and flexible regarding layout and siting. It is a proven and mature technology that is readily available for broad scale deployment at the site. Battery technology was selected over mechanical or physical storage methods because it enables modular installation without major infrastructure or specialised landform features. Batteries also generally have lower weight and physical volume and better scalability compared to other technologies.

4.3.3 The ‘Do Nothing’ Option

Not proceeding with the proposal would forgo the benefits of the proposal, resulting in:

- The loss of a source of renewable energy that would assist the Australian and NSW Governments to reach their targets,
- The loss of cleaner energy and reduced greenhouse gas emission,
- The loss of additional electricity generation and supply into the grid, and
- Loss of social and economic benefit through the provision of direct and indirect employment.

The ‘do nothing’ option may avoid any potential impact. However, the likelihood of significant negative impacts is low. It is considered the benefit of the proposed Solar Farm outweighs any potential impact whilst contributing to ecologically sustainable development.

5 Statutory Context

5.1 Strategic Justification

The relevant statutory requirements for the project are summarised in Table 5. This table has been set out in accordance with the Scoping Report Guidelines and *State Significant development - preparing an environmental impact statement Appendix B* to the state significant development guidelines (DPIE 2021d) (EIS Guidelines). The following matters are considered:

- Power to grant consent (i.e., approval pathway);
- Permissibility;
- Other approvals consistent with the proposal;
- Commonwealth approvals;
- Approvals not required (pursuant to Section 4.41 of the EP&A Act); and
- Mandatory matters for consideration.

Detailed consideration of relevant statutory requirements will be provided in the EIS.

Table 5 - Statutory Requirements

Approval	Requirement
Power to grant approval	
State Environmental Planning Policy	Section 20 of Schedule 1 of the Planning Systems SEPP states that the following is considered a SSD:

Approval	Requirement
<p>(Planning Systems) 2021 (Planning Systems EPP)</p> <p><i>Environmental Planning and Assessment Act 1979 (EP&A Act).</i></p>	<p><i>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:</i></p> <p><i>(a) has a capital investment value of more than \$30 million, or</i></p> <p><i>(b) has a capital investment value of more than \$10 million and is located in an environmentally sensitive area of State significance.'</i></p> <p>The Project would have a capital investment cost estimate of more than \$30 million. Therefore, the Project is classified as "State Significant Development" under division 4.7 of the EP&A Act.</p> <p>The Minister for Planning and Public Spaces is the consent authority for SSD, and SSD applications are assessed by DPE (unless specific conditions occur e.g., where 50 or more people have objected to the application, the local council has objected to the application; and/or the applicant has disclosed a reportable political donation, whereby the Independent Planning Commission (IPC) would be the consent authority.</p>
Permissibility	
<p><i>State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP)</i></p>	<p>Division 4, Section 2.35 and 2.36(1)(b) of the TISEPP states development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone. Therefore, the Project is permissible with consent.</p>
<p><i>Other State and Environmental Planning Policies that may be relevant</i></p>	<p>State environmental planning policy provisions will take precedence over the local provisions. However, local provisions will be considered by Edify during the EIS. Other relevant State and Environmental Planning Policies that may be relevant include:</p> <ul style="list-style-type: none"> - SEPP (Primary Production) 2021 (Part 2.2 addresses State Significant Agricultural Land, not yet confirmed in Schedule 1 of the SEPP) - SEPP No. 33 – Hazardous and Offensive Development - SEPP No. 55 – Remediation of Land.
<p><i>Electricity Infrastructure Investment Act (2020)</i></p>	<p>The Study Area is proximate to the Illawarra Renewable Energy Zone, which is expected to be declared a REZ under Section 23 of the <i>Electricity Infrastructure Statement Act (2020)</i>. As the extent of the REZ boundary is yet to be determined by NSW Energy Corporation, Edify will work with NSW Energy Corporation, AEMO and other relevant stakeholders to propose the inclusion of The Project to the Illawarra (or similar) REZ.</p> <p>AEMO has also indicated the Study Area is within the Cooma Monaro Renewable Energy Zone (Figure 2). Whilst the Cooma Monaro REZ is not currently proposed to be a declared REZ under Section 23 of the <i>Electricity Infrastructure Statement Act (2020)</i>, Edify has strategically located the proposal within a region that AEMO deems to be preferable for new generation to connect. Edify will work with AEMO and NSW Energy Corporation to register the project in the appropriate REZ once all NSW REZ are declared.</p>
Consistent approvals	
<p>Overview</p>	<p>Section 4.42 of the EP&A Act outlines that the approvals listed below cannot be refused if necessary for carrying out an approved SSD and are to be consistent with the terms of the development consent for the SSD</p>
<p>An environment protection licence under</p>	<p>Section 48 of the <i>Protection of the Environment Operations Act 1997</i> requires an environment protection licence to undertake scheduled activities at any premises.</p>

Approval	Requirement
Part 3 of the NSW Protection of the Environment Operations Act 1997	<p>Scheduled activities are defined in Schedule 1 of the <i>Protection of the Environment Operations Act 1997</i> and include the following premise-based activities that apply to the project:</p> <p>17 Electricity generation</p> <p>(1) ...general electricity works, meaning the generation of electricity by means of electricity plant that, wherever situated, is based on, or uses, any energy source other than wind power or solar power.</p> <p>(2) Each activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if it meets the criteria set out in Column 2 of that Table.</p> <p>The table referred to in Schedule 1, Clause 17 specifies 'general electricity works' with 'capacity to generate more than 30 megawatts of electrical power'. The project will have a capacity that is greater than 30 MW and will therefore require an environment protection licence.</p>
An approval under Section 138 of the NSW Roads Act 1993	<p>Under Section 138 or Part 9, Division 3 of the <i>Roads Act 1993</i>, a person must not undertake any works that impact on a road, including connecting a road (whether public or private) to a classified road, without approval of the relevant authority, being either Transport for NSW or local council, depending upon the classification of the road.</p> <p>The interaction of the project with the local and regional road network will be addressed in the EIS.</p>
Commonwealth approvals	
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	<p>The EPBC Act aims to protect matters of national environmental significance (MNES).</p> <p>If an action will, or is likely to, have a significant impact on any MNES, it is deemed to be a 'controlled action' and requires approval from the Commonwealth Environment Minister or the Minister's delegate.</p> <p>A search of the Commonwealth Protected Matters Search Tool indicates that there are no World Heritage Properties or National heritage places within the vicinity of the site (refer Appendix J).</p> <p>The preliminary biodiversity assessment indicates there is limited potential for listed threatened species and listed migratory species to occur within the study area and along road access options. Field surveys will be undertaken to determine whether the PCTs identified are representative of threatened ecological communities (TECs) listed under the EPBC Act, and therefore whether a referral to the Commonwealth Department of Agriculture, Water and the Environment is required.</p>
<i>Native Title Act 1993</i>	<p>The Commonwealth <i>Native Title Act 1993</i> recognises and protects native title rights in Australia. It allows a native title determination application (native title claim) to be made for land or waters where native title has not been validly extinguished, for example, extinguished by the grant of freehold title to land.</p> <p>Claimants whose native title claims have been registered have the right to negotiate about some future acts, including mining and granting of a mining lease over the land covered by their native title claim. Where a native title claim is not registered, a development can proceed through mediation and determination processes, though claimants will not be able to participate in future act negotiations.</p> <p>There are currently no native title determinations over the study area.</p>

Approval	Requirement
Approvals not required	
Overview	Section 4.41 of the EP&A outlines the following approvals, permits etc are not required for an approved SSD.
<i>Fisheries Management Act 1994</i>	<p>A permit under the <i>Fisheries Management Act 1994</i> to block fish passage or dredge or carry out reclamation work on water land will not be required pursuant to Section 4.41 of the EP&A Act.</p> <p>The project may require work in water land to facilitate the upgrade of road crossings or establish new crossings of watercourse within the study area. These works will be undertaken in accordance with NSW DPI <i>Policies and Guidelines on Fish-Friendly Waterway Crossings</i> (undated), <i>Policy and Guidelines for Fish Habitat Conservation and Management</i> (DPI 2013), and NSW <i>Guidelines for Controlled Activities</i>.</p>
<i>Heritage Act 1977</i>	<p>An approval under Part 4, or an excavation permit under Section 139, of the <i>Heritage Act 1977</i> will not be required pursuant to Section 4.41 of the EP&A Act.</p> <p>Further, there are no listed heritage items within the study area.</p>
<i>National Parks and Wildlife Act 1979</i>	<p>An Aboriginal heritage impact permit under Section 90 of the <i>National Parks and Wildlife Act 1974</i> will not be required pursuant to Section 4.41 of the EP&A Act.</p> <p>There is potential for Aboriginal sites to occur within the study area, primarily associated with Billililgra Creek. Any Aboriginal heritage sites identified within the study area will be avoided as far as practicable through the design process.</p>
<i>Rural Fires Act 1997</i>	A bushfire safety authority under Section 100B of the <i>Rural Fires Act 1997</i> will not be required pursuant to Section 4.41 of the EP&A Act. A bushfire assessment in accordance with NSW Rural Fire Service <i>Planning for Bushfire Protection 2019</i> will be carried out to inform the EIS.
<i>Water Management Act 2000</i>	<p>A water use approval under Section 89, a water management work approval under Section 90 or an activity approval (other than an aquifer interference approval) under Section 91 of the <i>Water Management Act 2000</i> pursuant to Section 4.41 of the EP&A Act.</p> <p>Construction work near or within watercourses within the study area may be required. These works will be carried out in accordance with DPIE's various guidelines for controlled activities.</p>
Other NSW approvals	
<i>Conveyancing Act 1919</i>	<p>The final development footprint will require a separate lease from the owner of the affected land. Lease of a solar farm site is treated as a lease of premises, regardless of whether the lease will be for more or less than 25 years. The plan, which illustrates the development footprint (Figure 5) will not constitute a 'current plan' within the meaning of Section 7A of the <i>Conveyancing Act 1919</i> and therefore will not require subdivision consent under Section 23G Conveyancing Act.</p> <p>Section 23G of the Conveyancing Act may also apply if subdivision for the purpose of construction, operation and maintenance of a substation is required.</p>
Section 1.3 of the EP&A Act	<p>Relevant objectives of the EP&A Act are:</p> <p><i>(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,</i></p>

Approval	Requirement
	<p><i>(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,</i></p> <p><i>(c) to promote the orderly and economic use and development of land,</i></p> <p><i>(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,</i></p> <p><i>(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</i></p> <p><i>(g) to promote good design and amenity of the built environment,</i></p> <p><i>(j) to provide increased opportunity for community participation in environmental planning and assessment.</i></p>
Section 4.15 of the EP&A Act	<p>Pursuant to Section 4.15 of the EP&A Act the consent authority must consider the following relevant matters for consideration:</p> <ul style="list-style-type: none"> • Relevant environmental planning instruments for the project including: <ul style="list-style-type: none"> – <i>State Environmental Planning Policy No. 33 Hazardous and Offensive Development;</i> – <i>State Environmental Planning Policy No 55 Remediation of land;</i> – <i>State Environmental Planning Policy (Infrastructure) 2007;</i> – <i>State Environmental Planning Policy (Koala Habitat Protection) 2020;</i> – <i>Cooma Monaro Regional Local Environmental Plan 2013 (Cooma Monaro Region LEP); and</i> • Relevant development control plans for the project including: <ul style="list-style-type: none"> – <i>Cooma Monaro Regional Council development control plan 2013</i> • the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality; • the suitability of the site for the development; and • the public interest. <p>The above will all be considered in the EIS.</p>
Mandatory considerations - Considerations under other legislation	
Biodiversity Conservation Act 2016	<p>The likely impact of the project on biodiversity values as assessed in the biodiversity development assessment report. The Minister for Planning and Public Spaces may (but is not required to) further consider under that Act the likely impact of the project on biodiversity values.</p>
Mandatory considerations - Environmental planning instruments	

Approval	Requirement
State Environmental Planning Policy No 55 – Remediation of Land, Clause 7	As the development will involve a change of use on land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines (agriculture) is being, or is known to have been, carried out, a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the Managing Land Contamination Planning Guidelines (<i>DUAP 1998</i>).
State Environmental Planning Policy No 33 – Hazardous and Offensive Development, Clause 8	<p>The EIS will consider the following relevant departmental guidelines:</p> <ul style="list-style-type: none"> • Applying <i>State Environmental Planning Policy No. 33 Hazardous and Offensive Development</i> • HIPAP No. 3 – Risk Assessment • HIPAP No. 12 – Hazards
Cooma Monaro Council LEP (2013)	<p>The EIS will consider:</p> <ul style="list-style-type: none"> • the relevant objectives and land uses for RU1 zone • Clause 4.2D Exceptions to minimum lot sizes for subdivisions in Zone RU1 and Zone E4 • Clause 6.1 Earthworks • Clause 6.4 Groundwater vulnerability • Clause 6.9 Scenic Protection Area
Mandatory considerations Development control plans	
Cooma Monaro development control plan (2014) (Amendment 4, Issue 6)	<p>The EIS will consider the following:</p> <ul style="list-style-type: none"> • Part 1.9 Variations to Development Standards • Part 4 Requirements for Subdivision

5.2 Local Government

5.2.1 Cooma-Monaro Local Environmental Plan 2013

The proposal is in the Snowy Monaro LGA and is subject to the *Cooma-Monaro Local Environmental Plan 2013* (LEP). The aims of the LEP are:

- aa) to protect and promote the use and development of land for arts and cultural activity, including music and other performance arts,
- a) to plan and manage for environmental sustainability,
- b) to promote and coordinate the orderly and economic use and development of land,
- c) to provide clarity and certainty for the community regarding the future development of Cooma-Monaro, while allowing flexibility to respond to change,
- d) to encourage opportunities for primary production in rural areas,
- e) to encourage opportunities for development in the urban area, including industrial land,
- f) to support the growth of villages while ensuring their character is retained,
- g) to protect historic, environmentally significant and cultural sites and areas of quality visual amenity,

- h) to encourage the siting and management of development to avoid, as far as practicable, conflict between adjoining and nearby land uses, both within and between zones having regard to likely future land uses,
- i) to provide a range of housing opportunities, including rural residential development in the vicinity of Cooma-Monaro and the villages,
- j) to protect watercourses, riparian habitats, wetlands and water quality within water catchments

Under the LEP, the core development area is zoned RU1 primary production. The objectives of RU1 primary production are to:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To encourage land uses that are unlikely to generate significant additional traffic relative to the capacity and safety of a road, or create or increase a condition of ribbon development on any road.
- To encourage land uses that are unlikely to create unreasonable or uneconomic demands for the provision or extension of public amenities or services.
- To protect the water quality of receiving watercourses and groundwater systems.
- To protect the visual landscape values of the rural area.

While Solar Farm developments are not specifically referenced as a development permitted with consent, solar developments are not inconsistent with the objectives and principles of the LEP. Whilst the development will impact the availability of the land for primary production, it will sustainably harness a natural resource, namely solar energy, and will provide for a diversified economic stimulus and support to rural communities.

The proposed development is classified as electricity generating works and is located on land zoned RU1 – Primary Production under the Cooma-Monaro LEP (Cooma-Monaro LEP 2013).

Additional local provisions under the Cooma-Monaro LEP that may be relevant to this proposal include Scenic protection area, which is documented as follows:

Scenic protection area

1. The objective of this clause is to maintain the visual amenity of the major rural road corridors.
2. This clause applies to land identified as “Scenic Protection (400m buffer)” on the Scenic Protection Map.
3. In considering whether to grant development consent to development on land to which this clause applies, the consent authority must consider the following—
 - (a) the significance of the land as part of a visual corridor of regional importance,
 - (b) the visual impact of the proposed development as viewed from the Monaro or Snowy Mountains Highways,
 - (c) whether measures to minimise any adverse visual impacts have been included in the development.

The proposed development is adjacent to the Monaro Highway and involves land identified as ‘Scenic Protection (400m buffer)’ on the Scenic Protection Map. Edify has discussed this aspect with the Snowy Monaro Regional Council on the basis that the preliminary design concept of the development shows the infrastructure being setback with a 100m buffer from the Monaro Highway. This setback distance has been considered for consistency to align with the two established solar farms (Royalla Solar Farm and Williamsdale

Solar Farm) also located on the Monaro Highway, 56km and 46km respectively from the proposed development. Although it is acknowledged that neither of those developments are within the Cooma-Monaro LEP area, Edify believes they are a reasonable reference guide and could be considered to be an established visual aesthetic that has been received and accepted by the local communities and regular users of the Monaro Highway. Further, Edify highlights that Royalla Solar Farm is the first utility scale solar farm to be developed in Australia, which highlights that commuters travelling along Monaro Highway are likely to be familiar with the typical aesthetic quality derived from solar farm developments.

Edify will undertake a detailed Visual Impact Assessment and Landscape Design during the early stage of preparing the EIS to gain an appreciation of the visual impact/s as viewed from the Monaro Highway and receivers; and recommended mitigation options, including landscaping. This will be further discussed with the Snowy Monaro Regional Council and the local community to ensure appropriate measures to minimise any adverse visual impacts are included in the development.

5.3 Commonwealth Legislation

5.3.1 Environmental Protection and Biodiversity Conservation Act 1999

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

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

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

A search of the Commonwealth Protected Matters Search Tool (refer to Appendix J) indicated 4 threatened ecological communities, 39 threatened species and 12 migratory species in the search area. Surveys to determine the presence and likelihood of impact to these species/communities would be undertaken during the preparation of the EIS.

A summary of the EPBC Act search report is provided in Table 6 and the full search results can be found in the Ozark's Preliminary Ecology Assessment in Appendix J.

Table 6 - Summary of EPBC Protected Matters Search Report

Protected Matter	Entities within the search area
World Heritage Properties	None
National Heritage Places	None

Protected Matter	Entities within the search area
Wetlands of International Significance (Ramsar)	4
Threatened Ecological Communities	4
Threatened Species	39
Migratory Species	12
Listed Marine Species	18
Commonwealth land	2
Commonwealth Heritage places	None
Critical habitats	None
Commonwealth reserves (terrestrial)	None
State and Territory reserves	3
Regional Forest Agreements	1
Nationally Important Wetlands	None

5.3.2 Native Title Act 1993

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

People who hold native title have a right to consult or continue to practise their law and customs over traditional lands and waters while respecting other Australian laws. This could include visiting to protect important places, making decisions about the future use of the land or waters, hunting, gathering and collecting bush medicines.

Further, when a native title claimant application is registered by the National Native Title Tribunal, the people seeking native title recognition gain a right to consult or negotiate with anyone who wants to undertake a project on the area claimed. Where native title does exist in relation to the proposal site, Edify will comply with the provisions of the *Native Title Act 1993*. A search of the National Native Title Tribunal website (NNTT 2018) indicates no native title claims, land use agreements, applications or determinations within the development site.

6 Engagement

Edify is a long-term owner and operator of projects. This makes an important difference in our community engagement approach since we are establishing relationships with communities during the development phase that will endure for the lifetime of the projects.

Community and stakeholder consultation will be integral to the proposal. Edify has begun consultation with a wide range of relevant Local Government and State government agencies, neighbours, local businesses, community groups and other interested parties.

In accordance with the Social Impact Assessment Guidelines (2021), Edify has conducted the first phase of the SIA, which involves scoping an initial assessment, refining and planning for further engagements with local stakeholders. The SIA Worksheet is provided in Appendix B.

Refer to Appendix C for copies of correspondence with stakeholders. In addition, Table 7 summarises Edify's consultation and community engagements.

Table 7 - Consultation and Community Engagement

Consultation Guide		
Phase	Actions/Tools	Stakeholders
Pre-lodgement and development of EIS	FAQ's Meetings – one on one Presentations Local Contractor Presentation and EOI Register Drop in session Media release Project email address Project Website Letterbox drop Feedback collation and mitigation options	Community Landowners Council Government departments Neighbours Local businesses Media
EIS public exhibition and determination	FAQ's Drop in session Letters Letterbox drop status update	Community Neighbours Landowners
Post approval (assuming approval granted)	Letters Letterbox drop status update Local Contractor Presentation and EOI Register	Community Local businesses Neighbours Landowners Council
Construction and commissioning	Local consultation with landowners and neighbours Local Council Presentations FAQ's Drop in session Letters Letterbox drop status update Support to landowner team	Community Neighbours Landowners Council

Edify is preparing a Community Engagement Plan (CEP) to provide a framework to further engage with the community and stakeholders about the proposal and ensure opportunities to provide input into the assessment and development process are understood. Stakeholders were identified as those potentially being impacted by the Solar Farm or having an interest in the project itself. The CEP will set out the project's community engagement approach and minimum requirements with interested parties including representative bodies (e.g. Snowy Monaro Regional Council, community groups, and neighbours to the site).

As the CEP is implemented, the following activities will occur:

- Keep the Billilिंगra residents and broader community informed in all stages of the proposal through media avenues including advertisements in local radio, television and newspaper.
- Face to Face meetings with adjacent landholders, stakeholders and concerned local residents as required.
- A project website including a 'News Room' that will be updated at each project milestone and email address to inform the broader community.
- Preparation and dissemination of a feedback form to better understand the community's sentiment toward solar development and the development of the Billilिंगra solar and battery proposal. This will be made available at meetings and on Edify's project website.
- Hold an information session during the proposal stage providing access to specialists and project information.
- Develop and implement a benefit sharing scheme in consultation with the community
- A public open day on the site would occur when the approved project commences operation.
- Establishment of a register to record contact with stakeholders including potentially affected landholders.

The CEP would aim to ensure that there is effective, ongoing liaison with the community.

Measures to reduce adverse impacts and promote positive impacts would be identified in the EIS and appropriate management plans developed for the project. Agency consultation would also take place in accordance with any requirements of the SEARs.

6.1 Aboriginal Community Consultation

Edify Energy recognises the Ngarigo People as the original custodians of the lands throughout Billilिंगra and as such will be invited to undertake an Aboriginal cultural heritage assessment as part of this proposal's EIS.

The NSW DPE, Office of Environment, Energy and Science (formerly OEH), acknowledges that Aboriginal people are the primary determinants of the significance of their heritage. It is acknowledged that Aboriginal people should be involved in the Aboriginal heritage planning process and are the primary source of information about the value of their heritage. This includes the best management and conservation measures for Aboriginal heritage and the way in which their cultural information (particularly sensitive information) is used (OEH 2011:2). Edify Energy considers that proactive engagement and consultation with the local Aboriginal community is regarded as an integral part of the process of investigating and assessing Aboriginal cultural heritage.

As the project's SEARs are being requested to inform the forthcoming EIS process, consultation with the Aboriginal community will be commenced under the due legislative process and accordingly undertaken as part of EIS studies. Aboriginal community consultation undertaken for this project will follow the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010) (Consultation Requirements). The Consultation Requirements outline a four stage Aboriginal consultation process and mandate specific timeframes for each stage.

6.2 Consultation to date

Adjacent landowners and those situated within 4.0 km of the subject land have been contacted by phone and email to inform them about the project and offer them the possibility to meet. Additional meetings have been proposed as required or requested, tentatively scheduled Q3-2022. Landowners met were informed about the project and were given the following information:

- Introductions to company and proposed project by Edify's Project Manager
- Presentation of the development process of a solar and battery project in NSW
- Potential land considered for the development
- Discussions on the concerns raised by the landowners
- The contact email address of Edify's Project Manager was shared

A presentation leaflet on Edify's typical development strategy and further details on Edify as a company, in the form of an information booklet was shared with adjacent neighbours via email and postal mail, in addition to mapping and design tools that illustrate the project plans. During the various discussions with adjacent neighbours, Edify's development team received positive feedback, largely due to the low anticipated impacts to nearby residences, as the closest neighbour is setback approximately 965m. As a result, this site selection is believed to reduce potential impacts to adjoining neighbours.

During the phone calls to neighbouring landholders (18th and 24th May 2022), landowners raised several questions and comments. The main questions raised were the following:

- Anticipated timing for construction activities
- Potential employment opportunities associated with construction and operation
- Visual amenity changes to the region
- Weed and vegetation management

When possible at this stage of the development, Edify has provided initial answers to those concerns. In order to plan further early-stage consultation, neighbours were informed by phone or email and were offered the opportunity to provide feedback through a face-to-face meeting or by phone when a face to face meeting couldn't be held directly.

Additionally, two letters of information were sent 6th May 2022 to the office of the Federal Member for the Eden-Monaro Electorate as well as to the office of the Member of Parliament of NSW for the Monaro electorate. Subsequent meetings were held with the State Member for Monaro and staff on 27th May 2022 and with the Federal Member for Eden-Monaro and staff on 3rd June 2022 to discuss the proposal. Edify has also held two online meetings with the Snowy Monaro Regional Council on 20th January and 13th May 2022. Evidence of these meetings is provided in Appendix C.

6.2.1 TransGrid

Discussions with TransGrid started in the first half of 2022 through the submission of a Connection Enquiry. Confirmation was given of the available capacity on the transmission line for the connection of an additional generator subject to further precise studies. Discussions are ongoing as connection studies started between Edify and TransGrid in the first half of 2022.

6.2.2 Snowy Monaro Regional Council

Edify shared two conference calls (20th January and 13th May 2022) with the Snowy Monaro Regional Council since the beginning of prospecting in the LGA. The main points discussed have been:

1. Ongoing development boundary refinement efforts to determine extend of impact area

2. Subdivision requirements
3. Traffic volumes and access routes
4. Potential visual impact from Monaro Highway, in relation to the LEP's 'Scenic Protection (400m buffer)'
5. Site waste management practices
6. Potential cumulative impacts from nearby developments; and
7. Local employment and accommodation plans

6.2.3 State and Federal Members

Edify issued two letters of information on 6th May 2022 to the office of the Federal Member for the Eden-Monaro Electorate as well as to the office of the Member of Parliament of NSW for the Monaro electorate.

A meeting was held with the Member for Monaro and staff on 27th May 2022 to discuss the proposal.

A meeting was held with the Federal Member for Eden-Monaro and staff on 3rd June 2022 to discuss the proposal and regional development benefits that are anticipated from the project. Evidence of these meetings is provided in Appendix C.

6.2.4 Industry

No industrial operations exist on the land directly adjacent to the development site. However, two Exploration Licenses are registered on and in proximity to the proposal, indicating the potential for future mining activities to be a potential industrial operation.

Edify has engaged with NSW Department of Regional NSW (Mining, Exploration and Geoscience) via email (5th May) and teleconference (13th May) to discuss Edify's proposal and the existing exploration licenses. The Department provided contact details for the relevant license holders and provided advanced notice to each organisation that Edify's Project Manager will engage further with the license holders directly. Edify's Project Manager provided the Department with subsequent evidence of engagements with the license holders. Evidence of such engagements are provided in Appendix C, in addition to conference calls shared between Edify's Project Manager and each company's representatives (8th June and 15th June respectively).

Further details and correspondence with the license holders are outlined in Section 7.2.6, with evidence provided in Appendix C.

6.3 Community Investment

As a leading renewable energy developer, Edify Energy is committed to supporting the communities that host our clean energy projects with positive and lasting social, environmental and economic benefits.

During early consultation with Snowy Monaro Regional Council, Edify has discussed a voluntary planning agreement which may establish an appropriate committee to oversee the delivery of a portion of revenue from the proposed Billililingra Solar Farm back into the local community each year, for the life of the Solar Farm.

A Community Engagement Plan will also be created to support the EIS phase of the project's development.

7 Preliminary Environmental Assessment

7.1 Methodology

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

The assessment is based on a desktop review and preliminary site inspection (involving flora and fauna surveys) to identify potential high-level constraints and major risks to the proposal. This will be used to guide further detailed investigations and ultimately the site infrastructure layout. Constraints mapping will also be refined based on these investigations prior to submission of the EIS.

A summary of the key environmental issues is provided in Section 7.2. The intent of the discussion is to demonstrate an understanding of the issues that require further environmental assessment and likely mitigation measures for these key issues. The potential impacts and management of other (less significant) issues are discussed in Section 7.3. The following environmental risks are considered to be key aspects:

- Biodiversity
- Aboriginal Heritage
- Traffic and transport
- Landscape and visual amenity
- Noise
- Land use and resources
- Watercourses and hydrology
- Cumulative impacts.

7.2 Proposed Assessment of Impacts

7.2.1 Biodiversity

The Development Area has been selected on the basis that it supports limited native vegetation and is largely Category 1 – exempt land. The land has been extensively cleared, and used for agricultural purposes, such as grazing, over a long period of time.

The primary constraint is associated with the watercourses and scattered remnant woodland vegetation throughout the Development Area. Further survey of the area is anticipated as part of the EIS, and a full assessment of the impact to potential habitat and species in these areas would be conducted by a specialist 3rd party consulting group.

Methodology

Edify Energy has undertaken a preliminary constraints assessment of the proposal to identify potential high-level constraints and major risks to the proposal. Edify engaged OzArk Environment & Heritage Pty Ltd (OzArk) to undertake a Preliminary Biodiversity Assessment of the development area and parts of the expected access corridor along Monaro Highway. In addition, OzArk was also commissioned to undertake a Land Category Assessment, to distinguish Category 1-exempt land and Category 2-regulated land within the project land. OzArk completed these reports by undertaking desktop database searches, in addition to conducting a preliminary field assessment across 19-22 January 2022. A copy of the Preliminary Biodiversity Assessment and Land Category Assessment reports can be found in Appendix J.

A Biodiversity Development Assessment Report (BDAR) will be completed after the SEARs have been received and a final development footprint is determined.

The following is a summary of the desktop and field surveys completed to-date. The full details of the assessment undertaken by OzArk is included in Appendix J.

The key biodiversity features that may pose constraints within the study area include:

- Plant Community Types listed as threatened under the NSW *Biodiversity Conservation Act 2016* (BC Act) or Commonwealth *Environment Protection and Biodiversity Act 1999* (EPBC Act).
- Threatened species listed under the BC or EPBC Act.
- Habitat for threatened species listed under the BC or EPBC Act.
- Prescribed biodiversity impacts under the Biodiversity Assessment Methodology (BAM).
- Biodiversity Values mapped under the BC Act.
- Serious or Irreversible Impacts (SII).
- Riparian and/or terrestrial corridors and connectivity and wetland inundation areas
- Groundwater Dependent Ecosystems

7.2.1.1 Flora

Threatened Ecological Communities

The EPBC Act Protected Matters Search undertaken indicated 4 listed threatened ecological communities (TECs) which may or are likely to occur in the search area (refer to Appendix J):

- Alpine Sphagnum Bogs and Associated Fens
- Natural Temperate Grassland of the South Eastern Highlands
- Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)
- White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland

In addition four of the PCTs recorded within the subject land are associated with Threatened Ecological Communities (TECs):

- (PCT-765) Natural Temperate Grassland of the South Eastern Highlands
- (PCT-1191) Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion
- (PCT-1202) Natural Temperate Grassland of the South Eastern Highlands
- (PCT-1289) Natural Temperate Grassland of the South Eastern Highlands

The grassland communities – PCTs 765, PCT 1202, and PCT 1289 – were assessed against the composition and condition criteria for the EPBC Act-listed Critically Endangered Ecological Community (CEEC) *Natural Temperate Grassland of the South Eastern Highlands*.

This assessment determined that parts of PCTs 765 and 1289 met the threshold criteria, while PCT 1202 did not. In total, 0.43 ha of PCT 765 and 4.92 ha of PCT 1289 met the criteria to be considered moderate to high condition (PCT 765) or high to very high condition (PCT 1289) examples of this CEEC. EPBC guidelines recommending implementing a 30 m protection buffer around each instance of the CEEC. In order to maintain the integrity of the CEEC, clearing activities should not be undertaken within this buffer.

This 30 m protection buffer will be adopted by Edify as the Development Area and infrastructure siting is progressed. This protection buffer (Restricted Area) is already considered in the Preliminary Layout Design (Figure 5), to ensure the integrity of the CEEC is maintained.

Plant Community Types

Under the NSW Department of Planning and Environment (DPE) Biodiversity Conservation and Sciences (BCS) Plant Community Type's (PCTs) are the lowest level of classification and the accepted standard for describing plant communities. Four PCTs were determined to occur on the site and all are associated with the four present/identified Threatened Ecological Communities (TECs) under the BC Act and the EPBC Act. The PCTs in the project area occur in two forms, being 'good' and 'poor'. These listed PCTs are shown in context of the subject land in Figure 16 and 17 below.

Threatened Flora Species

The EPBC Act search indicated 14 threatened flora species and a search of the NSW Bionet Atlas revealed 60 threatened flora species. Two threatened flora species were identified onsite during the initial survey (see Appendix J). Additional species may be identified during the BAM assessment and survey process. The two species recorded during site surveys include:

- Silky Swainson-pea (*Swainsona sericea*) – BC Act, Vulnerable
- Creeping Hop-bush (*Dodonaea procumbens*) – BC Act and EPBC Act, Vulnerable

Swainsona sericea was associated with PCT 1289 and PCT 1191, and also occurred in a gravel trail bordered by PCT 1202. *Dodonaea procumbens* was associated with PCT 999, PCT 1191, and PCT 1289. Both species were concentrated in the southern half of the eastern section of the subject land. As neither species was flowering at the time of the survey, it is very likely that additional undetected populations occur on the subject land.

Due to the presence of these vulnerable flora species, the eastern section of the Subject Site has been excluded from the Development Area, which represents another mitigation measure adopted by Edify during the initial development plans.

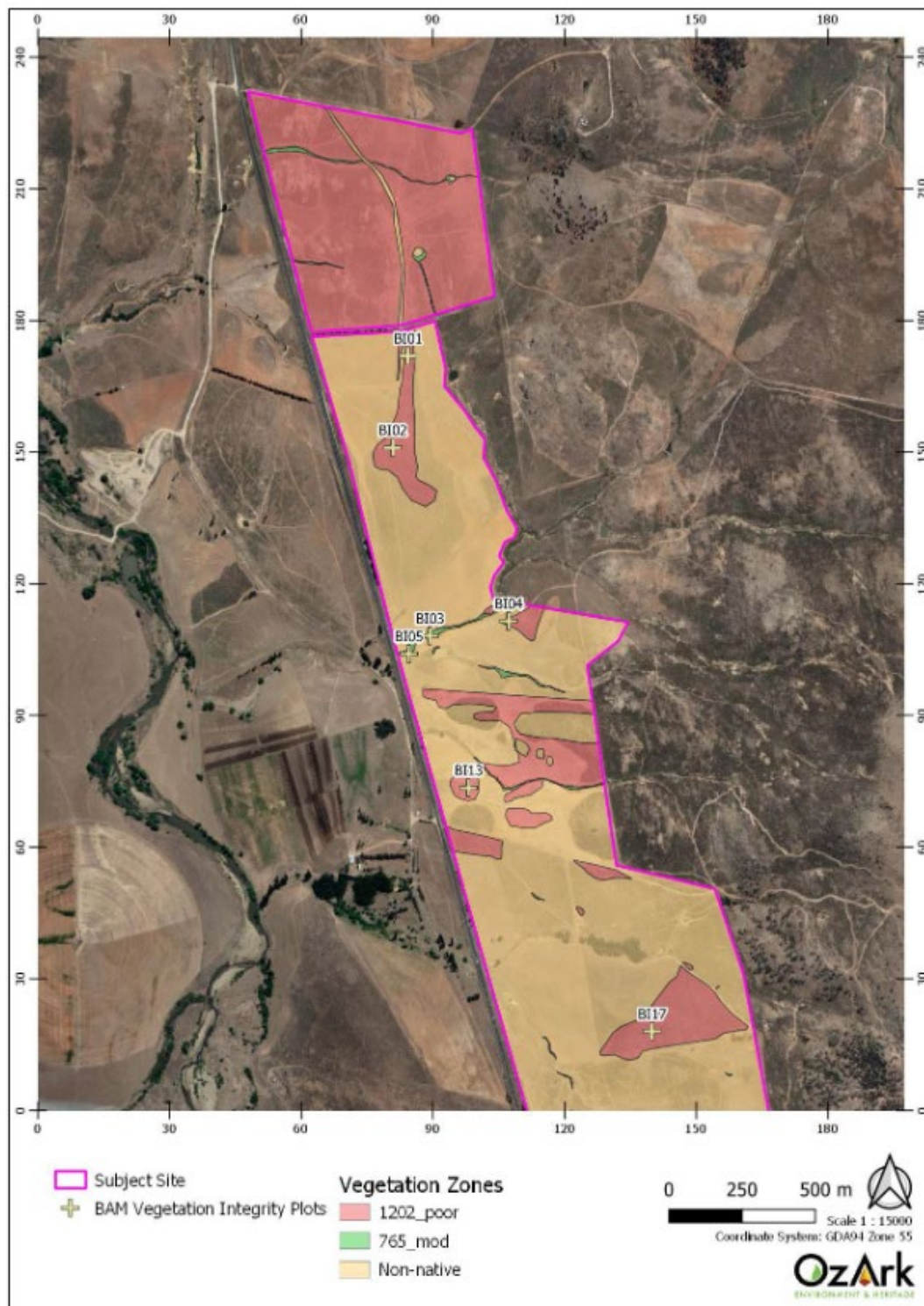


Figure 16 - Threatened Ecological Communities (TECs) and Plant Community Types (PCTs) - ground-truthed by Ecologists (North)

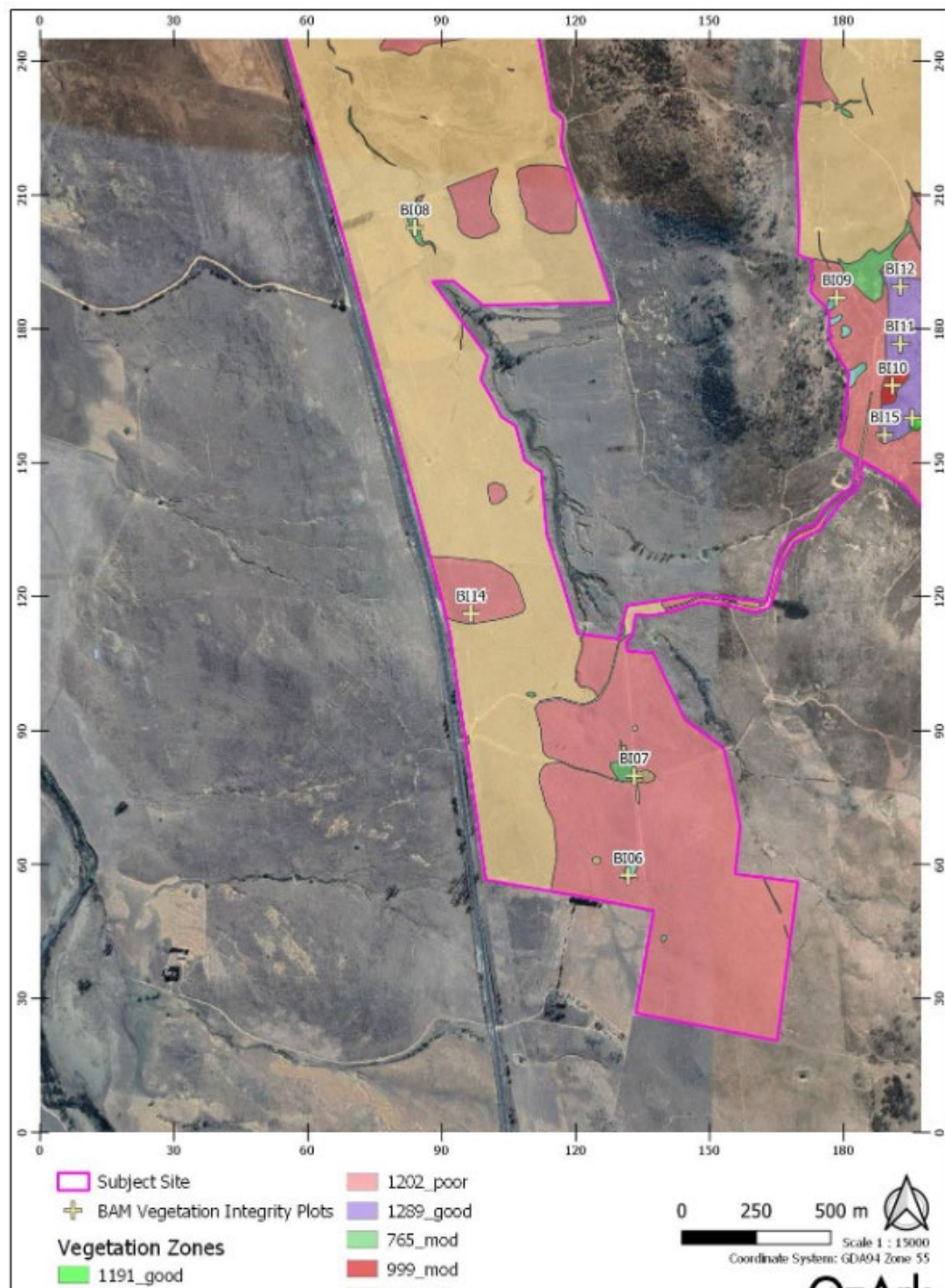


Figure 17 - Threatened Ecological Communities (TECs) and Plant Community Types (PCTs) - ground-truthed by Ecologists (South)

7.2.1.2 Fauna

The EPBC Act search indicated 10 threatened bird species and 6 threatened mammal species within a 10km radius from the subject land. An additional species was identified onsite during the initial survey. The identified threatened fauna species is:

- White-fronted Chat (*Epthianura albifrons*) – BC Act, Vulnerable

This species was associated with open grassland, including PCT 1202 and adjacent areas of non-native vegetation. Three birds were noted in one location, though others may be present.

Due to the presence of this vulnerable fauna species, the northern-most and eastern sections of the Subject Site have again been excluded from the Development Area, which represents another mitigation measure adopted by Edify during the initial development plans. Figure 17 details locations of threatened species records.

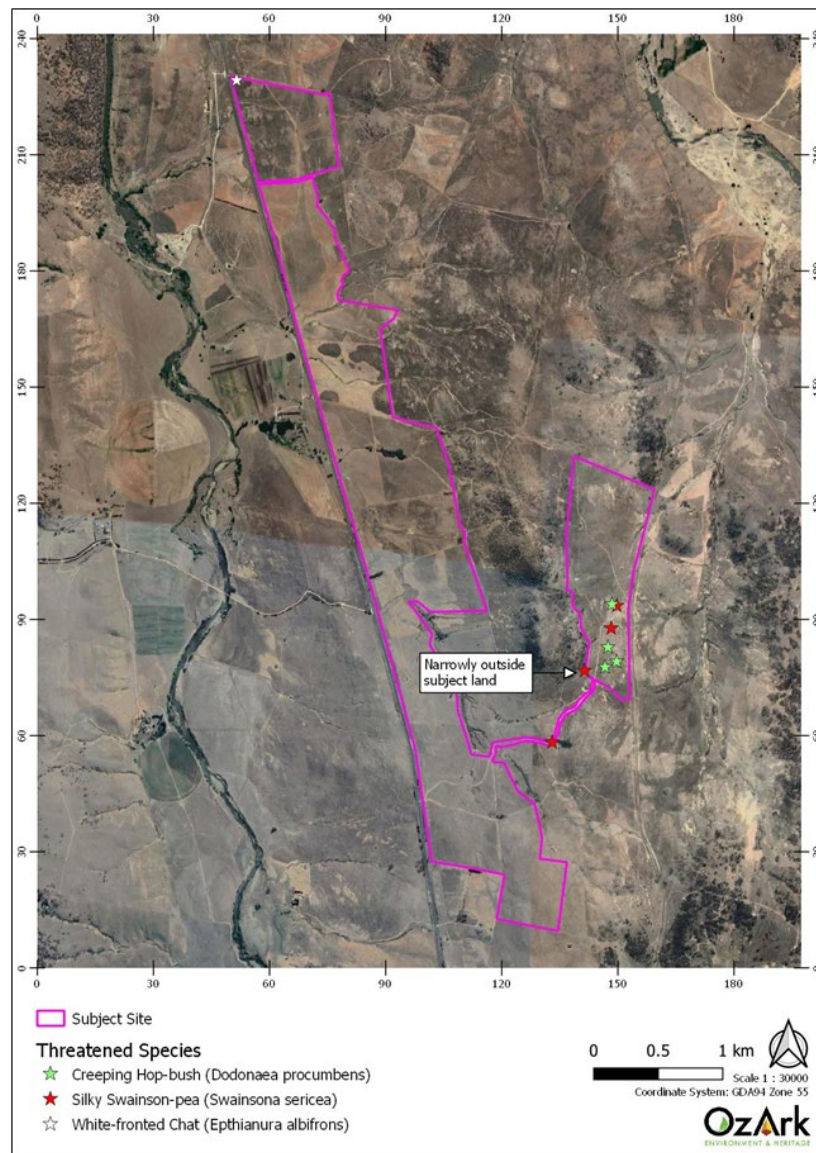


Figure 18 – Threatened Flora and Fauna Species indicated in database searches and ground-truthing by ecologists

A preliminary Biodiversity Assessment Methodology (BAM) Calculator was run in March 2022, to predict the credit species that may occur at the development site. A list of the species that will require surveys and the specified survey period to confirm presence/absence and for the purpose of quantifying credits has been developed by the ecologists. Additional species may be identified during the BAM assessment and targeted survey process. Further detailed information on the existing fauna values and potential impacts associated with the proposed development will be contained in the BDAR that will accompany the EIS.

Potential Impacts

The following impacts upon biodiversity have been considered as having potential to occur during the construction and operation of the proposal:

- Clearing, removal and disturbance of vegetation, in particular paddock trees;
- Clearing of limited habitat (including disturbance of foraging habitat, sheltering and breeding habitat);
- Loss of connectivity and nesting sites;
- Introduction and spread of invasive species and weeds;
- Increased risk of competition with regenerating native plants;
- Disturbance or displacement of fauna;
- Microclimate impacts due to shading, water availability, temperature, etc.; and
- Movement barrier and collision hazard by perimeter fencing.

Further assessment

A full floristic plot survey is required to determine the floristic composition, condition and EEC status of native vegetation at the proposal site. Fauna survey and habitat assessment is also required to determine the potential for the presence of threatened fauna species and habitat features such as tree hollows. These surveys and assessments would be undertaken as part of the EIS, under the BAM. This would include the calculation of any biodiversity offset required for the project.

7.2.2 Aboriginal Heritage

The project area is within the Ngarigo Region, whose people are the largest Aboriginal Nation in NSW. Ngarigo people are originally from the land that spans the Snowy Mountains, south eastern New South Wales and extends to the present Victorian state border.

A search of the Aboriginal Heritage Information Management System (AHIMS) on 24 November 2021 identified six (6) Aboriginal sites and no Aboriginal places within the Billililgra area. However, no Aboriginal sites or places are recorded within the proposed development area. Refer to AHIMS search results in Appendix D.

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

Aboriginal consultation

Edify's Project Manager engaged with various local aboriginal groups and individuals, introducing the company and proposed project, whilst seeking further engagement and collaboration. This was initiated by emails sent 3rd June 2022, in addition to subsequent phone calls. The groups included in this introductory engagement are as follows:

- Ngarigo Community Elders
- Ngarigo Nation Indigenous Corporation
- Nindi Ngujarn Ngarigo Monero Aboriginal Corporation
- Wagaonga Local Aboriginal Land Council; and
- Mr John Dixon

During the EIS phase, additional consultation with Aboriginal stakeholders would be undertaken in accordance with clause 80C of the *National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010* following the consultation steps outlined in the Aboriginal Cultural Heritage Consultation Requirements for Proponents provided by OEH/NSW Heritage. A summary of the consultation process includes:

1. Registration and initial consultation and registration of Aboriginal community members.
2. Review of survey methodology by Registered Aboriginal Parties (RAPs).
3. Completion of field work and reporting.
4. Review of report by RAPs.
5. Report finalisation.

Potential impacts and Further Assessment

Construction has the potential to disturb unknown sites of Aboriginal cultural heritage significance. Impacts during operation and decommissioning are expected to be minimal.

An Aboriginal cultural heritage assessment (ACHA) and associated stakeholder consultation will be completed as part of the EIS. This would include consultation with the Ngarigo people (Merrimans Local Aboriginal Land Council) as well as any other relevant stakeholders in accordance with the *Aboriginal Cultural Heritage Requirements for Proponents* (DECC 2010). Should any Aboriginal heritage sites be identified that may be potentially affected by the proposal, mitigation measures will be determined in accordance with the *Guide to Investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011).

The required mitigation measures will be implemented during construction activities through a specific Cultural Heritage Management Plan as part of the Construction and Environmental Management Plan (CEMP) that would be prepared for the project. Similarly, any ongoing management and mitigation measures would be implemented through an Operational Environmental Management Plan (OEMP).

7.2.3 Traffic and Transport

The primary access route to the development area is via the Monaro Highway, which is a designated State Highway (B23), with Transport for New South Wales (TfNSW). Monaro Highway comprises dual carriage road with some single carriage sections. Monaro Highway can be accessed from major junctions such as Princess Highway (A1), Snowy Mountains Highway (B72), Canberra Avenue (A23) or Majura Parkway (M23).

Monaro Highway primarily services inter-city regional travel, local traffic and agricultural operations. The Federal Highway is a National Highway and likely to be the major transport route for haulage during the construction phase of the project. Several haulage route options will be considered for the project, either accessing from the north, via Goulburn and Williamsdale, through the Australian Capital Territory.

Appendix E provides an illustration of the approved transport routes from Sydney to Site.

Potential impacts and Further Assessment

During construction there will be a temporary increase in traffic along the Monaro Highway and the local road network as components are brought to site and construction workers travel to/from the site. This will indirectly lead to some increase in localised noise levels during the main construction period. Traffic management during

construction will also need to consider activities during key agricultural activities such as periods of livestock movement, peak tourism seasons and the associated vehicle movements and their timing. Traffic impacts during operations will be minimal, with approximately five full-time staff at the Solar Farm. Traffic is predicted to be limited to employee vehicle movements for full-time staff, plus a small number of daily vehicle movements associated with ongoing maintenance and associated activities performed by local contractors/consultants.

During the decommissioning phase, a temporary increase in construction traffic would be expected as infrastructure is removed.



Figure 19 - Typical view from Monaro Highway

A detailed Traffic Impact Assessment (TIA) will be included as part of the EIS. The TIA will identify the impacts and assess the significance of any impacts on the road network and community during construction, operation and decommissioning phases. The TIA will also consider the requirement for road upgrades, including turn treatments for main access/es off the Monaro Highway. The required mitigation measures would be implemented during construction and operational activities through implementation of detailed Traffic Management Plans (TMPs) that would be prepared for the project for each relevant phase.

7.2.4 Visual Amenity and Landscape Character

The proposal has potential to result in visual impacts to neighbouring houses and road users accessing the Monaro Highway. The site is located within a rural area with large lot agricultural production and sparsely distributed residences usually located some distance from main roads. The site is also land that is identified

as ‘Scenic Protection (400m buffer)’ on the Scenic Protection Map under the Cooma-Monaro LEP. Edify has considered a 100m setback from the Monaro Highway to remain consistent with the two existing solar farms which are accepted by the local communities and regular users of the Monaro Highway as an established visual aesthetic or view from the highway.

There are seventeen (17) potentially sensitive receivers and two industries (2) exist within 4 km of the subject land (see Figure 9). The closest receiver is located 960 m west (R1) from the subject land. The undulating terrain, Monaro Highway and intermittent tree cover will act to limit long range views in the locality. However various receivers have existing native vegetation and other existing infrastructure (e.g. block-out fence panels) situated between the dwelling and proposed development site.

An assessment of the level of visual disturbance would be undertaken as part of the EIS. The EIS would also consider the potential for the Solar Farm to affect local landscape character, including the visual impact of the proposed development as viewed from the Monaro Highway. Additional consultation with the Snowy Monaro Regional Council and specific affected residences would be undertaken to identify the nature and significance of impacts and the need for mitigation measures to minimise any adverse visual impacts of the proposed development. The level terrain improves the potential effectiveness of vegetation plantings as screening around the site.

It is noted that solar panels are designed to absorb as much sunlight as possible, with the use of anti-reflective coating boosting energy yield whilst decreasing normal incidence reflectance to less than 1% (generally 4% per Fresnel’s equation, when AR coating is not used). They therefore reflect a very low percentage of the light and are not considered likely to result in glare or reflections that would affect traffic or nearby receivers.

Further assessment

A landscape and visual impact assessment, including photo montages and community consultation, would be prepared as part of the EIS to investigate visual impacts and mitigation options.

7.2.5 Noise

Existing background noises levels on, and surrounding the development area, are likely to be low and typical of the rural setting. Sources of background noise would include vehicle use along Monaro Highway and equipment used on adjacent rural landholdings.

There are 17 potentially sensitive receivers within 4 km of the development site (Figure 9). Noise impacts, for the most part, only occur during construction (generated by construction vehicles and machinery), with minimal noise likely to be generated during operation. Edify and the construction contractor will adopt best practice mitigation measures during construction, such as standard work hours and regular vehicle and machinery maintenance to reduce the risk of adverse noise impacts.

During the operation of the project, low level noise would be potentially produced by the solar tracking system, the substation and switchgear, battery and any maintenance works undertaken at the site. Noise impacts during operation of the Solar Farm are expected to be very low or, in any case, not expected to be discernibly different than those existing in the surrounding rural environment.

Further assessment

A construction and operational noise assessment would be undertaken as part of the EIS to assess potential noise impacts. The assessment would be undertaken in accordance with the *Interim Construction Noise Guideline* (DECC 2009) and *NSW Noise Policy for Industry* (NSW EPA 2017).

7.2.6 Land Use and Resources

The rural land within the region is used primarily for agricultural grazing and homesteads. The development area comprises several large paddocks which have been largely cleared for pastures and grazing. Land and agricultural activities like those of the development site are widespread in the region. There is no evidence of horticulture or other intense farming activities within the development site.

The *Mining, Petroleum, Production and Extractive Industries State Environmental Planning Policy 2007* (the Mining SEPP) extends across the proposal. The land is not classed as BSAL or CIC in the Mining SEPP Strategic Agricultural Land Map; BSAL has been described as land with high quality soil and water resources capable of sustaining high levels of productivity, while CIC are concentrations of highly productive industries within a region that are related to each other, contribute to the identity of that region, and provide significant employment opportunities.

The land is classified as Class 5 under the *Land and Soil Capability Assessment Scheme* (OEH 2012), which is moderate to high limitations for high impact land uses. This restricts management options for regular high-impact land uses such as cropping, high intensity grazing and horticulture. Limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investments and technology.

There are two Exploration and Mining Titles relevant to the development site indicated in the MinView database (DPIE 2021). This includes exploration licences: EL9039 (Delta Gold) and EL8451 (Haverford Holdings). A summary of engagements is provided below, with evidence of correspondence included in Appendix C.

Delta Gold – EL9039

Edify received contact details for Delta Gold through prior engagements with the Department of Regional NSW - Department for Geological Surveys. Edify commenced engagements with Delta Gold via email on 26th May 2022, which was followed by various emails and a conference call with senior management on 24th June 2022. Both parties have agreed to provide proactive engagements throughout each project's development process and will also share engagement updates with NSW DPE and the Department of Resource & Geoscience.

Haverford Holdings - EL8451

Edify received contact details for Haverford Holdings through prior engagements with the Department of Regional NSW - Department for Geological Surveys. Edify commenced engagements with Haverford Holdings via email on 26th May 2022, with the company responding immediately with follow up questions. Edify then shared additional project plans, whereby Haverford Holdings confirmed on 6th June 2022 that both parties agree to provide proactive updates to each respective development and continue to engage with each other, NSW DPE and the NSW DRC.

Further assessment

For the construction period, there would be a complete reduction in agricultural activities within the development footprint. During the operational phase, not all agricultural activities would be precluded, and it is highly likely that limited production such as occasional grazing could continue. As such, it can be expected that the nature of the agricultural activities would change from cropping and grazing to predominately grazing within the development site.

The amount of agricultural land that would be temporary unavailable for cropping during operation is small given the large amount of available agricultural land within the surrounding locality. This would be further explored in the EIS.

The project would be decommissioned at the end of its operational life, removing all above and below-ground infrastructure up to one-meter below ground. It is expected that the land would be returned to its prior production uses, as Solar Farms and battery projects typically do not have significant permanent

impacts to soil and landform. Overall, the adverse impacts related to alienation of resources are expected to be low and restricted only to the period of operation.

The impact on agricultural production in the locality and region would be assessed in detail in the EIS.

7.2.7 Watercourses and Hydrology

In total, 27 watercourses are mapped as occurring on the subject land (Figure 20), comprising 17 Strahler 1st order streams, eight Strahler 2nd order streams, one Strahler 3rd order stream (Billilingra Creek), and one Strahler 4th order stream. All mapped watercourses on the subject land, including Billilingra Creek, are minor and non-perennial. Murrumbidgee River is also located approximately 700m west of the subject site.

Billilingra Creek and the Strahler 4th order stream are mapped as Key Fish Habitat by the Department of Primary Industries – Fisheries. Billilingra Creek is also mapped as Protected Riparian Land by the Department of Planning and Environment.

At the time of survey, the Strahler 4th order stream formed a series of broad pools connected by narrow flowing sections at the base of a deeply etched gully. The stream tapered to a narrow, shallow seep as it approached the Monaro Highway. The flanks of the gully and the margins of the stream were found to possess a mixture of native vegetation (PCT 765) and invasive species, notably Umbrella Sedge (*Cyperus eragrostis*), Sweet Briar (*Rosa rubiginosa*), and, in some places, Blackberry (*Rubus fruticosus species aggregate*).

In addition, several dams are located along this watercourse, and these were full at the time of the survey

No formal wetlands have been mapped within the subject land; however, areas of wetland vegetation associated with streams, gullies, dams, and similar landforms occur throughout. These have been mapped as PCT 765.

Edify will establish 30m setback distance buffers to ensure the Protected Riparian Lands and watercourses within the Development Area (i.e. Billilingra Creek) are not disturbed by the project's infrastructure and construction. Furthermore, Edify will establish an extended 40m buffer from 4th order streams to provide additional protection.



7.2.8 Groundwater Dependent Ecosystems (GDEs)

The Bureau of Meteorology Atlas of Groundwater Dependent Ecosystems identified areas of high potential for interaction with aquatic GDEs along Billilingra Creek. No terrestrial GDEs are mapped on the subject land.

The proposal does not include the extraction of groundwater; however, contamination from construction operations, could impact on the quality of groundwater if adequate mitigation measures are not taken.

There is a low potential for groundwater to be encountered during excavations and earthwork for the construction. This is likely to be highly localised and no inception of groundwater is considered.

Edify will establish 30m setback distance buffers to ensure the Protected Riparian Lands within the Development Area (i.e. Billilingra Creek) are not disturbed by the project's infrastructure and construction. Furthermore, Edify will establish an extended 40m buffer from 4th order streams to provide additional protection.

The development site is not identified as flood prone land under the Cooma-Monaro LEP. The development site is outside of the critical flow distribution areas detailed within the management plan. Local flooding risk will be assessed in detail as part of the EIS.

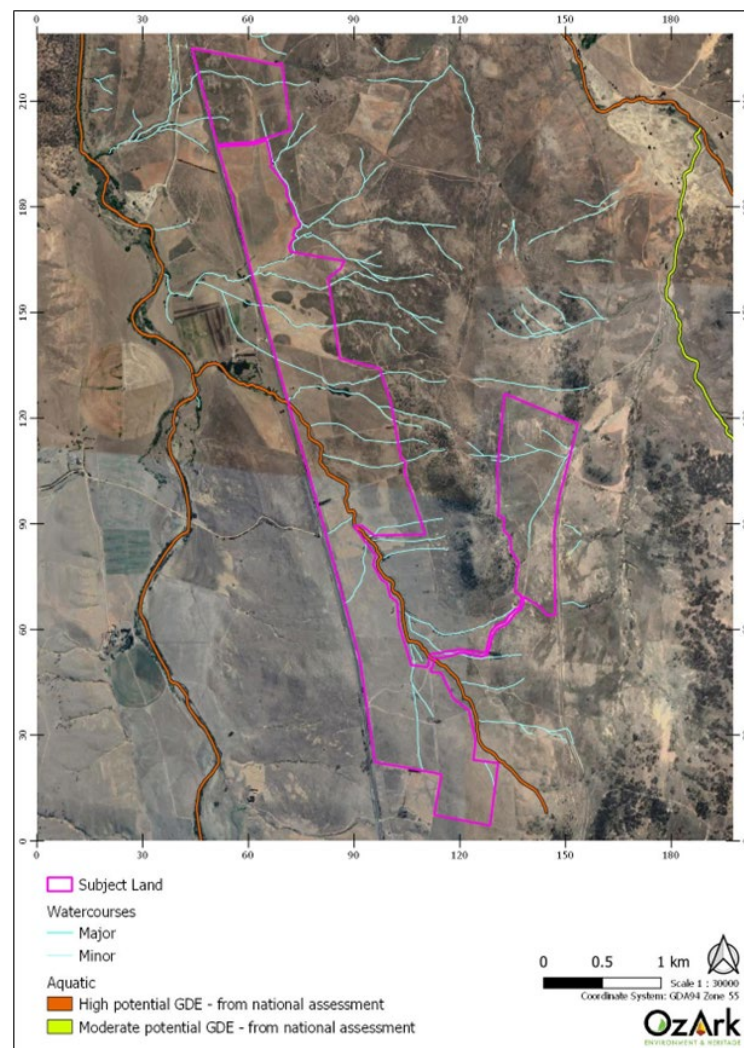


Figure 21 - Watercourses and Groundwater Dependent Ecosystems proximate to Subject Land

Potential Impacts

Impacts upon watercourses and hydrology that are considered as having the potential to occur during the construction of the proposal include:

- Potential removal of suitable aquatic habitat by filling in dams for threatened species.
- Accidental release of hydrocarbons by inappropriate storage, use and disposal of chemicals.
- Domestic waste, effluent and putrescibles causing contamination.
- Erosion of soil and sedimentation through stormwater runoff.
- Dewatering sediment laden water from excavations.

Further assessment

The EIS would assess the impacts to waterways during construction and operation and include a flood impact assessment and appropriate mitigation measures as required. Edify's preliminary site layout has already established appropriate setback distances from the tributaries to reduce the risk of potential impacts.

7.2.9 Cumulative Impacts

Cumulative impacts, for the purpose of this assessment, relate to the combined potential effects of different types of impacts (e.g. traffic combined with noise, reduction in available accommodation, etc.) as well as the potential for combined impacts with other significant projects either under construction or already established land uses in the local area.

A review of the NSW Major Project database for the Snowy Monaro Regional LGA was undertaken and identified the following major projects that may be relevant to the proposed Billilingra Solar Farm project:

- Recently constructed, currently operational
 - The 20 MW Royalla Solar Farm, located 55 kms north of the proposed development site and has been constructed and operational since 2014. Now operational, this is not considered to create any significant cumulative impacts to the proposal.
 - The 10MW Williamsdale Solar Farm is located approximately 46km to the north of the proposed development site and has been constructed and operational since 2018. As this is into the operational phase, this is not considered to create any significant cumulative impacts to the proposal.
- Ongoing proposals:
 - The proposed 100 MW Monaro Solar Farm [SSD-14371072] is located 5km to the west of Cooma. The project lodged a Scoping Report in February 2021, with the NSW DPE issuing the SEARs in March 2021, however progress on the continued planning effort remains unclear. Edify will continue to monitor and consider this project for potential cumulative impacts to the proposal.
 - The proposed 100 MW Wallaroo Solar Farm [SSD-9261283] is located 1km west of ACT suburbs, Dunlop and MacGregor. The SEARs for this project was issued in October 2020. Progress on the continued development of the project remains unclear, however some progress was reported in media during September 2021. Edify will continue to monitor and consider this project for potential cumulative impacts to the proposal.

There is the potential for cumulative socio-economic and traffic/transport impacts if the timing of the construction of the Monaro and/or Wallaroo Solar Farms coincides with the proposed Billilingra Solar Farm. However, it is also unlikely that all projects will eventuate and enter the construction period.

7.3 Other Environmental Issues

There are a range of potential environmental issues associated with the proposal which are not considered to be key issues. These are considered secondary issues for investigation, given the characteristics of the proposal and the availability of appropriate safeguards for mitigation. These issues are outlined in Table 8 below. The impacts and any required mitigation relating to these issues would be addressed at an appropriate level of detail in the EIS, and in response to relevant requirements outlined in the SEARs.

Table 8 - Other Environmental Issues

Existing Environment	Potential Impacts	Management and Mitigation
Soils		
<p>The nearest eSpade soils profiles (OEH, 2020) are off the Monaro Highway along the southern boundary of the development site. This notes a soil type of 'no suitable group GSG', coarse and sandy textures (single grained) evident in layer 1 soils. Layer 2 soil is classified as loam and brown coloured, with few roots present and field pH test results noting 5.7 pH. This is followed by sandy loam in Layers 3 and 4, comprising a coarse sand fraction.</p>	<p>Construction activities would include minor excavations and vegetation removal which have the potential to cause soil erosion and sedimentation and dust issues.</p>	<p>The design would provide all weather access at the site during construction and operation to avoid erosion/sedimentation impacts and tracking of soil, in particular after rain events.</p> <p>The EIS would provide thorough consideration of soil impacts, runoff and potential for erosion and proposed mitigation measures during construction and operation.</p>
Historic Heritage		
<p>A search of the NSW Heritage Register on 30 November 2021 for the Bredbo township identified 0 records under the NPW Act, 1 item under the NSW Heritage Act, and 10 items listed under the Snowy Monaro LEP and by state agencies.</p> <p>A search of the Australian Heritage Database on 30 November 2021 identified 2 records in the Snowy Monaro LGA (Appendix F). The closest listed heritage items are in the township of Billilingra, including <i>a ruin and a gravesite</i>, which are all at least 700m west of the proposal.</p>	<p>Edify considers there to be a low risk of impact to heritage items.</p>	<p>The heritage status of the site would be assessed during fieldwork undertaken as part of the archaeological assessment. Appropriate management measures would be implemented if required.</p>

Existing Environment	Potential Impacts	Management and Mitigation
<p>Access and traffic</p> <p>TfNSW's Combined Higher Mass Limits and Restricted Access Vehicle Map (RMS 2018) indicates that the Monaro Highway is an approved heavy vehicle access routes (25/26 m B-double routes as a maximum). As such, the major access and transport/haulage route is likely to be via Monaro Highway, then turning east onto the proposed main access road.</p> <p>The major transport route is subject to further assessment, specialist input and consultation with Snowy Monaro Regional Council and the Roads and Maritime Services (RMS).</p> <p>New site accesses will be constructed off Monaro Highway (being the approved heavy vehicle access routes), with proposed emergency and maintenance only access from either alternative road.</p> <p>Refer to Appendix E for approved access routes to the site.</p> <p>Access design and location is indicative only, subject to further assessment and specialist input. Internal access tracks would be constructed as part of the works.</p>	<p>Construction traffic could impact traffic along the Monaro Highway, and the surrounding road network.</p> <p>Maintenance access tracks during operation would also be required across the development site. During construction, there may be impacts to residences along the access route associated with dust, vibration and noise.</p>	<p>Construction traffic impacts would be considered in the EIS. Consultation would be undertaken with the local council and local residents regarding the works that may affect roads or traffic.</p> <p>The design would also consider any requirements from TfNSW, local council and other relevant stakeholders on access arrangements to the proposal site.</p> <p>The mitigation measures would require a Traffic Management Plan to be prepared.</p>

Existing Environment	Potential Impacts	Management and Mitigation
Contamination		
<p>The EPA contaminated land register identified one contaminated site within the Snowy Monaro Regional Council's LGA, which is over 321 km south of the proposed project site and not considered a relevant risk (Appendix G).</p> <p>Contamination associated with agricultural activities (e.g. pesticides, petrochemicals) or asbestos construction or insulation materials may still be present on the site.</p>	<p>There is potential that contaminants may be uncovered during excavation activities at the site.</p>	<p>Risks associated with contamination at the site are considered low and therefore no detailed investigation is likely to be required within the EIS. The mitigation measures would require a CEMP to be prepared to manage any contamination identified during site construction.</p>
Air quality		
<p>The air quality in the study area is expected to be good and typical of rural settings in NSW with low population density and few industrial pollution sources. Existing sources of air pollution are expected to include vehicle emissions, dust from agricultural practices and smoke from seasonal stubble burning. During colder months, solid fuel heating may result in a localised reduction in air quality, particularly if temperature inversions operate overnight.</p>	<p>The construction of the proposal is not anticipated to have a significant impact on air quality and would mostly be related to dust during dry periods and vegetation removal. Impacts to air quality during operation would be negligible.</p>	<p>The mitigation measures would require a CEMP to be prepared to manage air quality impacts during the construction phase. There is an opportunity to improve local air quality by maintaining ground cover vegetation under the panels. Water tanks will also be utilised during the project's construction phase, in order to suppress potential dust impacts.</p>
Hazard and risk – electric and magnetic fields (EMF)		
<p>Existing powerlines produce EMF at the site. Additional infrastructure which forms part of the proposal such as connecting powerlines and substation would produce additional electromagnetic emissions at the site.</p>	<p>The substation, battery storage and network connection would be located on the proposal site. The powerlines constructed as part of the proposal would not pass through any</p>	<p>The EMF levels of the proposed powerlines, battery storage and substation would be assessed as part of the EIS.</p>

Existing Environment	Potential Impacts	Management and Mitigation
	neighbouring properties. The EMF that would be generated by the proposed powerlines, battery storage and substation is expected to be below the guideline for public exposure and would not be expected to have an adverse impact on human health.	
Battery storage is proposed to integrate with the Solar Farm's solar PV generator	Batteries pose a potential fire or contamination risk to the site.	An assessment of hazard and risk would be assessed in the EIS as per SEPP 33 – Hazardous and Offensive Development. A Preliminary Hazards Assessment would be undertaken to assess SEPP 33 requirements. Proactive engagement with both Rural Fire Service NSW and NSW Fire & Rescue will be undertaken during the EIS preparation phase.
Hazard and risk - bushfire		
The development site has been predominantly cleared for agriculture. The site has however been identified as being within a bushfire prone area on NSW Rural Fire Service mapping.	The proposal is unlikely to be affected by bushfire or pose a significant bushfire risk.	In addition to the Preliminary Hazards Assessment described above, the impacts and risks of a bushfire or gas explosion or leak would be assessed in the EIS. Risk of fire from proposed infrastructure will also be addressed in the EIS.
Social and economic impacts		
The proposal is located within the Snowy Monaro LGA. In 2021 the Snowy Monaro LGA had a population of 21,218. The main industry of employment in 2016 was	The proposal may reduce the availability of agricultural land, but would generate economic benefits during construction and operation,	The EIS would assess potential social and economic impacts of the proposal, such as engaging with local accommodation providers,

Existing Environment	Potential Impacts	Management and Mitigation
<p>accommodation and service industries (cafes, restaurants, sports and facilities).</p> <p>Workforce accommodation would be required for approximately 250 workers during peak construction periods. A large majority of these would already reside locally. For visiting workers, accommodation can be sought from Cooma, Queanbeyan or other towns within a 100 km radius. There is a low probability for a shortage in accommodation for construction workforces. However, Edify will monitor and engage with hospitality and accommodation facilities and monitor if there is community concern that the proposal will reduce agricultural employment in the area for the life of the project and put current employers out of work.</p>	<p>including local direct and indirect employment opportunities outside of agricultural activities. Other socio-economic impacts would include traffic and access, noise, air quality and visual impacts.</p>	<p>local Chamber of Commerce, hospitality providers and local members of the community.</p>
Utilities		
<p>Transmission Network Service Provider (TNSP) TransGrid manages and operates the high voltage electricity transmission network in NSW. TransGrid has restrictions on development within powerline easements. TransGrid guidelines state that activities and encroachments are prohibited within a transmission line easement, including 'the installation of fixed plant or equipment', and 'the placing of obstructions within 20 metres of any part of a transmission line structure or supporting guy wire'.</p> <p>Roads or tracks within 10 metres of the centre-line of a transmission line 132 kV are prohibited although roads</p>	<p>The proposed works would involve works adjacent to the Transgrid utility. The Solar Farm will need to connect to the TransGrid electricity network.</p>	<p>The EIS would assess the proposal against the setback and approval requirements of TransGrid. The Solar Farm would be designed to comply with required setback, approval and consultation requirements of TransGrid.</p>

Existing Environment	Potential Impacts	Management and Mitigation
that cross the transmission line as a thoroughfare may be permitted.		
Waste Management		
The proposal would generate several waste streams and utilise a variety of materials during the construction phase.	During construction, excavated material and green waste would be generated as waste. Packaging from panels and other components would require disposal. Limited operational waste would be associated with the proposal.	A Waste Management Plan would be incorporated into the CEMP, applying the principles to avoid, re-use and recycle to minimise wastes. Whilst efforts have been taken to limit the quantity of vegetation disturbance, any cleared trees would be repurposed as fauna habitat where possible.

8 CONCLUSION

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

The report has been prepared to assist the development of the SEARs for the proposal, which will guide the preparation of the EIS. The report identifies the following key environmental issues associated with the proposal, based on the preliminary investigations:

- Biodiversity
- Aboriginal Heritage
- Visual amenity
- Hazards
- Noise
- Land use and resources
- Watercourses and hydrology

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

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Appendix A Scoping Summary Table

Level of Assessment	Matter	CIA	Engagement	Relevant government plans, policies, and guidelines	Scoping report reference
Detailed					
	Biodiversity	Y	General	<ul style="list-style-type: none"> Biodiversity Assessment Method (DPIE 2020) Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (Commonwealth of Australia, 2013); Commonwealth EPBC 1.2 Significant Impact Guidelines – Actions on, or Impacting upon Commonwealth Land and Actions by Commonwealth Agencies (Commonwealth of Australia, 2013); Commonwealth Department of the Environment – Survey Guidelines for Nationally Threatened Species (various); 	Section 7.2.1
	Heritage – Aboriginal	Y	Specific	<ul style="list-style-type: none"> Guide to investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011); Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010); Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010); 	Section 7.2.2
	Traffic	Y	Specific	<ul style="list-style-type: none"> <i>Guide to Traffic Management – Part 3 Traffic Studies and Analysis</i> (Austroads, 2013) 	Section 7.2.3

	Amenity - Visual	N	Specific	<ul style="list-style-type: none"> • <i>Guidelines for Landscape and Visual Impact Assessment</i> (United Kingdom Landscape Institute of Environmental Management and Assessment 2013); • <i>Wind Energy: Visual Assessment Bulletin AB 01 For State Significant Wind Energy Development</i> (DPE 2016); and • <i>Guidance Note for Landscape and Visual Assessment</i> (Australian Institute of Landscape Architects 2018). 	Section 7.2.4
	Hazards and risks	No	Specific	<ul style="list-style-type: none"> • Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis (DoP, 2011a); • Multi-Level Risk Assessment (DoP, 2011b); • Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (DoP 2011); 	Section 7.3
Standard					
	Amenity – Noise and vibration	Yes	General	<ul style="list-style-type: none"> • NSW Interim Construction Noise Guideline (DECC 2009); • NSW Noise Policy for Industry (EPA 2017); • NSW Road Noise Policy (DECCW 2011); and • <i>Assessing Vibration: A Technical Guideline</i> (DECC 2006) 	Section 7.2.5
	Social	Yes	Specific	<ul style="list-style-type: none"> • <i>Social Impact Assessment Guideline for State Significant Projects 2021</i> (DPIE 2021) 	Section 6.0
	Heritage – Historical	Yes	General	<ul style="list-style-type: none"> • <i>Historical Archaeology Code of Practice</i> (Heritage Council 2006) 	Section 7.3
	Land resources	No	General	<ul style="list-style-type: none"> • <i>Land Use Conflict Risk Assessment Guideline</i> (DPI 2011) • <i>Managing Land Contamination: Planning Guidelines</i> State Environmental Planning Policy No 55 	Section 7.2.6

Appendix B Social Impact Scoping Worksheet

Appendix C Consultation Records - Snowy

Monaro Council

Enquiries Brooke Davey
Our Ref CY125-001
Cooma
Your Ref Billilिंगra Solar Power Station

18 May 2022

Patrick Dale
Edify Energy
Level 3, 201 Charlotte Street
Brisbane QLD 4000

Dear Patrick

Pre-lodgement meeting Advice - State Significant Development – Subdivision to facilitate Billilिंगra Solar Power Station

Council understands that, dependent upon the final development boundary, subdivision may be required to facilitate the abovementioned development.

The land is zoned RU1 Primary Production and existing lot sizes range from 6ha to 189ha. The *Cooma-Monaro Local Environmental Plan 2013* makes provision for subdivision in several circumstances. Where the minimum lot size of 80ha can be achieved, [Clause 4.1 Minimum subdivision lot size](#) makes subdivision permissible. Subdivision below the minimum lot size may be facilitated under [Clause 4.2D Exceptions to minimum lot sizes for subdivisions in Zone RU1 and Zone E4](#) provided that no dwelling is located on the resultant lot.

There are also other opportunities which do not require development consent to enable subdivision and boundary realignment under the [State Environmental Planning Policy \(Exempt and Complying Development Codes\) 2008, Clause 2.75](#) subject to compliance with the development standards outlined.

An initial review of the site does not indicate any significant concerns, however, matters not limited to vehicular access, fencing and impacts to biodiversity would need to be addressed.

Please note that this is not a comprehensive assessment of the proposed development. Additional matters may be identified in the assessment of a development application which may require the submission of additional information.

Should you have any queries regarding this application please contact Council's Strategic Planning Team on (02) 6451 1584.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Alex Adkins', written in a cursive style.

Alex Adkins

Team Leader Strategic Planning

Appendix C Consultation Records - EL8451

From: [Patrick Dale](#)
To: [Russ Gregory](#)
Cc: [Claire Driessen](#)
Subject: RE: Edify Energy's Billilिंगra Solar Power Station - Engagement re Haverford Holding's EL8451
Date: Tuesday, 7 June 2022 9:09:00 AM
Attachments: [image008.png](#)
[image009.png](#)
[image010.png](#)
[image011.png](#)
[image012.png](#)
[image013.png](#)
[image014.png](#)
[image015.png](#)
[image016.png](#)

Thanks for the note last night, Russ,

Well noted regarding your prospect and interest in the southern ELA region.

We will endeavour to maintain proactive engagements with you and Geoscience NSW as our plans mature.

Please feel free to contact me at any time.

Best wishes,

From: Russ Gregory <Russ.Gregory@talismanmining.com.au>
Sent: Monday, 6 June 2022 10:05 PM
To: Patrick Dale <Patrick.dale@edifyenergy.com>
Cc: Claire Driessen <claire.driessen@edifyenergy.com>
Subject: RE: Edify Energy's Billilिंगra Solar Power Station - Engagement re Haverford Holding's EL8451

Hi Pat,

Apologies for the delay. As per our discussion, confirming that we do have prospects of interest in the south of EL8451 in the proposed development area, however we endeavour to continue to engage with Edify as the proponent of the Billilिंगra Solar Power Station to ensure that both development outcomes can be progressed in parallel.

As discussed, the area between the Cosgrove Hill Prospect, the Billilिंगara Prospect and the Barite/Chakola Prospect on EL9039 (held by Delta Gold NL) are of the highest interest to us for development potential on EL8451, with rock chip assays on the Billilिंगara Prospect reaching 16.9g/t Au at surface making it a gold prospect of considerable interest. We would require engagement on any development in this area which could potentially sterilise the resource in this area, and I would also think that any sterilisation would require assessment by Geoscience NSW as the Government of NSW is the ultimate owner of subsurface minerals here.

I hope this meets your requirements and look forward to discussing future development together.

Regards,

Russ

**Russ Gregory**

Exploration Manager

P +61 8 9380 4230

M 0428 734 387

E Russ.Gregory@talismanmining.com.auGround Floor, Suite 1, 33 Colin ST, West Perth WA 6005
PO Box 349, West Perth WA 6872talismanmining.com.au

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From: Patrick Dale <Patrick.dale@edifyenergy.com>**Sent:** Monday, 6 June 2022 7:47 AM**To:** Russ Gregory <Russ.Gregory@talismanmining.com.au>**Cc:** Claire Driessen <claire.driessen@edifyenergy.com>**Subject:** RE: Edify Energy's Billilingra Solar Power Station - Engagement re Haverford Holding's EL8451

Hi Russ,

Sending a friendly reminder that we are seeking your feedback on the proposed development area.

Can you please share your response, or suggest a time for a conference call to discuss further?

Thanks again,

Patrick DaleD [+61 2 8790 4044](tel:+61287904044)M [+61 487 177 136](tel:+61487177136)Edify Energy
Level 3, 201 Charlotte Street
Brisbane QLD 4000
Turrbal Countrywww.edifyenergy.com

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From: Patrick Dale <Patrick.dale@edifyenergy.com>**Sent:** Monday, 30 May 2022 11:05 AM**To:** Russ Gregory <Russ.Gregory@talismanmining.com.au>**Cc:** Claire Driessen <claire.driessen@edifyenergy.com>

Subject: RE: Edify Energy's Billilingra Solar Power Station - Engagement re Haverford Holding's EL8451

Hi Russ,

I'm hoping you can provide feedback today regarding the ELA and our proposed development area.

Feel free to call if you'd like to discuss,

Patrick Dale

D [+61 2 8790 4044](tel:+61287904044)

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From: Patrick Dale <Patrick.dale@edifyenergy.com>

Sent: Thursday, 26 May 2022 3:21 PM

To: Russ Gregory <Russ.Gregory@talismanmining.com.au>

Cc: Claire Driessen <claire.driessen@edifyenergy.com>

Subject: RE: Edify Energy's Billilingra Solar Power Station - Engagement re Haverford Holding's EL8451

Good afternoon Russ,

Thanks for your prompt response.

I have attached a Google Earth (kmz file) which includes:

- a larger blue polygon, representing the 'Study Area'
- a turquoise polygon, representing the preliminary 'Development Area' within which the solar infrastructure would be located

Our plans are in preliminary stages but illustrates our intention to locate infrastructure between the Monaro Highway and the ridgeline, which is central to the Study Area. That is, we do not envisage developing on the eastern portion of the Study Area.

Are you able to share further details on your prospects in this region? Alternatively, I'd appreciate if you can confirm the shared kmz area does not encroach upon your development objectives.

I can confirm that we will be engaging with you further throughout the development process and will

work with you to avoid encroaching upon you ELA prospects.

Feel free to call at any time.

With thanks,

Patrick Dale

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From: Russ Gregory <Russ.Gregory@talismanmining.com.au>

Sent: Thursday, 26 May 2022 1:25 PM

To: Patrick Dale <Patrick.dale@edifyenergy.com>

Cc: Claire Driessen <claire.driessen@edifyenergy.com>

Subject: RE: Edify Energy's Billilingra Solar Power Station - Engagement re Haverford Holding's EL8451

Hi Patrick,

Thanks for your email and apologies for missing your call, it may have been earlier than our office is open as we're located in Perth, so two hours behind standard NSW time.

Would you have GIS files for proposed infrastructure development overlapping with Exploration Licence EL8451, please? We would be in a better position to provide advice once we understand what the potential impact is on exploration prospects in the area.

I will preface any discussions by saying that we have a Billilingra project of our own – there is a significant gold prospect at the south of our tenure with ore-grade gold intercepts which I am hoping doesn't intersect with planned infrastructure, as otherwise this would sterilise any potential here. The strike of the deposit is thought to run between the Cosgrove Hill prospect and the Barite/Chakola Prospect which is currently owned by Delta Gold, who I am sure you're also consulting with.

Appendix C Consultation Records - EL9039

From: deltagold@iinet.net.au
To: [Patrick Dale](#); "[McCauley Surveyors](#)"
Cc: [Claire Driessen](#)
Subject: RE: Edify Energy's Billilिंगra Solar Power Station - Engagement re Delta Gold's EL9039
Date: Monday, 6 June 2022 12:00:42 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)

Hi Patrick,

I have forwarded your email to Robert McCauley our Managing Director. As he is overseas the time difference will only allow us to take a conference call say from 5.30 – onwards in the afternoons? Will you be available for that time? I will talk to him this evening to see what day we will be available for a conference call.

Kind Regards

Francisco Blanco

Director Secretary



Level 14, 275 Alfred Street
North Sydney NSW 2060

M: +61 407366440

E: deltagold@iinet.net.au

From: Patrick Dale <Patrick.dale@edifyenergy.com>
Sent: Monday, 6 June 2022 9:45 AM
To: deltagold@iinet.net.au
Cc: Claire Driessen <claire.driessen@edifyenergy.com>
Subject: RE: Edify Energy's Billilिंगra Solar Power Station - Engagement re Delta Gold's EL9039

Good morning Francisco,

Are you able to suggest some time this week to share a conference call.

May I suggest Tuesday (7th) or Wednesday (8th) in the afternoon?

Thanks again,

Patrick Dale

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From: deltagold@iinet.net.au <deltagold@iinet.net.au>

Sent: Monday, 30 May 2022 11:27 AM

To: Patrick Dale <Patrick.dale@edifyenergy.com>

Cc: Claire Driessen <claire.driessen@edifyenergy.com>

Subject: RE: Edify Energy's Billilingra Solar Power Station - Engagement re Delta Gold's EL9039

Dear Patrick,

Thank you for your phone call this morning and emails.

Our Managing Director, Robert McCauley is currently traveling overseas

As you can appreciate the Board need some time to analyse Edify Energy's Billilingra Solar Power Station project and how we can both work together on our mutual interests.

We would expect to be in a position to discuss your proposal via conference call in the week beginning June 6.

Kind Regards

Francisco Blanco

Director Secretary



Level 14, 275 Alfred Street
North Sydney NSW 2060

M: +61 407366440

E: deltagold@iinet.net.au

From: Patrick Dale <Patrick.dale@edifyenergy.com>
Sent: Monday, 30 May 2022 11:12 AM
To: deltagold@iinet.net.au
Cc: Claire Driessen <claire.driessen@edifyenergy.com>
Subject: FW: Edify Energy's Billilngra Solar Power Station - Engagement re Delta Gold's EL9039

Hi Francisco,

Thanks again for your time on the phone this morning.

I have also attached a Google Earth file (kmz), which illustrates:

- a larger blue polygon, representing the 'Study Area' [i.e. larger area than our project requirements]
- a turquoise polygon, representing the preliminary 'Development Area' within which the solar infrastructure would be located

Our plans are in preliminary stages but this should illustrate our intention to locate infrastructure between the Monaro Highway and the ridgeline, which is central to the Study Area. That is, we do not envisage developing on the eastern portion of the 'Study Area'.

Are you able to share further details on your prospects in this region?

We endeavour to engage with you further throughout the development process and will work with you to avoid encroaching upon you ELA prospects.

I look forward to sharing an online conference call as you have suggested.

With thanks,

Patrick Dale

D [+61 2 8790 4044](tel:+61287904044)

M [+61 487 177 136](tel:+61487177136)



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From: Patrick Dale <Patrick.dale@edifyenergy.com>
Sent: Thursday, 26 May 2022 9:35 AM
To: deltagold@iinet.net.au
Cc: Claire Driessen <claire.driessen@edifyenergy.com>
Subject: Edify Energy's Billilingra Solar Power Station - Engagement re Delta Gold's EL9039

Good morning Francisco,

I recently received your details from Steven Palmer (NSW Geological Survey Team), in regard to Delta Gold's exploration license near Billilingra, NSW.

We have engaged with Steven regarding a State Significant Development (Public Utility, Solar and Battery Project) that my company, Edify Energy, is progressing in Billilingra. We also wish to engage with you and DG, as we acknowledge our project proposal is proximate to your exploration license **EL9039**.

I called this morning [0407 366 440], however was unsuccessful in reaching you. I'd be happy to share a call with you to outline further project details, at an appropriate time.

The Lots included in Edify's solar/battery project development plans are:

- DP449605 – Lot 1
- DP712987 – Lot 22
- DP750523 – Lots 1, 39, 40, 49, and 52
- DP750531 – Lots 8, 9, 10, 11, 14, 55, 78, 101, 102, and 113
- DP1106250 – Lots 7, 8, 9, 10, and 11
- DP1113179 – Lot 31

We recognise that your Exploration and Mining Title is registered in Minview (NSW), which may impact on the development of Edify's Billilingra Solar and Battery Project. However, we are confident that Minview represents an administrative overlap of your ELA, and that our respective plans will not pose consequence for either company's development intentions.

Please see **Attachment 1**, which illustrates the Development Area of Edify's Solar/Battery project in relation to your Exploration License. We wish to engage with you to understand the status of your Exploration License and development plans.

Through Edify's efforts to develop this utility-scale solar and battery project, Edify has completed environmental surveys of the subject site and intends to submit a Scoping Report to the NSW Department of Planning and Environment in June 2022, as part of the Development Application and Environmental Impact Statement process.

We look forward to receiving your advice in relation to EL9039, as we aim to co-locate rather than encroach on your exploration intentions.

With thanks,

Patrick Dale

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M [+61 487 177 136](tel:+61487177136)



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Appendix C Consultation Records - Ngarigo Nation Indigenous Corporation

From: [Ngarigo Nation](#)
To: [Patrick Dale](#)
Cc: [Claire Driessen](#)
Subject: Re: Billilingra Solar Power Station - Project Development Introductions
Date: Friday, 3 June 2022 3:07:42 PM
Attachments: [image649088.png](#)
[image734574.png](#)
[image658634.png](#)
[image851889.png](#)
[image343905.png](#)
[image917510.png](#)
[image521221.png](#)

Hi Patrick

Thank you for your email. I will pass on to Ngarigo Elders for them to discuss so we are all on the right path way moving forward.

Kind regards

Michelle Francis
M: 0419129007

On Fri, 3 Jun 2022 at 2:35 pm, Patrick Dale <Patrick.dale@edifyenergy.com> wrote:

Dear Michelle and the Ngarigo Nation Indigenous Corporation,

Pleased to meet you, albeit via mail.

I wanted to introduce myself and the company to you, as Edify Energy has recently commenced preliminary planning efforts to develop a utility-scale solar + battery project in Billilingra, NSW.

As part of our early planning, we recently spoke with Snowy Monaro Council (Brooke Davey) and Federal Minister for Eden-Monaro (Hon. Kristy McBain), who were kind enough to pass through your contact details. Brooke and Kristy spoke highly of the work your organisation does for the community, as we are keen to learn from and work alongside your efforts.

I work as the Project Development Manager at Edify Energy, an Australian owned Independent Power Producer that has successfully delivered around \$1.7b of solar and battery projects across Australia, including the [largest operational solar farm in Australia](#) at Darlington Point (NSW), four large solar farms in [northern Queensland](#) (Collinsville, QLD) and the [first utility-scale solar + battery project in Australia](#), at Kerang in Victoria. I have included an additional overview of Edify in ***Attachment 1***.

We would like to understand more about the Ngarigo Nation Indigenous Corporation. We would also like to present to you our renewable energy project plans, then identify ways in which we can collaborate with you throughout the coming years.

Please let me know if you would like to share a conference call next week. I can be flexible to speak with you any time that suits.

Finally, I have also included *Attachment 2*, which provides a useful overview of the project development process, plus the relationships we seek to develop with the landholders and local community.

Kind regards,

Patrick Dale

D +61 2 8790 4044

M +61 487 177 136



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[Brisbane QLD](#) 4000
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--
Ngarigo Nation Indigenous Corporation

and Battery Project) that my company, Edify Energy, is progressing in Billilgingra. We also wish to engage with you and HH, as we acknowledge our project proposal is proximate to your exploration license **EL8451**.

I called this morning [(08) 9380 4230], however was unsuccessful in reaching you. I'd be happy to share a call with you to outline further project details, at an appropriate time.

The Lots included in Edify's solar/battery project development plans are:

- DP449605 – Lot 1
- DP712987 – Lot 22
- DP750523 – Lots 1, 39, 40, 49, and 52
- DP750531 – Lots 8, 9, 10, 11, 14, 55, 78, 101, 102, and 113
- DP1106250 – Lots 7, 8, 9, 10, and 11
- DP1113179 – Lot 31

We recognise that your Exploration and Mining Title is registered in Minview (NSW), which may impact on the development of Edify's Billilgingra Solar and Battery Project. However, we are hopeful this is an administrative overlap and will not pose consequence for either company's development plans.

Please see **Attachment 1**, which illustrates the Development Area of Edify's Solar/Battery project in relation to your Exploration License. We wish to engage with you to understand the status of your Exploration License and development plans.

Through Edify's efforts to develop this utility-scale solar and battery project, Edify has completed environmental surveys of the subject site and intends to submit a Scoping Report to the NSW Department of Planning and Environment in June 2022, as part of the Development Application and Environmental Impact Statement process.

We look forward to receiving your advice in relation to EL8451, as we aim to co-locate rather than encroach on your exploration intentions.

With thanks,

Patrick Dale


D [+61 2 8790 4044](tel:+61287904044)

M [+61 487 177 136](tel:+61487177136)



Edify Energy
Level 3, 201 Charlotte Street
Brisbane QLD 4000
Turrbal Country

Appendix D AHIMS Searches



AHIMS Web Services (AWS)

Search Result

Your Ref/PO Number : 00004

Client Service ID : 641421

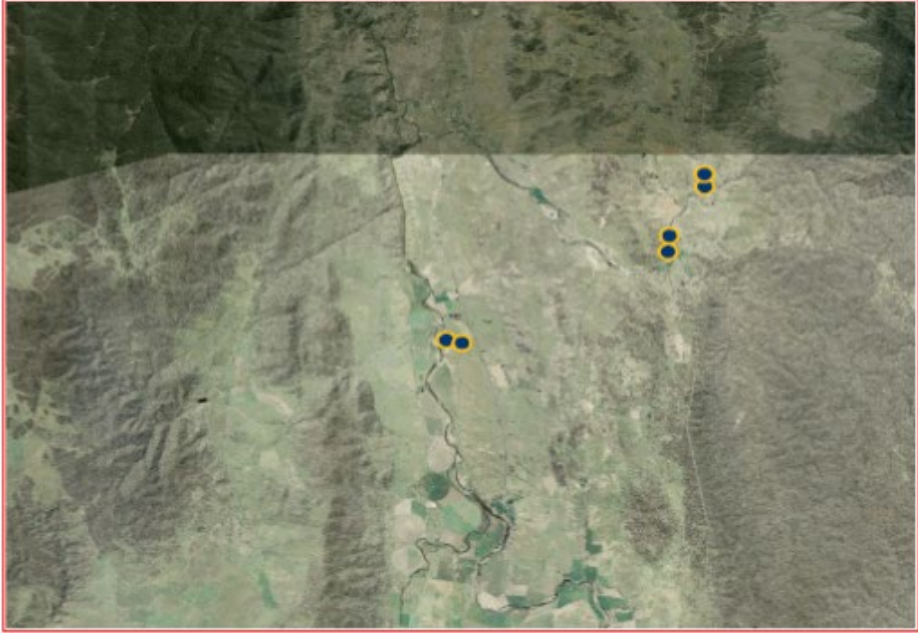
Patrick Dale
Charlotte Street Brisbane
Brisbane Queensland 4000
Attention: Patrick Dale
Email: patrick.dale@edifyenergy.com

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat. Long From : -36.05, 149.02 - Lat. Long To : -35.97, 149.27, conducted by Patrick Dale on 24 November 2021.

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

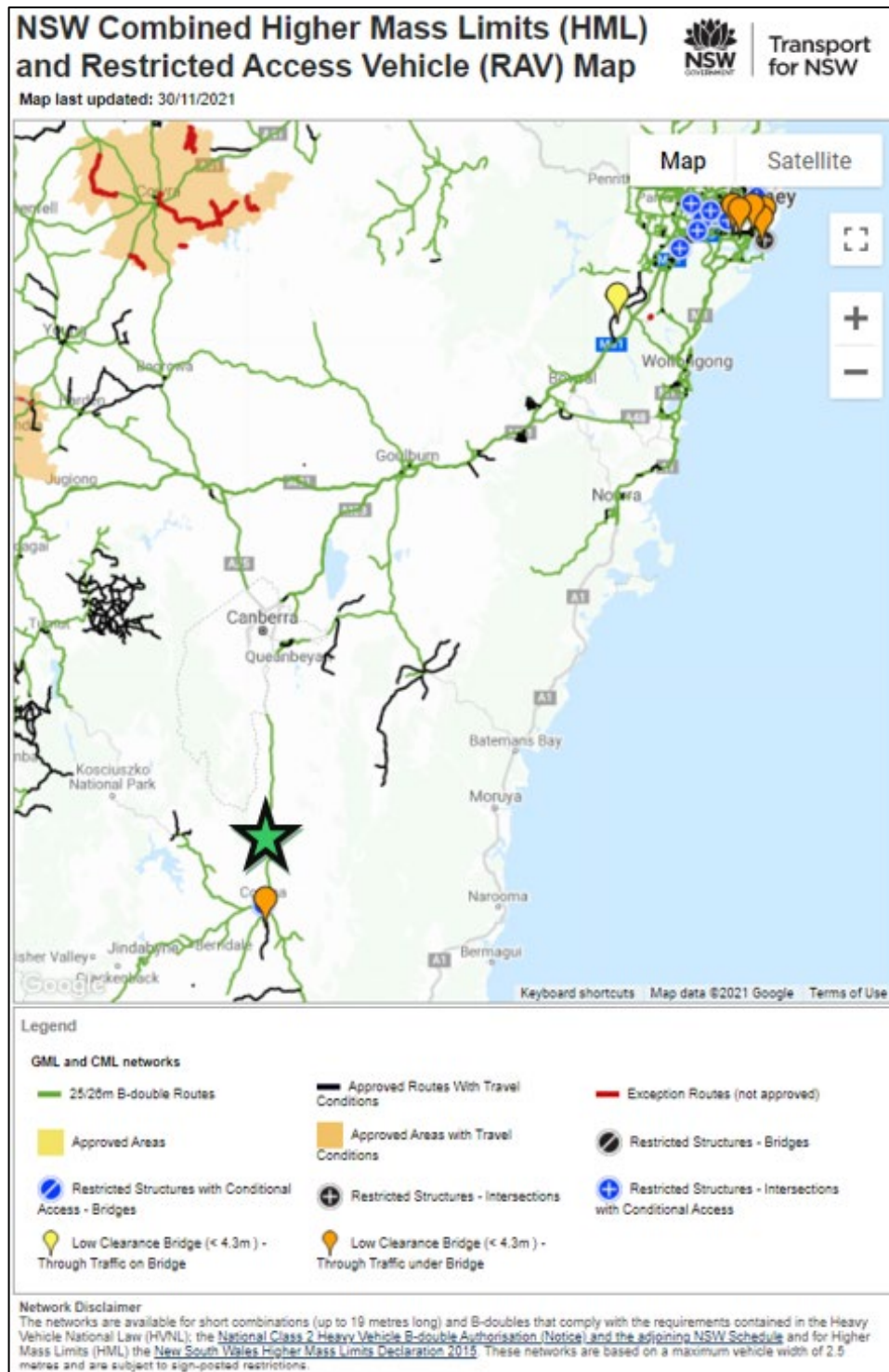
Date: 24 November 2021





A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

Appendix E NSW Transport map – for potential access route/s to site



Appendix F Historic Heritage database search result


<div>  <div> Australian Government Department of Agriculture, Water and the Environment </div> </div> <div> Heritage Australian Heritage Database  </div>		
You are here: Environment home > Heritage > Australian Heritage Database		
Search Results <div> new search edit search </div>		
42 results found.		
Australian Alps National Parks and Reserves The Alpine Way	Thredbo Village, NSW, Australia	(Listed place) National Heritage List
Back Creek Battery Complex	Bredbo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Badja Swamos Nature Reserve Snowball Rd	Peakkview, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Bendo Travelling Stock Reserve Grassland	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Brick Cottage 43 Lambie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Bridgeline Convent (Main Building) Vale St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Bushy Hill Mining Site Carlaminda Rd	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Christ Church Anglican Church Church (Myalla) Rd	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Cooma Cemetery Mittagang Rd	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Cooma Courthouse Vale St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Cooma Courthouse (former) and Police Barracks Massie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Cooma Courthouse Urban Conservation Area	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Cooma Gaol Barrack St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Cooma Geological Site West Denison St	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Cooma Post Office 25 Vale Street	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Cooma Railway Station & Yard Group Bradley St	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Cobra Creek 1890 - 1910 Township Area	Bredbo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Dromore Homestead Group Numarella Rd	Chakola, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Eucumbene Dam and Pondage	Eucumbene, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Kosciuszko National Park Snowy Mountains Hwy	Tumut, NSW, Australia	(Nomination now ineligible for PPAL) National Heritage List
Kosciuszko National Park (1981 boundary) Snowy Mountains Hwy	Tumut, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Lambie Street Conservation Area Lambie St	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Lord Raglan Hotel (former) 11 Lambie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Mount Forest Eucalyptus Pulverulenta Site	Numeralla, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
North Brother Travelling Stock Reserve Grassland Cooma Dalgety Rd	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Polar Star and Associated Sites	Bredbo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Ravensworth Travelling Stock Reserve Grassland Cooma Dalgety Rd	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Rock Flat Springs Monaro Hwy	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Rock Flat Travelling Stock Reserve Grassland Monaro Hwy	Cooma, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Royal Hotel Group 39-43, 47-61 Lambie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Royal Hotel Including Outbuildings 59-61 Lambie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Semidetached Cottages 39-41 Lambie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Snowy Mountains Authority Office (1951-53) Monaro Hwy	Cooma, NSW, Australia	(Destroyed) Register of the National Estate (Non-statutory archive)
St Patricks Catholic Church Murray St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

St Patricks Catholic Church Group Murray St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
St Patricks Presbytery and Stone Barn Egan St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
St Pauls Anglican Church Commissioner St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
St Pauls Anglican Church Group Commissioner St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
St Pauls Anglican Rectory Commissioner St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Stone Terrace 55 Lambie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Two Storey House 51, 51A, 53 Lambie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Two Storey Terrace 47-49 Lambie St	Cooma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Report Produced: Tue Nov 30 17:23:01 2021

Appendix G Contaminated Land Register search result



The screenshot shows the NSW EPA website's 'Public registers' section. The search results for 'LGA: SNOWY MONARO REGIONAL COUNCIL' are displayed, showing 4 matched notices. The results table lists the suburb as COOMA, the address as 48-52 Sharp STREET, and the site name as Former Shell Service Station. The page also includes a sidebar with links to various registers and a footer with the date 30 November 2021.

Public registers

- + POEO Public Register
- Contaminated land record of notices
 - About the record of notices
 - List of notified sites
 - Tips for searching
 - Disclaimer
- Dangerous goods licences
- Pesticide licences
- Radiation licences

[Home](#) [Public registers](#) [Contaminated land record of notices](#)

Search results

Your search for: LGA: SNOWY MONARO REGIONAL COUNCIL
 Date from: 01 Jan 2000
 Date to: 29 Nov 2021

Matched 4 notices relating to 1 site.



[Search Again](#) [Refine Search](#)


Suburb	Address	Site Name	Notices related to this site
COOMA	48-52 Sharp STREET	Former Shell Service Station	4 former

Page 1 of 1

30 November 2021

Appendix H NSW Rural Fire Service – Bushfire prone land search result



NSW RURAL FIRE SERVICE



FIRE INFORMATION

PLAN AND PREPARE

VOLUNTEER

NEWS AND MEDIA

RESOURCES

ABOUT US

Plan and prepare

Bush fire survival plan

Know your risk

Prepare your home

Prepare yourself and family

Fire Danger Ratings

Alert Levels

Neighbourhood Safer Places

Building in a bush fire area

- What you need to know
- Building after bush fire
- Planning for Bush Fire Protection
- Bush fire prone land
- Additional Information

Travelling in a bush fire area

Managing bush fire risk

AIDER

Home fire safety

10/50 vegetation clearing

Rural Boundary Clearing Tool

Farm fire safety

Fire Trails

Static Water Supply (SWS)

[Home](#) > [Plan and prepare](#) > [Building in a bush fire area](#) > [Planning for Bush Fire Protection](#) > [Bush fire prone land](#) > [Check if you're in bush fire prone land](#)

Check if you're in bush fire prone land

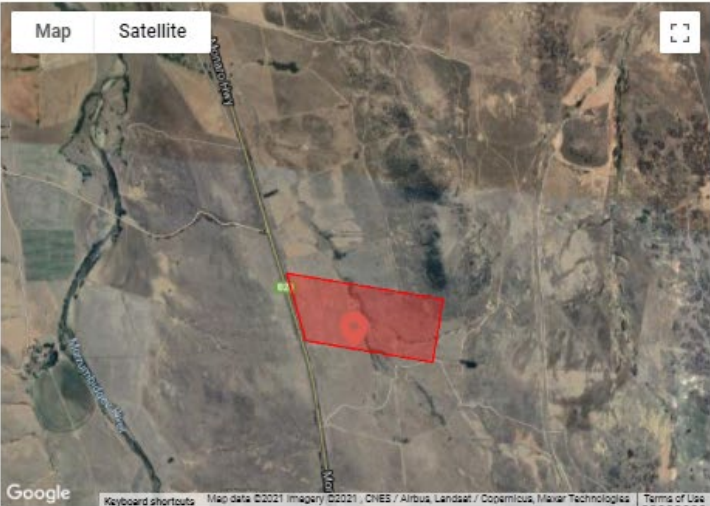
You can check here if your land is in a bush fire prone area.

- Enter your address including house number, street and suburb or town. Select your address from the drop down options provided.
- Check the map has correctly located your property. If not drag and drop the red marker on to your property.
- Click the 'Get Results' button to see if you're in a designated bush fire prone area.
- You should consider seeking expert advice before commencing any development.

Your Property

Map

Satellite



Your search result


You have conducted a search of the online bush fire prone land tool for the land in the map above. This search result is valid for the date the search was conducted. If you have any questions about the Bush Fire Prone Land Tool please contact bushfireprone.mapping@rfs.nsw.gov.au

The parcel of land you have selected is within a designated bush fire prone area.


Make sure you have completed the four simple steps to prepare for bush fires

In a bush or grass fire, minutes can matter. You need to take action now. Getting ready for a bush fire is easier than you think. By taking 20 minutes with your family to discuss what you'll do during a fire, you could save their lives, as well as your home.


There are four simple steps to get ready for a bush fire:




STEP 1: DISCUSS
Discuss what to do if a bush fire threatens your home.



STEP 2: PREPARE
Prepare your home and get it ready for bush fire season.



STEP 3: KNOW
Know the bush fire alert levels.



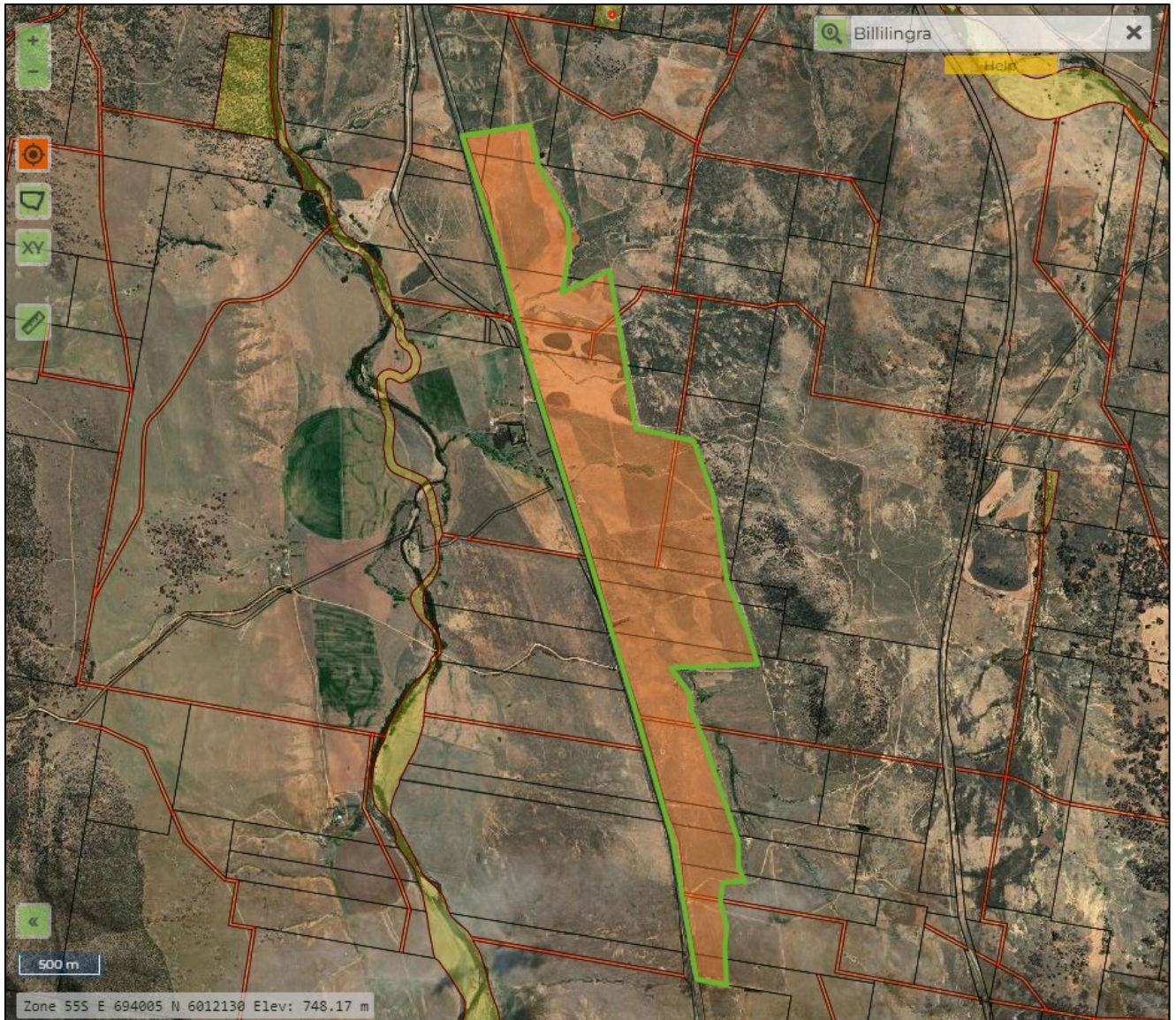
STEP 4: KEEP
Keep all the bush fire information numbers, websites and the smartphone app.

edifyenergy.com

Billilingra Solar Farm Scoping Report

76

Appendix I Crown Roads within Proximity to Development Area



Appendix J Preliminary Ecology Assessment, OzArk Environment & Heritage



SCOPING REPORT – PRELIMINARY BIODIVERSITY ASSESSMENT

Billilingra Solar Power Station

Snowy Monaro Regional LGA, NSW

APRIL 2022

Report prepared by
OzArk Environment & Heritage
for Edify Energy Pty Ltd



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OzArk and staff acknowledge Traditional Owners and Custodians of the country on which we work

DOCUMENT CONTROLS

Proponent	Edify Energy Pty Ltd		
Client	Edify Energy Pty Ltd		
Purchase order number			
Document description	Billililgra Solar Power Station – Scoping Report – Preliminary Biodiversity Assessment		
	Name	Signed	Date
Clients reviewing officer			
Clients representative managing this document	OzArk representative managing this document		
	Dr David Orchard (DO)		
Location	OzArk job number		
S:\OzArk EHM Data\Clients\Edify\Billililgra Solar Farm, Jan 2022\Ecology	#3271		
Document status: FINAL	Version	Date	Action
Internal Draft series V1.X	V1.0	10/03/2022	DO to CG
	V1.1	14/03/2022	CG to DO
First Draft for Client Review	V2.0	16/03/2022	DO to Client
Final Report	V3.0	12/04/2022	DO to Client
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Enquiries would be addressed to OzArk Environment & Heritage.			

Executive summary

Edify Energy Pty Ltd (Edify; the proponent) proposes to construct a hybrid solar-plus-battery power station at Billilingra, near Bredbo, NSW (the proposal). OzArk Environment & Heritage (OzArk) was engaged by Edify to conduct a preliminary ecological assessment of the proposal according to the requirements of the Biodiversity Assessment Method 2020 (BAM) and to prepare this report to accompany a Scoping Report to be compiled by Edify.

The proposal is located approximately 20 km north of Cooma and 3 km south of Bredbo. An area of 491 ha has been selected for assessment (subject land), falling largely within the boundaries of the selected property (option land). Approximately 225 ha will be required for the development proposal. This final footprint area will be decided based partly on the conclusions of this report. The area assessed in the present report includes all or part of the following lots:

- DP449605 – Lot 1
- DP712987 – Lot 22
- DP750523 – Lots 1, 39, 40, 49, and 52
- DP750531 – Lots 8, 9, 10, 11, 14, 55, 78, 101, 102, and 113
- DP1106250 – Lots 7, 8, 9, 10, and 11
- DP1113179 – Lot 31

All lots have a minimum lot size of 80 ha. The associated vegetation clearing threshold for entry into the NSW Biodiversity Offsets Scheme (BOS) is 1 ha. As the proposal is expected to exceed 1 ha, entry into the BOS will be triggered and a Biodiversity Development Application Report (BDAR) will be required. The subject land also contains areas mapped on the Biodiversity Values Map, namely Protected Riparian Land associated with Billilingra Creek; impacts to mapped biodiversity values would also independently trigger entry into the BOS.

Field assessment identified five Plant Community Types (PCTs) on the subject land:

- PCT 765: Carex - Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion
- PCT 999: Norton's Box - Broad-leaved Peppermint open forest on footslopes, central and southern South Eastern Highlands Bioregion
- PCT 1191: Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion
- PCT 1202: Speargrass grassland of the South Eastern Highlands Bioregion
- PCT 1289: Wallaby Grass - Red-grass - Tall Speargrass - Kangaroo Grass dry tussock grassland of the North-western and Eastern Southern Tablelands in the South Eastern Highlands Bioregion

PCT 1191 occurred in two distinct condition states and was divided into two zones (1191_poor and 1191_good). The remaining PCTs were assigned to single vegetation zones (765_mod, 999_mod, 1202_poor, and 1289_good).

Parts of PCTs 765 (0.43 ha) and 1289 (4.92 ha) were found to represent occurrences of the Critically Endangered Ecological Community (CEEC) *Natural Temperate Grassland of the*

South Eastern Highlands, listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). PCT 1191 was found to represent an occurrence of the CEEC *Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion*, listed under the *Biodiversity Conservation Act 2016* (BC Act).

Three threatened species were detected during the survey:

- Silky Swainson-pea (*Swainsona sericea*) – BC Act, Vulnerable
- Creeping Hop-bush (*Dodonaea procumbens*) – BC Act and EPBC Act, Vulnerable
- White-fronted Chat (*Epthianura albifrons*) – BC Act, Vulnerable

The flora species were principally associated with higher-quality vegetation in the eastern section of the assessed area. The White-fronted Chat occurred in both native and non-native vegetation at the northern limit of the assessed area. The White-fronted Chat is an ecosystem credit species and not a species credit species; consequently, it is already reflected in the ecosystem credit cost.

Offset calculations using the BAM Calculator (BAM-C) generated a total of 461 ecosystem credits and 18,454 species credits. However, this figure assumes that all 491 ha of the assessed area will be cleared and that no targeted surveys are conducted to determine whether species credit species are present. These calculations were used primarily to identify the most significant constraints to the proposal. These are:

- The generation of 461 ecosystem credits. Most of these credits (444) were associated with PCTs 1289 and 765.
- The occurrence of the *Natural Temperate Grassland* CEEC and the possibility that impacts to this CEEC may attract additional offset requirements, following consultation with the Commonwealth DAWE.
- The generation of 18,454 species credits. Much of the indicative value of these credits is associated with the Golden Sun Moth (*Synemon plana*). Targeted surveys or expert reports may be used to reduce or eliminate this offset obligation.
- The presence of threatened flora and fauna species on the subject land.
- The occurrence of the *Monaro Tableland Cool Temperate Grassy Woodland* CEEC within the subject land. This is one of nine entities generated by the BAM-C considered to be at risk of a serious and irreversible impact.
- Potential impacts to fauna habitat associated with dams, creeks (including Key Fish Habitat), drainage lines, hollow-bearing trees, surface or embedded rock, rock outcrops, and human-made structures.

Note that credit prices are subject to market forces and may change from the figures given here.

Seventeen vegetation integrity plots were conducted during the site survey, meeting the requirement under the BAM. Targeted surveys or expert reports may be used to reduce the credit obligations associated with this proposal. Targeted surveys must be conducted during the appropriate season. This information is detailed in this report, along with alternative strategies to reduce the impacts of the proposal and lower the offset obligation.

TABLE OF CONTENTS

Executive summary	ii
1 Introduction	1
1.1 Background	1
1.2 The Proposal	2
1.3 Aims	2
1.4 Relevant Terms	5
1.5 Site Details	5
1.6 Regulatory Context	5
1.7 Purpose	6
1.8 Legislation	6
1.8.1 International legislation	6
1.8.2 Commonwealth legislation	6
1.8.3 NSW legislation	6
2 Land Category Assessment	9
2.1 Land Zoning	9
2.2 Land Use	9
2.3 Historical aerial photography	11
2.4 Woody Vegetation Extent	11
2.5 Transitional Native Vegetation Regulatory Map	11
2.6 Vegetation surveys	11
2.7 Conclusion	11
3 Methods	14
3.1 Personnel	14
3.2 Desktop review	15
3.3 Field survey	16
3.3.1 BAM survey methodology	16
3.3.2 Incidental surveys	17
3.4 Limitations	18
4 Landscape Features	19
4.1 Overview	19
4.2 Bioregion	19

4.3	NSW (Mitchell) Landscapes	20
4.4	Geology, Cave, Karst and Soil Features.....	23
4.5	Climate and Weather Data	25
4.6	Biodiversity Values Map	25
4.7	Areas of Outstanding Biodiversity Value.....	26
4.8	SEPP (Koala Habitat Protection) 2020 and 2021.....	26
4.9	Native vegetation cover	26
4.10	Rivers, Streams, Wetlands and Key Fish Habitat	26
4.11	Groundwater Dependent Ecosystems	33
4.12	Connectivity Features.....	35
5	Ecological Assessment Results.....	36
5.1	Plant Community Types	36
5.2	Flora Species Observed	44
5.3	Fauna Species Observed	44
5.4	Threatened Species Observed	44
5.5	Threatened Ecological Communities	47
5.6	Habitat Features.....	54
5.7	Prescribed Impacts.....	58
5.8	Matters of National Environmental Significance.....	58
6	Preliminary BAM-C Outputs	61
6.1	Ecosystem Credits	61
6.2	Species Credits	64
6.3	Targeted Surveys.....	69
6.4	Serious and Irreversible Impacts	71
7	Constraints and Recommendations.....	73
7.1	Summary of Constraints	73
7.2	Avoidance, Minimisation and Mitigation Recommendations	74
8	Conclusion.....	76
	Bibliography.....	78
	Appendix A: Database search results	81
	Appendix B: Vegetation plot locations.....	110
	Appendix C: Field survey results.....	128
	Appendix D: BAM Credit Summary Report	169

Appendix E: BAM Payment Summary Report.....	180
Appendix F: Terms and abbreviations	189

FIGURES

Figure 1-1. Proposal area, including cadastral boundaries.....	2
Figure 2-1. Mapped land use within the boundaries of the subject land.	10
Figure 2-2. Aerial view of the subject land, 1985.....	12
Figure 2-3. Areas of probable Category 1 – exempt land within the subject land boundaries.	13
Figure 4-1. IBRA subregions and NSW (Mitchell) Landscapes within the subject land.....	22
Figure 4-2. Geological features recorded within the subject land.	24
Figure 4-3. Climate data for Cooma Visitors Centre (Station ID 070278).....	25
Figure 4-4. Watercourses, Key Fish Habitat, and Protected Riparian Land occurring on the subject land.....	28
Figure 4-5. View of the unnamed Strahler 4 th order watercourse mapped as Key Fish Habitat.	29
Figure 4-6. Views of Billilingra Creek, which is mapped as Key Fish Habitat and Protected Riparian Land.....	30
Figure 4-7. A large dam adjacent to Billilingra Creek, near the Monaro Highway crossing. .	31
Figure 4-8. Billilingra Creek tapers to a shallow seep at the intersection with the Monaro Highway.....	32
Figure 4-9. Groundwater-dependent ecosystems mapped within the subject land.	34
Figure 5-1. Plant Community Types and Vegetation Zones recorded within the subject land (north-west).....	41
Figure 5-2. Plant Community Types and Vegetation Zones recorded within the subject land (south-west).	42
Figure 5-3. Plant Community Types and Vegetation Zones recorded within the subject land (east).	43
Figure 5-5. Threatened flora species recorded on the subject land: (left) Silky Swainson-pea (<i>Swainsona sericea</i>) and (right) Creeping Hop-bush (<i>Dodonaea procumbens</i>).	45
Figure 5-6. Locations of threatened species recorded on the subject land.	46
Figure 5-6. Extent of Threatened Ecological Communities within the subject land (south-west).	52
Figure 5-7. Extent of Threatened Ecological Communities within the subject land (east). ...	53
Figure 5-8. Habitat features recorded within the subject land (north-west).	55
Figure 5-9. Habitat features recorded within the subject land (south-west).....	56
Figure 5-10. Habitat features recorded within the subject land (east).	57

TABLES

Table 1-1. Area clearing thresholds for entry into the Biodiversity Offsets Scheme.	1
Table 3-1. Summary of OzArk personnel qualifications and roles in the assessment.	14
Table 3-2. Minimum number of plots and transects required per zone area (DPIE, 2020a).	17
Table 4-1. Environmental protection areas within the study area.	19
Table 4-2. Description of the Monaro IBRA subregion (NSW NPWS 2003).	20
Table 4-3. Description of the Snowy Mountains IBRA subregion (NSW NPWS 2003).	20
Table 4-4. Native vegetation cover estimates in the study area.	26
Table 5-1. Plant Community Types (PCTs) within the subject land	38
Table 5-2. Significant weeds recorded on the subject land.	44
Table 5-3. Threatened Ecological Communities associated with each PCT recorded within the subject land.	47
Table 5-4. Assessment of grassland and wetland PCTs against the threshold criteria for the EPBC Act-listed <i>Natural Temperate Grasslands</i> CEEC.	48
Table 5-5. Assessment of PCT 1191 against the threshold criteria for the BC Act-listed <i>Monaro Tablelands Cool Temperate Grassy Woodlands</i> CEEC.	50
Table 5-6. Potential prescribed impacts of the proposal.	58
Table 5-7. MNES entities not identified by BioNet searches.	59
Table 6-1. Ecosystem credit species predicted to occur and the nature of their presence within, or absence from, the subject land.	61
Table 6-2. Ecosystem credits for PCTs, TECS, and threatened species habitat.	63
Table 6-3. Species credit species predicted to occur and the nature of their presence within, or absence from, the subject land.	64
Table 6-4. Species credits for threatened species assumed present.	66
Table 6-5. Species credit species predicted to occur and the nature of their presence within, or absence from, the subject land.	69
Table 6-6. BioNet species records from within 10 km of the subject land.	71
Table 6-7. List of potential Serious and Irreversible Impacts entities	72

1 Introduction

1.1 Background

Edify Energy Pty Ltd (Edify) proposes to construct a hybrid solar-plus-battery power station at Billililingra, near Bredbo, NSW. The subject land is located approximately 20 km north of Cooma and 3 km south of Bredbo. An area of 491 ha has been selected for assessment ("subject land"), falling largely within the boundaries of the selected property ("option land"). Note that approximately 1 ha of the subject land falls outside the option land owing to changes in the mapping of the option land. Approximately 225 ha will be required for the development proposal. This final footprint area will be decided based partly on the conclusions of this report. The area assessed in the present report includes all or part of the following lots:

- DP449605 – Lot 1
- DP712987 – Lot 22
- DP750523 – Lots 1, 39, 40, 49, and 52
- DP750531 – Lots 8, 9, 10, 11, 14, 55, 78, 101, 102, and 113
- DP1106250 – Lots 7, 8, 9, 10, and 11
- DP1113179 – Lot 31

All lots have a minimum lot size of 80 ha. The option land, subject land, and cadastral boundaries are mapped in **Figure 1-1**.

OzArk Environment & Heritage (OzArk) was engaged by Edify (the proponent) to conduct a preliminary biodiversity assessment for the proposal. This assessment will support a scoping report to be prepared by Edify. As the development is expected to exceed the clearing threshold (**Table 1-1**) for entry into the NSW Biodiversity Offsets Scheme (BOS) under the *NSW Biodiversity Conservation Act 2016* (BC Act), it will require the preparation of a Biodiversity Development Assessment Report (BDAR). For this reason, the preliminary assessment was conducted according to the requirements of the Biodiversity Assessment Method (BAM) 2020.

This report documents the results of this assessment and details the proponent's biodiversity offset requirement (number of ecosystem and species credits), with the understanding that this requirement will change as the final development footprint is refined.

Table 1-1. Area clearing thresholds for entry into the Biodiversity Offsets Scheme.

LEP Minimum Lot Size	Threshold Area of Clearing
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

1.2 The Proposal

The subject land is located approximately 3 km south of Bredbo on the eastern side of the Monaro Highway. It spans all or part of the 23 lots identified in **Section 1.1**. At present, the site is utilised mainly for the grazing of sheep and cattle. The entirety of the Subject Land is zoned RU1 – Primary Production.

Final details of the proposal will be determined as planning continues. At present, the project is anticipated to have 80 MWac generating capacity and will require a development footprint of approximately 225 ha. This footprint will include the following elements:

- Solar farm consisting of ‘array blocks,’ typically of 3 MVA and 6 MVA
- Battery Energy Storage System(s) (BESS)
- Site office and car park
- Access and perimeter tracks
- Site buildings, including Operation and Maintenance
- High-voltage Substation

The project will connect into the existing Transgrid 132kV Williamsdale to Cooma transmission line. The substation is expected to be located on Lot 78 DP 750531.

1.3 Aims

The purpose of this report is to provide the following:

- Mapping of Plant Community Types (PCTs) present on the Subject Land
- Mapping of identified Threatened Ecological Communities (TECs)
- Identification of candidate species requiring survey according to the BAM
- Results of database searches, including review of the BioNet Atlas
- Assessment of potential impacts to waterways and Groundwater Dependent Ecosystems (GDEs)
- Preliminary BAM calculator outputs.
- Results of a land category assessment.

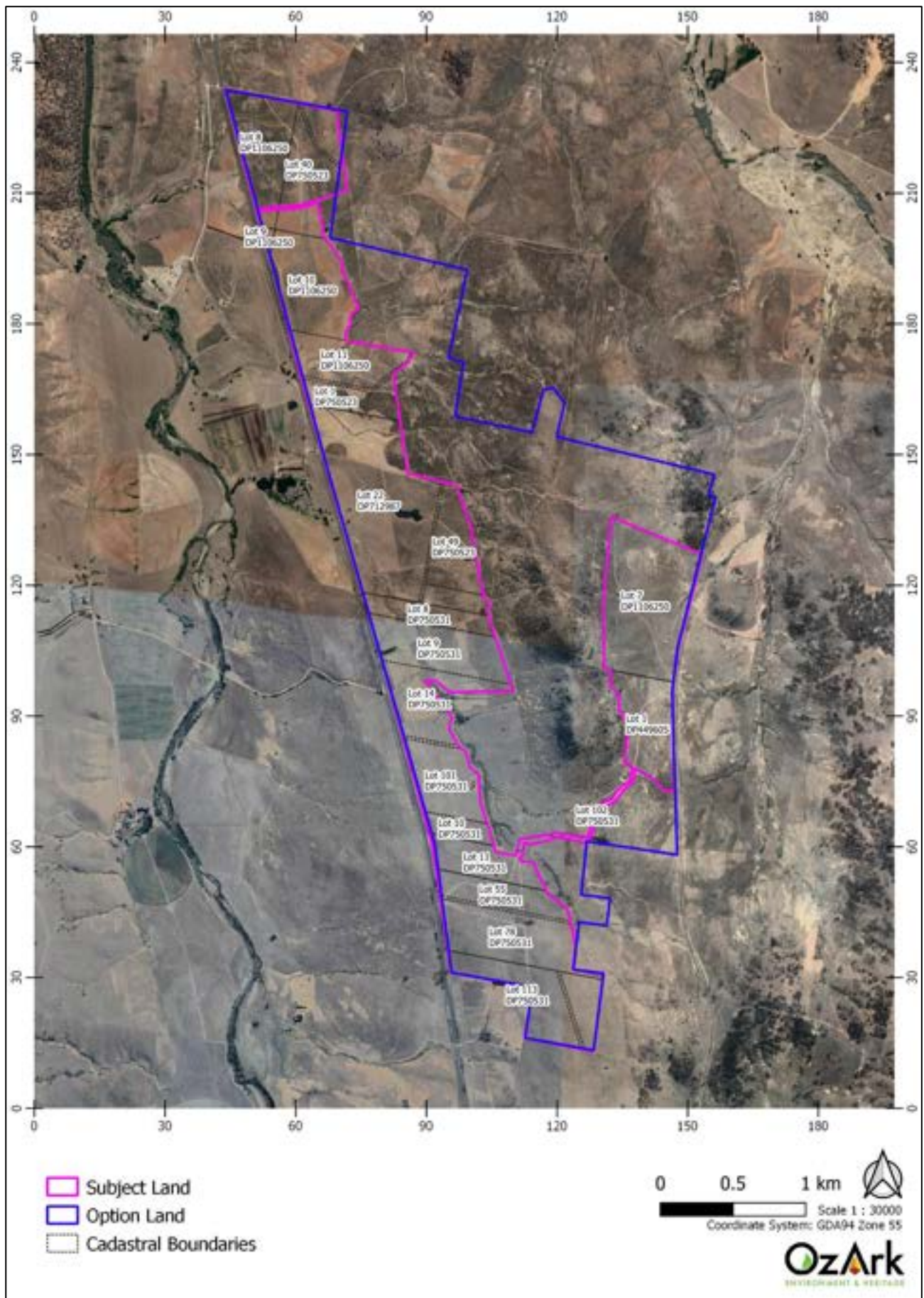


Figure 1-1. Proposal area, including cadastral boundaries.

1.4 Relevant Terms

The following terms and definitions are used to describe the land assessed in this study.

Subject land – The area of land that is directly impacted by the proposed development (including building footprints and associated infrastructure). In this preliminary study, it has been assumed that all vegetation within the subject land will be cleared.

Option land – The area potentially available for development, mapped in **Figure 1-1**.

Study area – Land within a 1,500 m buffer from the outside edge of the subject land. The study area is assessed for the purpose of establishing landscape context including native vegetation cover and associated threatened species.

10 km search area – The area within a 10 km radius of the subject land. This 10 km buffer has been used to search information sources, including the Protected Matters Search Tool (PMST) (Department of Agriculture, Water and the Environment 2022) and BioNet Atlas (DPIE, 2022) threatened species sightings.

1.5 Site Details

The site is identified under the *Cooma-Monaro Local Environment Plan 2011* and on the NSW Planning Portal as follows.

- **Lot/Section/Plan No:** See **Section 1.1** above.
- **Land Zoning:** RU1 – Primary Production
- **Minimum Lot Size:** 80 ha
- **Terrestrial Biodiversity:** The subject areas includes areas mapped as having high terrestrial biodiversity value (**Appendix A**); however, some or all of these areas may be excluded from the final development footprint.

The location of the proposal is shown on the site map (**Figure 1-1**).

1.6 Regulatory Context

The Proposal will be assessed as a State Significant Development (SSD). The BC Act requires all SSDs to be assessed in relation to the BOS, if entry is triggered by the location and/or size of the development. The *Biodiversity Conservation Regulation 2017* sets out the thresholds for entry into the BOS, which are as follows.

- If the amount of native vegetation proposed to be cleared exceeds the threshold area for the lot size for the LEP zone.
- When the development is located on land identified in the Biodiversity Value Map (<https://www.lmbc.nsw.gov.au/Maps/>), as defined by Clause 7.3 of the Regulation.
- If, in the absence of the above thresholds, the Proposal is likely to be a significant impact to threatened species, ecological communities or their habitat.

As the proposal involves clearing of up to 225 ha of native vegetation, and as the native vegetation clearing threshold is 1 ha (**Appendix A**), the threshold for clearing is likely to be exceeded. Additionally, land surrounding Billilingra Creek is included on the Biodiversity Value Map. Consequently, it is expected that the BOS will apply.

The subject land has been identified as bushfire-prone land, according to mapping provided by the NSW Rural Fire Service, and as such, under Section 4.15 of the EP&A Act, the proponent will be required to address the relevant bushfire protection requirements of the Rural Fire Service Document *Planning for Bush Fire Protection*. It is assumed that Asset Protection Zones (APZ) are included in the development footprint supplied by the proponent for the purposes of this report.

1.7 Purpose

The purpose of this preliminary biodiversity assessment is to determine the biodiversity assets, including flora, fauna, threatened species, threatened communities and habitat values, of the subject land.

This report also identifies any constraints on the proposal according to relevant Federal and NSW environmental legislations and includes the calculation of ecosystem and/or species credits requiring offset.

1.8 Legislation

1.8.1 International legislation

- Japan-Australia Migratory Bird Agreement (JAMBA)
- China-Australia Migratory Bird Agreement (CAMBA)
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)
- Ramsar Convention on Wetlands (Ramsar).

1.8.2 Commonwealth legislation

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), including EPBC Act Environmental Offsets Policy and Significant Impact Guidelines Version 1.1, 2013.

1.8.3 NSW legislation

Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act provides the legal framework for the assessment and approval of the proposed activities. Part 4 of the EP&A Act requires the proponent to examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

Biodiversity Conservation Act 2016 (BC Act)

Under the BC Act, the proponent has an obligation to consider impacts to all threatened species, populations and ecological communities listed in NSW, as well as ensuring the proposal does not exacerbate a Key Threatening Process (KTP). Entry to the BOS is triggered if any of the thresholds listed above (see **Section 1.6**. Regulatory Context) are met.

Biodiversity Conservation Regulation 2017 (BCR)

The BCR defines the triggers and entry thresholds for the BOS. It also provides the rules for meeting offset obligations, triggers for authorities to refuse development applications and compliance provisions.

Biosecurity Act 2015

From 1 July 2017, the *Biosecurity Act 2015* and its subordinate legislation commenced. The *Noxious Weeds Act 1993* and part of the *Local Land Services Act 2013* (Part 10 Pests), among other acts, have been repealed under the new *Biosecurity Act 2015*. Schedule 1 of the *Biosecurity Act 2015* contains the special provisions relating to weeds and duty to control weeds which pose a biosecurity risk.

The Department of Primary Industries (DPI) maintains a list of 'Priority Weeds' (previously referred to as noxious weeds) in NSW for the State and each region which impose an obligation on landholders to prevent, eliminate or minimise, so far as is reasonably practicable, any biosecurity risk they may pose. In addition, Local Government Areas may include their own priority weeds.

Fisheries Management Act 1994 (FM Act)

The objects of the FM Act are to:

- Conserve fish stocks and key fish habitats.
- Conserve threatened species, populations and ecological communities of fish and marine vegetation.
- Promote ecologically sustainable development, including the conservation of biological diversity.

Consistently with those objectives, the FM Act aims to:

- Promote viable commercial fishing and aquaculture industries.
- Promote quality recreational fishing opportunities.
- Appropriately share fisheries resources between the users of those resources.
- Provide social and economic benefits for the wider community of NSW.
- Recognise the spiritual, social and customary significance to Aboriginal persons of fisheries resources and to protect, and promote the continuation of, Aboriginal cultural fishing.

Section 201 of the FM Act states that a person other than a government authority must seek a permit from NSW Department of Primary Industries – Fisheries (DPI – Fisheries) for dredging or reclamation in a waterway. Dredging work means any work that involves excavating water land. Reclamation work means any work that involves depositing any material on water land.

Water Management Act 2000 (WM Act)

The WM Act aims to provide for the 'sustainable and integrated management of the water sources of the state for the benefit of both present and future generations.'

The WM Act provides for the granting of various licenses and approvals, including for the use of water and water supply work. Additionally, the WM Act identifies provisions relating to 'controlled activities' which includes (among other definitions):

The erection of a building or the carrying out of a work (within the meaning of the EPA Act)

The removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise.

It includes laying pipes and cables.

Approval (via a 'controlled activity' approval) is required from the Minister for Primary Industries under the WM Act if it is on 'waterfront land'. '*Waterfront land*' means the bed of any river, lake or estuary, and the land within 40 m of the riverbanks, lake shore or estuary mean high water mark.

State Environmental Planning Policies (SEPP)

State Environmental Planning Policy – Koala Habitat Protection 2020 and 2021

State Environmental Planning Policies - Koala Habitat Protection (SEPP) encourage the 'proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline'.

Currently both the SEPP 2020 and SEPP 2021 apply within NSW. In December 2021, SEPP 2020 and SEPP 2021 were consolidated under the new State Environmental Planning Policy (Biodiversity and Conservation) 2021. This consolidation does not alter the legal status of the two SEPPs. The SEPP 2020 applies to land zoned RU1, RU2 and RU3, excluding 9 LGAs within the Sydney basin. The SEPP 2021 applies to all other zoned land within the additional 74 LGAs. The subject land is zoned as RU1 within the Snowy Monaro LGA; therefore, the Koala SEPP 2020 applies to the present proposal.

A formal assessment of possible impacts to the Koala under both the Koala Habitat Protection SEPP and the EPBC Act should be included in a BDAR. Owing to the scarcity of suitable habitat within the subject land and the lack of nearby Koala records, it is unlikely that the proposal will impact critical habitat for this species.

2 Land Category Assessment

According to section 6.8(3) of the BC Act, land defined as Category 1 – exempt land (within the meaning of Part 5A of the *Local Land Services Act 2013*) is to be excluded from assessment under the BAM. For this reason, impacts to Category 1 land do not contribute to the clearing threshold for entry into the NSW BOS. Category 1 exemption applies to rural land (zoned RU1, RU2, or RU3) that was cleared of native vegetation as of 1 January 1990 or lawfully cleared of vegetation between 1 January 1990 and 25 August 2017. At present, public mapping of Category 1 land is not available; however, an assessment of the likely categorisation of the subject land can be conducted by consulting the following sources of information:

- Land zoning maps in the applicable Local Environment Plan (Cooma-Monaro LEP 2013).
- Public land use mapping (DPIE, 2017).
- NSW woody vegetation extent mapping (DPIE, 2011).
- The Transitional Native Vegetation Regulatory Map (DPE, 2022).
- Historical aerial photographs accessed via the NSW Government Spatial Services platform (Spatial Services, 2022).
- Vegetation surveys conducted during the field assessment.

2.1 Land Zoning

The subject land is zoned as RU1 – Primary Production. This zoning is compatible with Category 1 classification.

2.2 Land Use

Five land use types have been identified within the subject land. Of these, three are compatible with Category 1 listing and two are incompatible, according to the classification outlined in the Native Vegetation Regulatory Map method statement (OEH, 2017). These are:

Compatible

- 3.2.0 Grazing modified pastures
- 3.2.5 Sown grasses
- 3.3.0 Cropping

Incompatible

- 2.1.0 Grazing native vegetation
- 5.7.2 Roads

The inclusion of a small area of 5.7.2. within the subject land appears to be the result of disagreements between the publicly available land use mapping and the boundaries of the subject land derived from aerial imagery. The subject land does not extend into the road corridor.

Land use is mapped in **Figure 2-1**. From this it can be seen that much of the subject land is eligible for consideration as Category 1 – exempt land.

In the above figure, areas mapped as 2.1.0 and 5.7.2 are ineligible for consideration as Category 1 – exempt land.

2.3 Historical aerial photography

Historical aerial imagery dating from 1985 provides evidence that the subject land was cleared prior to 1990 (**Figure 2-2**) and hence is eligible for consideration as Category 1 – exempt land.

2.4 Woody Vegetation Extent

Native woody vegetation is largely absent from the western section of the subject land, and those few isolated trees that were detected fall within the area mapped to land use 2.1.0, and hence were already ineligible for Category 1 listing.

In the eastern section, isolated native trees in the north-eastern and south-western corners constitute Category 2 – regulated land and therefore are ineligible for Category 1 listing. Some, but not all, of these fall within the area mapped to land use 2.1.0.

2.5 Transitional Native Vegetation Regulatory Map

The Transitional Native Vegetation Regulatory Map identifies the riparian corridor surrounding Billilिंगra Creek as Category 2 – vulnerable regulated land. The riparian corridor surrounding this creek has been excluded from the area identified as likely Category 1 land.

The remainder of the subject land has not been assigned to a land category.

2.6 Vegetation surveys

Vegetation surveys conducted during the site visit identified areas with significant concentrations of native vegetation within parts of the subject land that might otherwise have been classified as Category 1 – exempt land. These areas have been excluded from consideration as Category 1 land.

2.7 Conclusion

Considering the above, this land category assessment has determined that up to 244.3 ha of the assessed area may constitute Category 1 – exempt land. This area is mapped in **Figure 2-3**.

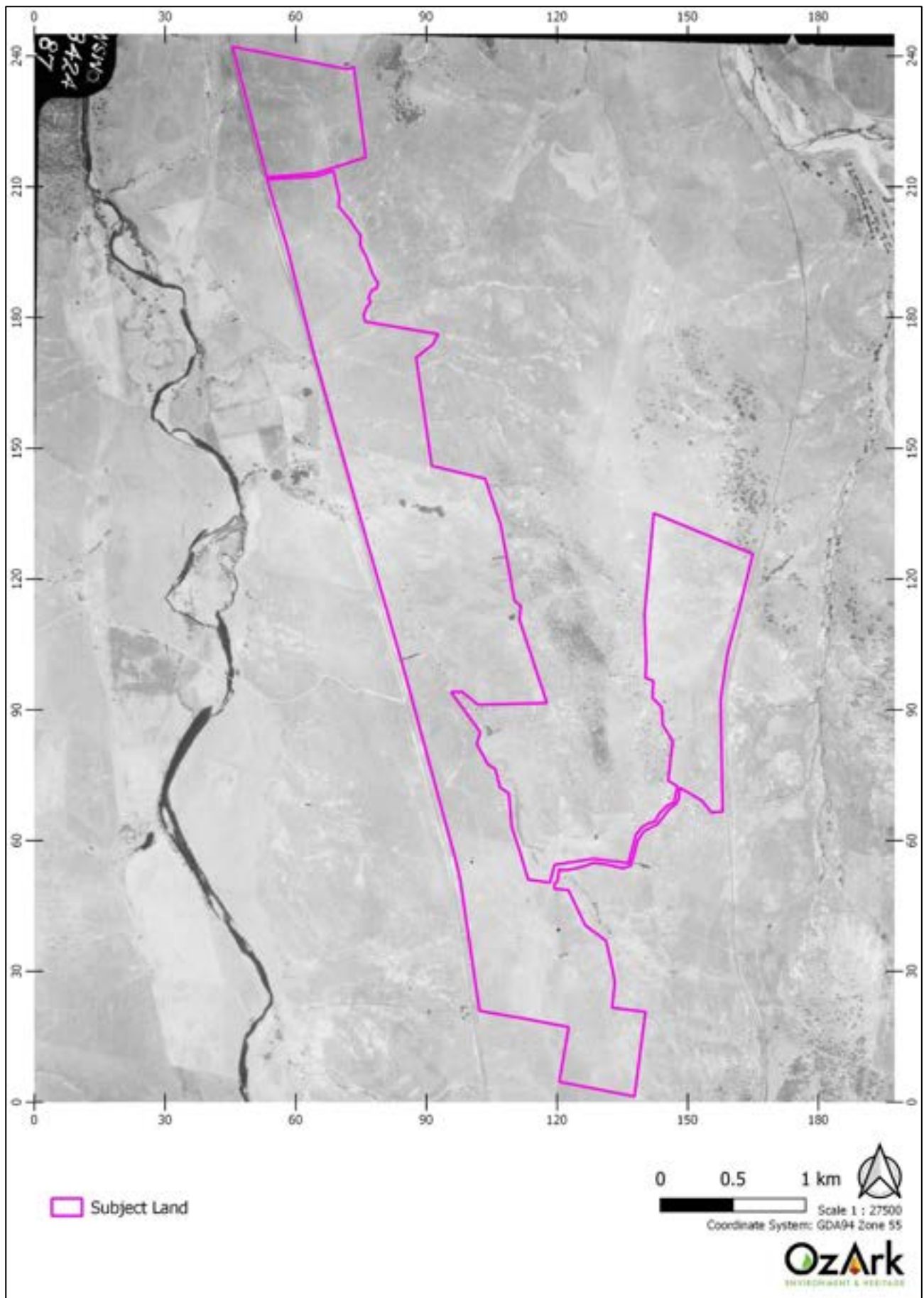


Figure 2-2. Aerial view of the subject land, 1985.

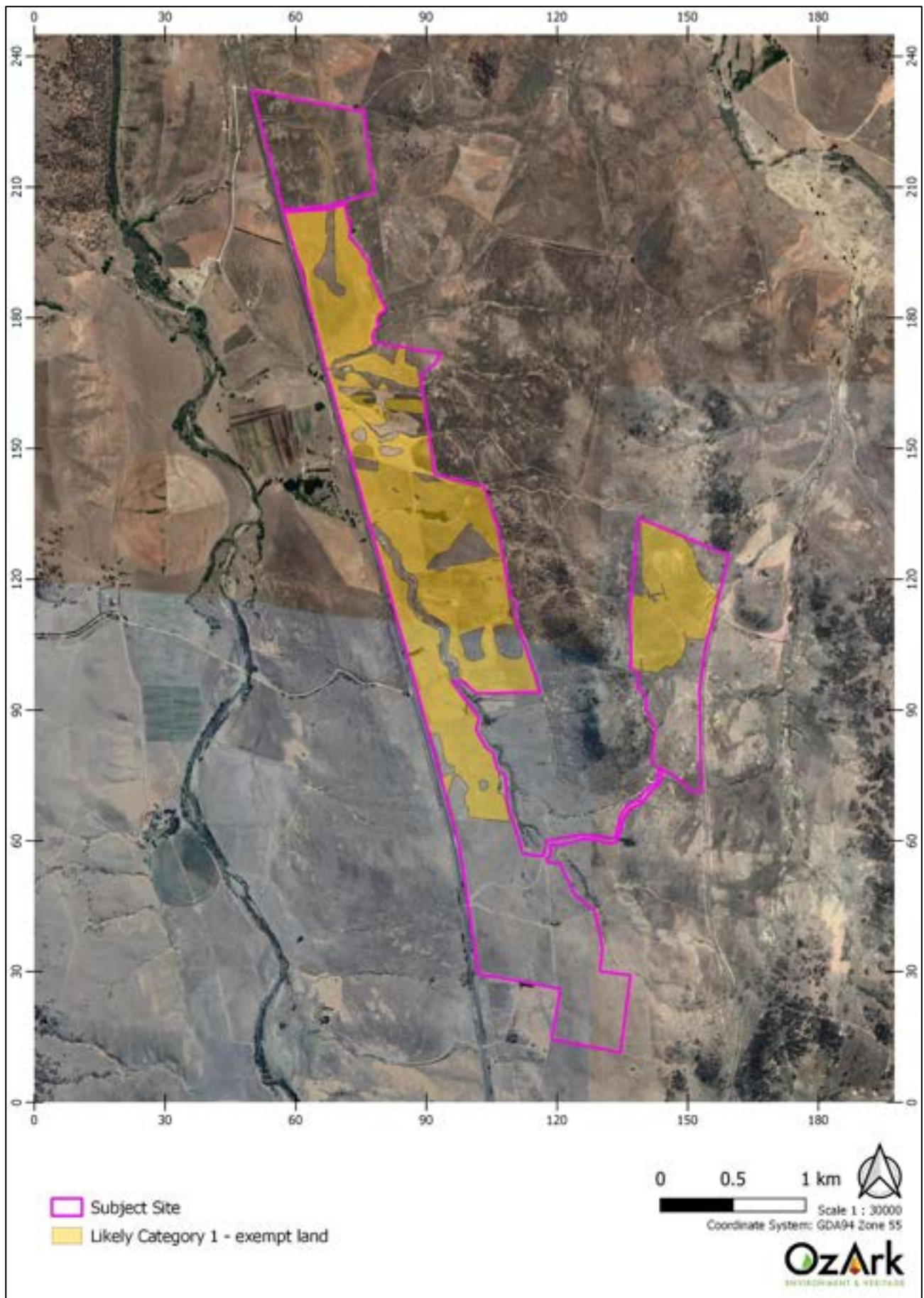


Figure 2-3. Areas of probable Category 1 – exempt land within the subject land boundaries.

3 Methods

The ecological assessment was carried out in three stages:

1. Desktop searches and review of ecological databases and information to identify threatened species, populations or ecological communities listed in the BC Act, FM Act or the EPBC Act that have the potential to occur in the study area.
2. Field survey of the subject land to conduct BAM plots, identify vegetation communities and habitat features present and target predicted threatened species and ecological communities. Where a threatened species or community or habitat feature is identified, document the nature and extent of the protected matter, and describe its 'viable local population' or occurrence.
3. Preparation of a biodiversity chapter, for the overarching Scoping Report, that describes the impacts of the proposed activity on native vegetation and threatened species, populations and ecological communities, and provides recommendations to avoid, minimise and mitigate these impacts. This chapter also includes a biodiversity credit summary that identifies the number of ecosystem credits and species credits required to offset the development.

3.1 Personnel

OzArk Environment & Heritage Pty Ltd (OzArk) operates under NSW Scientific Research License 101908, and NSW Department of Primary Industries (DPI) Accreditation of a corporation as an animal research establishment Ref No. AW2017/012. The role and key details of personnel involved in the project are provided in **Table 3-1**.

Table 3-1. Summary of OzArk personnel qualifications and roles in the assessment.

Name	Position	Role	CV Details
Dr David Orchard	Ecologist	Vegetation integrity plots (BAM plots), vegetation mapping, preliminary BAM-C calculations	<ul style="list-style-type: none"> Accredited BAM assessor – Accreditation # BAAS21028 Doctor of Philosophy – Charles Sturt University Graduate Diploma in Science (Botany) – University of New England Bachelor of Arts – Australian National University First aid training WH&S Induction Training for Construction Work
Dr Crystal Graham	Senior Ecologist	Reporting, quality control, technical review	<ul style="list-style-type: none"> Doctor of Philosophy – Biology – University of Sydney Honours 1 – Biology – University of Sydney Bachelor of Advanced Science – University of Sydney 4WD Training WH&S Induction Training for Construction Work BAM training 2021
Ian Griffith	Ecologist	Fieldwork, including assisting with BAM plots	<ul style="list-style-type: none"> Honours in Genetics - La Trobe University

- Bachelor of Biological Sciences - La Trobe University
- First aid training
- WH&S Induction Training for Construction Work

3.2 Desktop review

Existing information sources were reviewed to contextualise the study area, identify entities for targeted surveys, predict possible constraints, refine field survey methodology and assist with assessing the impacts of the proposal. Information sources consulted included:

- NSW Government Web Map Service (WMS) layers for NSW Imagery (compiled imagery, NSW Property, NSW Base Map and NSW Topographic Map) (<http://spatialservices.finance.nsw.gov.au>).
- EPBC Protected Matters Search Tool (<https://www.environment.gov.au/epbc/protected-matters-search-tool>)
- NSW DPI threatened fish indicative distribution maps (www.dpi.nsw.gov.au/fishing/species-protection/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps)
- NSW BioNet Wildlife Atlas Vegetation classification (<https://www.environment.nsw.gov.au/research/Visclassification.htm>)
- NSW BioNet Threatened Biodiversity Data Collection (www.bionet.nsw.gov.au/)
- NSW BioNet Atlas (www.bionet.nsw.gov.au/)
- Register of Declared Areas of Outstanding Biodiversity Value (www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/critical-habitats)
- PlantNET, NSW Flora Online (www.plantnet.rbgsyd.nsw.gov.au/)
- Department of Environment and Planning *Biodiversity Values Map* (<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap>)
- Mapping of Vulnerable Lands – Steep and Highly Erodible (NSW Office of Environment and Heritage, 2011)
- Acid Sulphate Soils Risk mapping (NSW Office of Environment and Heritage, 1998)
- Directory of Important Wetlands of Australia (DIWA) (<https://www.environment.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands>)
- NSW wetlands mapping (NSW Office of Environment and Heritage, 2010)
- Important area mapping for Regent Honeyeater and draft important area mapping for Swift Parrot available from the Biodiversity Offsets and Agreement Management System (BOAMs).

All databases were searched prior to conducting initial fieldwork in January 2022 and reviewed (and updated where applicable) in March 2022 prior to final submission.

Results of the database searches are provided in **Appendix A**.

3.3 Field survey

3.3.1 *BAM survey methodology*

Vegetation communities are identified in accordance with the online NSW Master Plant Community Type Classification (OEH, 2018b), which is the current state-wide vegetation classification system for Plant Community Types (PCTs). This classification system is used for vegetation mapping, development assessment and site planning purposes. It describes over 1,500 PCTs across the state, and groups the vegetation communities into vegetation Class and Formation / Sub-formation as per Keith (2004).

In this study, PCTs were identified on the basis of the following inputs:

- Professional ecological knowledge about locally occurring vegetation types and landscape, soil and topographic patterns, including transitions from one community to another and potential for intergrades between plant communities.
- Field survey results to confirm the flora species present, vegetation structure, landscape position and soil type on the subject land and the extent and condition of native vegetation.
- The BioNet Vegetation Classification database, this being used to identify the candidate vegetation communities likely to be present based on the site conditions (flora species present, vegetation structure, bioregion, and landscape position and soil type) and the relevant published PCT descriptions.

As there is no predictive mapping of PCTs available for the subject land, a list of potential PCTs was derived by filtering the BioNet Vegetation Classification Database (VCD) to include only those communities modelled as occurring within the Monaro IBRA subregion. This list was then further filtered by vegetation formation and dominant species to arrive at a suitable result.

Note that many PCTs associated with the Monaro subregion, including all PCTs identified during the site survey, have been assigned to the lowest “Classification Confidence Level” (5 – Very Low), indicating that the definitions of these communities are based on limited sample data and are unlikely to satisfactorily represent their species diversity or distribution. A PCT assigned to this confidence level is regarded as a “placeholder” or a candidate for further survey. In the present study, where an observed PCT appears to differ from its definition in the BioNet VCD, this deviation has been described in detail.

If any of the PCTs were identified as having potential to be part of a Threatened Ecological Community (TEC), the relevant identification guidelines (NSW Scientific Committee listing criteria and Commonwealth identification guides) were consulted to determine the status of the vegetation community present. These guidelines provide the identification criteria used to positively identify the community as being part of the TEC. The criteria include location, species present, overstory species, weed cover, number and type of native species including whether certain ‘important’ native species are present.

Plant identification followed nomenclature in the Royal Botanic Gardens PlantNet online database (Royal Botanic Gardens and Domain Trust, 2022).

In total, seventeen BAM plots were completed between 19 and 22 January 2022 (see **Figure 5-1**).

The plot locations were randomly selected whilst ensuring adequate survey effort within each vegetation zone (**Table 3-2**).

Table 3-2. Minimum number of plots and transects required per zone area (DPIE, 2020a).

Vegetation zone area (ha)	Minimum number of plots/transects
<2	1 plot/transect
>2 – 5	2 plots/transects
>5 – 20	3 plots/transects
>20 – 50	4 plots/transects
>50 – 100	5 plots/transects
>100 – 250	6 plots/transects
>250 – 1000	7 plots/transects; more plots may be needed if the condition of the vegetation is variable across the zone
>1000	8 plots/transects; more plots may be needed if the condition of the vegetation is variable across the zone

Plots were surveyed according to the BAM (2020) as follows:

- The survey plots consisted of nested 20 m × 50 m and 20 m × 20 m plots
 - Where conditions did not allow for the use of plots of this size, alternative plot sizes were used. For example, in areas of PCT 765 associated with narrow, winding gullies, multiple 10 m × 50 m plots were used instead of a single 20 m × 50 m plot.
- Species composition and structure (species and percent cover) data collected from within 20 m × 20 m plot
- Vegetation function data (size and number of trees, presence of hollow-bearing trees and woody debris) collected from within 20 m × 50 m plot
- Percent of litter cover data collected within five 1 m × 1 m squares positioned at 5 m, 15 m, 25 m, 35 m and 45 m points of the 50 m plot
- The plots were positioned within the subject land and their GPS locations were recorded (GDA 94 / MGA Zone 55).

The remainder of the subject land was traversed by foot or by vehicle to confirm the nature of vegetation (i.e. native or non-native) and search for habitat features such as hollow bearing trees, rock outcrops, and nests.

3.3.2 Incidental surveys

Incidental flora and fauna sightings were recorded while undertaking the BAM plots and searching the subject land for hollow-bearing trees and other potential habitat features. Potential habitat such as rock, loose bark and coarse woody debris was recorded and examined for signs of cryptic species. Tracks and other areas of suitable substrate were searched for animal tracks. Other evidence of fauna presence on the subject land, such as scats, feathers and sloughed skins were also recorded.

3.4 Limitations

This study is based upon the species data available at the time of the study, and the environmental conditions, season, and time constraints imposed by the project for the field survey. Specific limitations on this study include the following:

- BAM plots were completed in late summer, during which time many flora and fauna species may have been absent, difficult to detect, or difficult to identify.
- Formal targeted surveys for relevant species credit species have not been undertaken.

The above-mentioned constraints were also considered when preparing the recommendations of avoiding, minimising and mitigating potential impacts.

4 Landscape Features

4.1 Overview

A series of background searches were performed to comply with legal standards (**Table 4-1**).

Table 4-1. Environmental protection areas within the study area.

Environmental Protection Areas	Presence in the Study Area
Land identified on the Biodiversity Values Map under the <i>NSW BC Act 2016</i>	Yes (Appendix A).
Area of Outstanding Biodiversity Value (AOBV) under the <i>NSW BC Act 2016</i>	No.
Watercourse mapped as Key Fish Habitat (KFH) and/or within the extent of an aquatic Endangered Ecological Community, listed under the <i>Fisheries Management Act 1994</i> .	Yes (see Section 4-10 and Figure 4-4)
An area reserved or dedicated under the <i>National Parks and Wildlife Act 1974</i> or <i>Wilderness Act 1987</i> .	No.
Is the proposal located within land reserved or dedicated within the meaning of the <i>Crown Lands Act 1989</i> for preservation of other environmental protection purposes.	No.
A World Heritage Area.	No.
Environmental Protection Zones in environmental planning instruments.	Terrestrial biodiversity mapping, Cooma-Monaro LEP 2013.
Lands protected under <i>NSW State Environmental Planning Policy</i> , SEPP Koala Habitat Protection 2020	Yes. All lands zoned RU1, RU2, or RU3 within the Snowy Monaro LGA are protected under the SEPP 2020. The subject land is zoned RU1.
Lands protected under <i>NSW State Environmental Planning Policy</i> , SEPP Koala Habitat Protection 2021	No. The SEPP 2021 does not apply to land zoned RU1 within the Snowy Monaro LGA.
Lands protected under <i>SEPP Sydney Drinking Water Catchment</i> .	No.
Aquatic reserves dedicated under the <i>Fisheries Management Act 1994</i> .	No.
Wetland areas dedicated under the Ramsar Wetlands Convention.	No.
Land subject to a conservation agreement under the <i>National Parks and Wildlife Act 1974</i> .	No.
Land identified as State Forest under the <i>Forestry Act 1916</i> .	No.
Acid sulphate area.	No.

4.2 Bioregion

The study area is situated in the Monaro subregion of the South Eastern Highlands Bioregion, as per the Interim Biogeographic Regionalisation of Australia (IBRA) (Thackway & Cresswell, 1995). The 10 km search area also extends into the Snowy Mountains subregion of the Australian Alps Bioregion. These subregions are characterised by geology, landforms, soil types and vegetation as described in **Table 4-2** and **Table 4-3**.

Table 4-2. Description of the Monaro IBRA subregion (NSW NPWS 2003).

Bioregion	South Eastern Highlands
Subregion	Monaro
Geology	Block-faulted ranges and closed lake basins in Silurian and Devonian acid fine grained sedimentary and metamorphic rocks with some granites. Extensive areas of thin Tertiary basalt flows over lake and river sediments.
Landforms	Sloping plateau rising from 600 to 1300 m north to south. Structural ridges of more resistant rock. Stepped plains on basalt with intervening low areas of granite or sedimentary rocks. Numerous shallow lakes and swamps, a few permanent – many are closed basins and periodically dry. Area is in rain shadow with rainfall 450-700 mm.
Soils	Harsh yellow texture-contrast soils in general. Shallow red-brown to black stony loams on basalt.
Vegetation	Snow Gum, Ribbon Gum, Candle-bark Gum, Broad-leaved Peppermint and Mountain Gum open woodlands with Kangaroo Grass understorey. White Gum, Mottled Gum on hills. Brown Barrel and Black Ash forests in east with west-facing patches of dwarf Casuarina heathland. Extensive grasslands of Snow Grass, Spear Grass, and Wallaby Grass on the driest plains with clumps of Snow Gum amongst rocky outcrops.

Table 4-3. Description of the Snowy Mountains IBRA subregion (NSW NPWS 2003).

Bioregion	Australian Alps
Subregion	Snowy Mountains
Geology	Block-faulted granites and Palaeozoic metamorphic rocks. Small areas of Tertiary basalt with buried river gravels and lake sediments. Quaternary glacial landforms and sediments above 1800 m, more extensive periglacial features above 1200 m.
Landforms	Low-relief high plains with steep margins and slopes and fault aligned river valleys with deep gorges and waterfalls. Relic cirque glaciers, blockstreams and periglacial solifluction lobes in highest regions.
Soils	Soils change with altitude. At lower levels in forests, texture contrast soils are the norm. In the sub-alpine Snow Gum areas, deep gradational soils with moderate amounts of organic matter are common. Above the tree line, wet, alpine humus soils with abundant organic matter are widespread. Steep slopes have stonier, shallow profiles.
Vegetation	Vegetation changes with altitude, aspect, cold air drainage and soil saturation. Low elevations with dry aspects carry Red Stringybark, White Gum, Broad-leaved Peppermint, Candlebark and Brittle Gum. Moist sites have Alpine Ash, Mountain Gum, Narrow-leaved Peppermint, Manna Gum and Brown Barrel, with tree ferns, Blackwood and Sassafras in gullies. Between 1,000 and 1,500 m Alpine Ash and Mountain Gum dominate and abruptly change to sub-alpine Snow Gum woodlands, heath, grasslands and bogs between 1,500 and 1,800 m. Common species include Snow Grasses, Leafy Bossiaea, Yellow Kunzea, Alpine Pepper and Sphagnum bogs, with Candle Heath and Swamp Heath. Alpine herbfield and rare feldmark communities are found above the tree line at 1,800 m. Common species include Prickly Snow Grass, Alpine Wallaby Grass, Silver Snow Daisy, Ribbony Grass, White Purslane, Eyebrights, Gentians and Buttercups. Most alpine species have a limited range.

4.3 NSW (Mitchell) Landscapes

Landscapes with relatively homogenous geomorphology, soils and broad vegetation types in NSW have been classified and mapped at a 1:250, 000 scale. These landscapes are referred to as NSW (or Mitchell) Landscapes (Mitchell, 2002).

The subject land spans the Coolangubra - Good Good Plateau and Upper Murrumbidgee Valley landscapes (**Figure 4-1**). The characteristics of these landscapes are described below.

Coolangubra - Good Good Plateau

Ranges, dissected plateau and bluffs on the western side of the Great Escarpment in SilurianDevonian granite and granodiorite. Rounded hills and peaks, well developed drainage and high waterfalls in high rainfall environment, general elevation 800 to 1400m, local relief to 250m. Rounded tors and rocky outcrops on crests, deep red and red-brown gritty uniform loams on slopes, brown clayey sand alluvium.

Extensive moist forests of Brown Barrel (*Eucalyptus fastigata*), Shining Gum (*Eucalyptus nitens*), with Soft Tree-fern (*Dicksonia antarctica*) understorey. Dry forests of Prickly Stringybark (*Eucalyptus consideniana*) and Silvertop Ash (*Eucalyptus sieberi*). Temperate gully rainforest elements, wet heaths and upland swamps. Small areas of Dwarf Casuarina (*Allocasuarina nana*) heath on exposed sites.

Clearing status: Not overcleared (23% cleared).

Upper Murrumbidgee Valley

Narrow valley and channels system of the Murrumbidgee above Cooma in montane and sub-alpine communities. The stream crosses numerous geological units and the valley is dominated by sand and gravel alluvium with small fans alluvial fans developed at the mouths of tributary streams where they impinge on the floodplain. Shallow uniform sandy soils with moderate levels of organic matter and numerous areas of poor drainage.

Dominant trees vary with altitude and rainfall: Snow Gum (*Eucalyptus pauciflora*) and Black Sallee (*Eucalyptus stellulata*) woodland at higher levels and Red Stringybark (*Eucalyptus macrorhyncha*), White Gum (*Eucalyptus rossii*) dry forest at lower levels. Most of the valley is open sod tussock grassland with areas of bog and swamp.

Clearing status: Not overcleared (65% cleared).

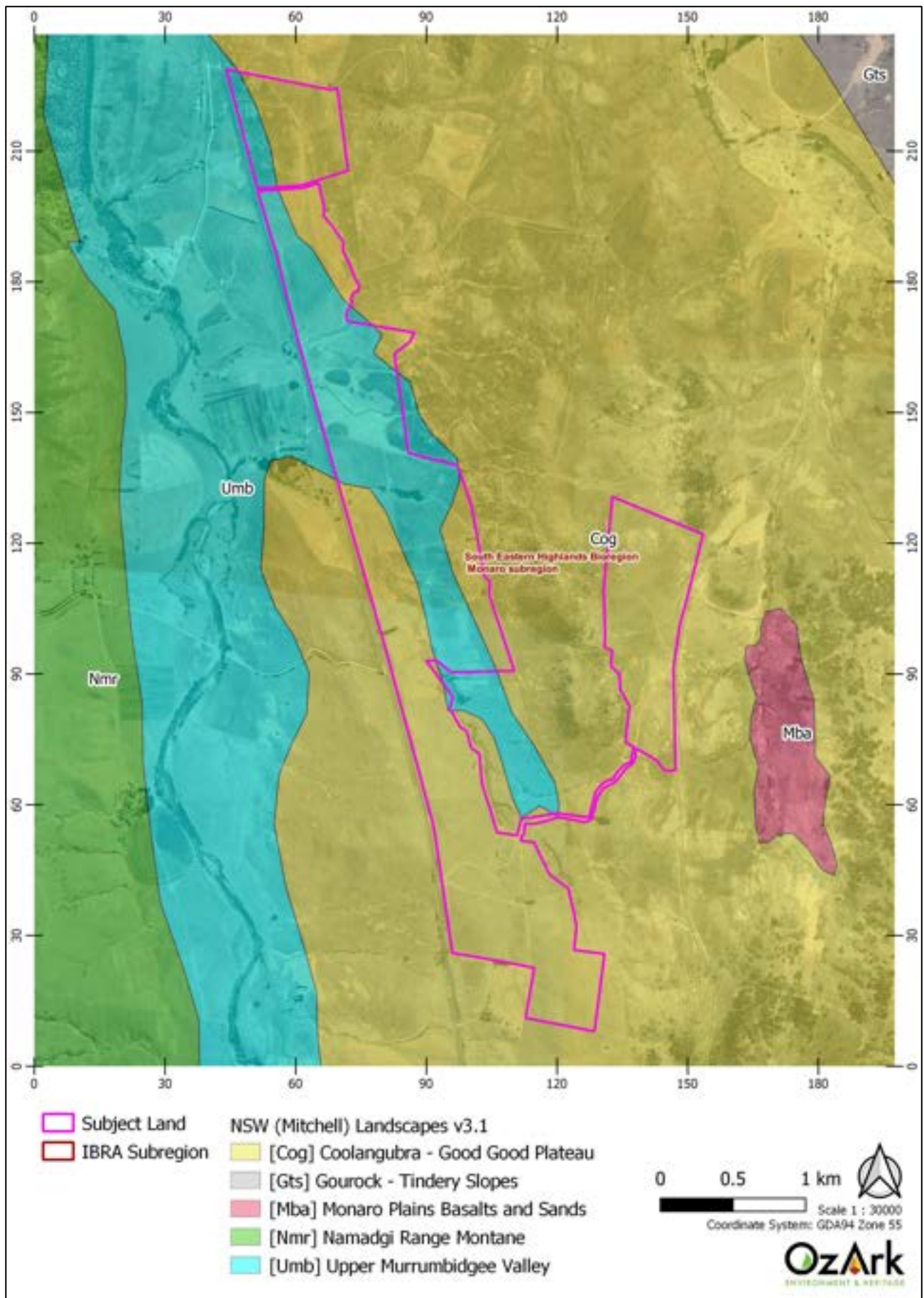


Figure 4-1. IBRA subregions and NSW (Mitchell) Landscapes within the subject land.

4.4 Geology, Cave, Karst and Soil Features

The underlying geology and soil typical of the wider study area are described in **Section 3-2** and **3-3**. The subject land itself was found to possess extensive tracts of embedded surface rock, accompanied in less disturbed areas by loose surface rock. These features were most conspicuous on ridgetops or mid-slopes. Minor rock outcroppings, consisting of solitary rocks or small aggregations of rocky material, were also relatively common. Larger rock outcrops were comparatively scarce but were noted towards the southern extent of the subject land and at the base of range of hills located between the eastern and western sections of the subject land. Examples of these features are shown in **Figure 4-2**.



Figure 4-2. Geological features recorded within the subject land.

(Top) Outcropping rock with crevices suitable for fauna habitat.

(Bottom Right) Embedded surface rock with scatters of loose surface rock.

(Bottom Left) Embedded surface rock or minor outcropping.

4.5 Climate and Weather Data

The closest weather station to the subject land to provide current rainfall and temperature data is Cooma Visitors Centre Weather Station (Station ID 070278) approximately 22 km south of the subject land (Bureau of Meteorology [BOM], 2022).

The study area generally experiences mild summers, with the highest mean maximum temperature of 27.4°C experienced in January. Winters are cool, with temperatures in the coldest month (July) ranging from a mean minimum of -2.7°C to a mean maximum of 11.5°C (BOM, 2022; **Figure 4-3**).

The field assessment was conducted between January 19 and 22, 2022. Weather conditions at the time of the survey were mild, reaching a maximum of 23.8°C, with 0.2 mm of rain recorded at Cooma Visitors Centre.

An average of 542.1 mm of rainfall is recorded annually at Cooma Visitors Centre. Rainfall is generally summer led, with the six wettest months being October to March (BOM, 2022). In the period prior to the field survey, the region experienced two months of well above average rainfall (November 2021 and January 2022) and one month of well below average rainfall, December 2021 (**Figure 4-3**). Light rain fell on the second day of the survey.

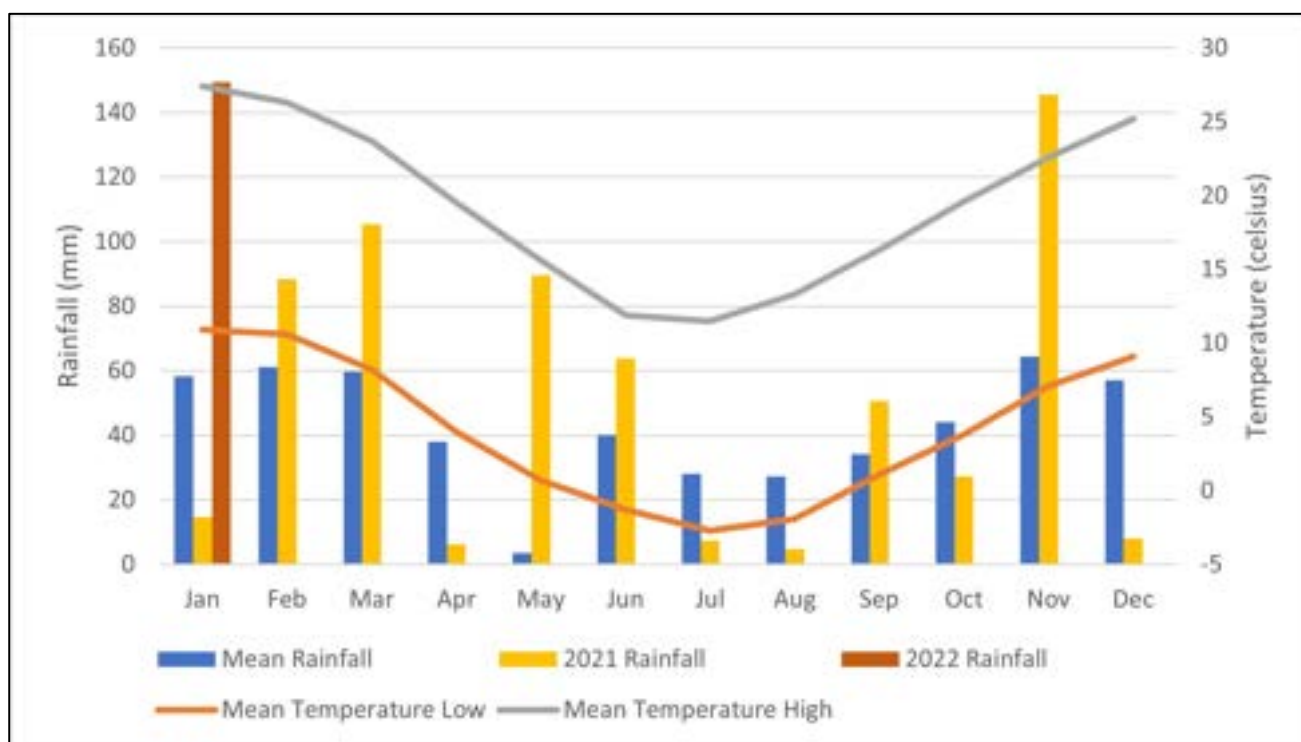


Figure 4-3. Climate data for Cooma Visitors Centre (Station ID 070278).

4.6 Biodiversity Values Map

The Biodiversity Values Map (BV Map) identifies land with high biodiversity value, as defined by the BCR 2017. Impacts to areas included on the BV Map will trigger entry into the NSW BOS and the requirement to prepare a BDAR.

The subject land contains areas of Protected Riparian Land identified on the BV Map (**Appendix A**).

4.7 Areas of Outstanding Biodiversity Value

The site does not contain any currently listed Areas of Outstanding Biodiversity Value (AOBV).

4.8 SEPP (Koala Habitat Protection) 2020 and 2021

The subject land is zoned RU1 within the Snowy Monaro Regional Council; consequently, the Koala SEPP 2020 applies. A draft Comprehensive Koala Plan of Management (CKPoM) was placed on public exhibition in 2015 but no finalised CKPoM has been made available. The subject land possesses two known Koala food trees – Ribbon Gum (*Eucalyptus viminalis*) and Snow Gum (*Eucalyptus pauciflora*) – but only as isolated paddock trees or small, fragmented wooded remnants. There are no records of the species within 2 km and most records within 10 km are associated with large remnants at higher altitude. Connectivity between these remnants and the subject land is likely to be impeded by large tracts of mostly treeless grassland and by infrastructure, such as the Monaro Highway. For these reasons, use of the subject land by Koalas is likely to be very limited and the subject land should not be considered core Koala habitat.

4.9 Native vegetation cover

Native vegetation cover (woody vegetation, including regrowth and plantations comprised of plants native to New South Wales and non-woody vegetation with no apparent signs of cultivation) was assessed within the study area and the subject land and estimated as the proportion of the study area retaining native vegetation. A summary of the vegetation cover estimate is provided in **Table 4-4**. For the purposes of the BAM, the native vegetation cover class has been determined as 10%-30%.

Table 4-4. Native vegetation cover estimates in the study area.

Vegetation Cover Type	Description	Cover Within Study Area (ha)	Total area of Study Area (ha)	Native Cover within Study Area (%)
Native vegetation	Remnant woodland and both natural and derived grassland.	862.26	3950.31	21.83

4.10 Rivers, Streams, Wetlands and Key Fish Habitat

In total, 27 watercourses are mapped as occurring on the subject land (**Figure 4-4**), comprising 17 Strahler 1st order streams, eight Strahler 2nd order streams, one Strahler 3rd order stream (Billilingra Creek), and one Strahler 4th order stream. All mapped watercourses on the subject land, including Billilingra Creek, are minor and non-perennial.

Billilingra Creek and the Strahler 4th order stream are mapped as Key Fish Habitat by the Department of Primary Industries – Fisheries. Billilingra Creek is also mapped as Protected Riparian Land by the Department of Planning and Environment.

At the time of survey, the Strahler 4th order stream formed a series of broad pools connected by narrow flowing sections at the base of a deeply etched gully (**Figure 4-5**). The stream tapered to a narrow, shallow seep as it approached the Monaro Highway. The flanks of the gully and the margins of the stream were found to possess a mixture of native vegetation (PCT 765; see **Section 4.1** below) and invasive species, notably Umbrella Sedge (*Cyperus eragrostis*), Sweet Briar (*Rosa rubiginosa*), and, in some places, Blackberry (*Rubus fruticosus* species aggregate).

Billilingra Creek likewise occurred as a series of broad pools and narrow flowing sections, with some areas widening into broad, shallow wetlands or wet grasslands (**Figure 4-6**). Native vegetation (PCT 765) occurred intermittently along the stream margins, rarely spanning more than 5 m from the stream edge. Non-native vegetation dominated on the flanks and plateaux of the associated gully. Scattered Weeping Willows (*Salix babylonica*) occur at the margins of the gully (**Figure 4-6**). Several dams are located along this watercourse, and these were full at the time of the survey (**Figure 4-7**). As with the Strahler 4th order stream, Billilingra Creek tapers to a shallow seep where it intersects with the Monaro Highway (**Figure 4-8**). This section was largely devoid of native vegetation.

No formal wetlands have been mapped within the subject land; however, areas of wetland vegetation associated with streams, gullies, dams, and similar landforms occur throughout. These have been mapped as PCT 765 (see **Section 4.1** below).

It is anticipated that the development will avoid impacts to watercourses where possible.

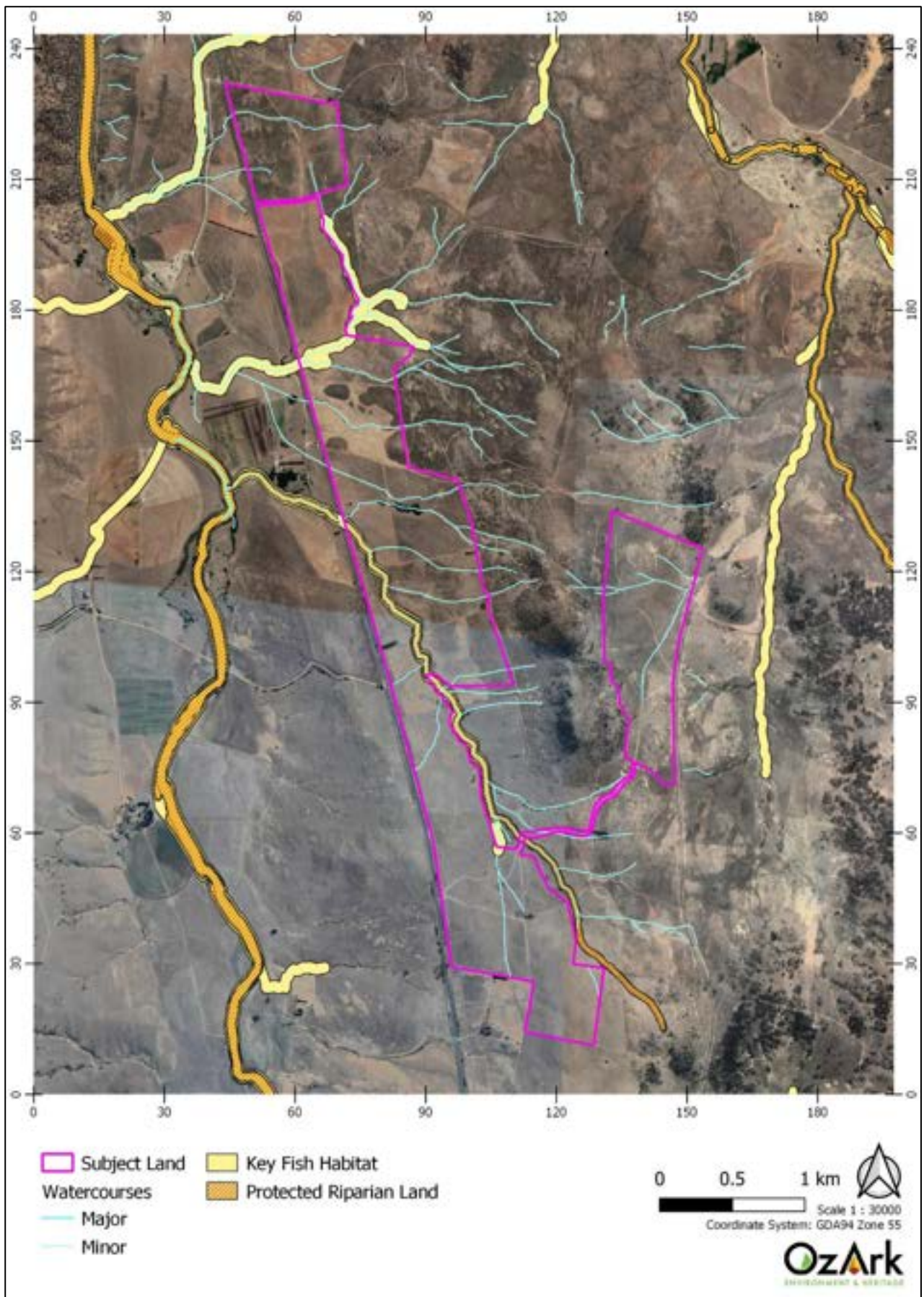


Figure 4-4. Watercourses, Key Fish Habitat, and Protected Riparian Land occurring on the subject land.



Figure 4-5. View of the unnamed Strahler 4th order watercourse mapped as Key Fish Habitat.



Figure 4-6. Views of Billilingra Creek, which is mapped as Key Fish Habitat and Protected Riparian Land.

(Top) The creek consists of narrow flowing sections (foreground) linking broad, shallow wetlands (background).

(Bottom) Wide and deep pools occur in several locations. Weeping Willow (*Salix babylonica*) occurs along the stream margins.



Figure 4-7. A large dam adjacent to Billilingra Creek, near the Monaro Highway crossing.



Figure 4-8. Billilingra Creek tapers to a shallow seep at the intersection with the Monaro Highway.

4.11 Groundwater Dependent Ecosystems

Groundwater plays an important ecological role in directly and indirectly supporting terrestrial and aquatic ecosystems. Groundwater sustains terrestrial and aquatic ecosystems by supporting vegetation and providing discharge to channels, lacustrine and palustrine wetlands, and both the estuarine and marine environment.

The degree of groundwater dependence of ecosystems can be categorised into three broad categories:

- Non-dependent ecosystems that occur mostly in recharge areas and have no connection with groundwater
- Facultative GDEs that require groundwater in some locations but not in others, particularly where an alternative source of water can be accessed to maintain ecological function. Minor changes to the groundwater regime in facultative GDEs with proportional or opportunistic groundwater dependence may not have any adverse impacts but these ecosystems can be damaged or destroyed if a lack of access to groundwater is prolonged
- Obligate GDEs that are restricted to locations of groundwater discharge and ecosystems located within aquifers (e.g. subterranean cave and stygofauna communities (Kuginis *et al.* 2012). Aquifer ecosystems are inherently groundwater dependent.

Groundwater dependent ecosystems have been classified into seven types under two broad categories as follows (Kuginis *et al.* 2012):

- Subsurface ecosystems – Underground ecosystems
- Karst systems and caves (limestone geology)
- Subsurface aquifer (phreatic) ecosystems
- Baseflow streams (hyporheic or subsurface component)
- Surface ecosystems – Above ground ecosystems
- Groundwater dependent wetlands
- Baseflow surface streams (surface/free-water component)
- Estuarine and near shore marine ecosystems
- Groundwater dependent terrestrial ecosystems; dependent on subsurface groundwater (phreatophytic).

The Bureau of Meteorology Atlas of Groundwater Dependent Ecosystems identified areas of high potential for interaction with aquatic GDEs along Billilingra Creek (**Figure 4-9**; BOM, 2017). No terrestrial GDEs are mapped on the subject land.

The proposal does not include the extraction of groundwater; however, contamination from construction operations, could impact on the quality of groundwater if adequate mitigation measures are not taken.

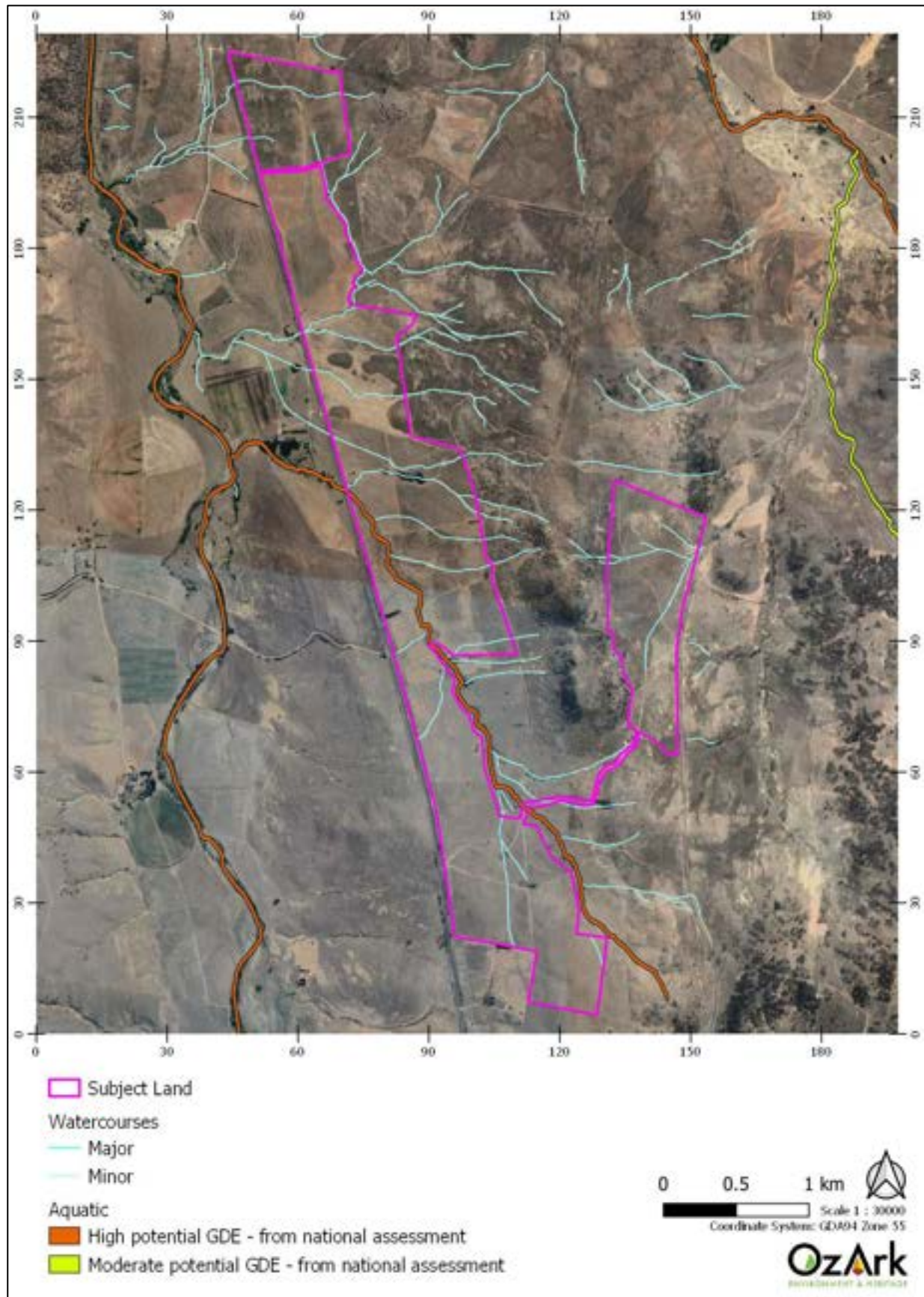


Figure 4-9. Groundwater-dependent ecosystems mapped within the subject land.

4.12 Connectivity Features

While certain grassland areas within the subject land are likely to be natural, the subject land as a whole appears to have undergone extensive historical clearing. Native woody vegetation is scarce, with the most commonly encountered tree species being exotic members of the genera *Populus* and *Salix*. In the eastern section of the subject land, small numbers of remnant native Ribbon Gum (*Eucalyptus viminalis*), Apple Box (*Eucalyptus bridgesiana*), and Snow Gum (*Eucalyptus pauciflora*) trees provide connectivity with ranges of hills bordering the proposal area. Wetland vegetation associated with gullies and grassland vegetation associated with rises may provide some connectivity for fauna species dependent on those ecosystems; however, the highly fragmented and depauperate nature of these communities limits their utility. It is uncertain whether these communities provide connectivity to the Murrumbidgee River, located c. 700 m west of the subject land.

The subject land is situated in a highly modified rural landscape. The most substantial areas of remnant native vegetation are associated with ranges of hills. Barriers to the movement of fauna species include the Monaro Highway and large tracts of land largely devoid of native vegetation. Woody vegetation is also largely absent from the nearby road corridor; where present, this vegetation is typically very narrow and dominated by exotic species. Consequently, connectivity is highly limited.

5 Ecological Assessment Results

5.1 Plant Community Types

Plant Community Types (PCTs) are the basic units of vegetation mapping in New South Wales. No predictive mapping of PCTs is presently available for the subject land. A primary objective of the field survey was to identify the PCTs present within the subject land and to map the boundaries of each community. Formal PCT descriptions are based on evidence drawn from multiple sources, including quantitative field surveys, expert opinion, and prior reports. The strength of this evidence determines the “classification confidence level” assigned by DPE to each PCT. A significant caveat in the present case is that all PCTs identified within the subject land are assigned to the lowest classification confidence level in the BioNet VIS database (5 – Very Low Confidence), indicating a lack of quantitative data to support the formal PCT description. In spite of this low confidence rating, the vegetation observed *in situ* corresponded closely to the descriptions of each community – including distribution, species composition, and landform – provided in the VIS database. Consequently, it is unlikely that any future revisions to these PCTs will significantly alter the conclusions of this survey.

Vegetation within the subject land was found to consist of a mosaic of highly modified non-native pastures, native grasslands, wetlands associated with dams and drainage lines, planted non-indigenous trees, isolated native paddock trees, and small fragments of remnant or regrowth woodland.

Five PCTs were identified during the field assessment:

- PCT 765: Carex – Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion
- PCT 999: Norton’s Box – Broad-leaved Peppermint open forest on footslopes, central and southern South Eastern Highlands Bioregion
- PCT 1191: Snow Gum – Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion
- PCT 1202: Speargrass grassland of the South Eastern Highlands Bioregion
- PCT 1289: Wallaby Grass – Red-grass – Tall Speargrass – Kangaroo Grass dry tussock grassland of the North-western and Eastern Southern Tablelands in the South Eastern Highlands Bioregion

PCT 1191 was observed to occur in two condition states:

- Good: A sparse but intact canopy with an understorey composed principally of native grasses, forbs, and small shrubs.
- Poor: A sparse and locally absent canopy with an understorey dominated by exotic species, along with a small number of disturbance-tolerant native species.

The remaining PCTs were each assigned a single condition state based on the results of the field appraisal.

A description of each PCT as it occurs within the boundaries of the subject land is given in **Table 5-1**. The area of each PCT mapped within the 491-ha assessed area is also given in **Table 5-1**. PCTs are mapped in **Figure 5-1** (north-west), **Figure 5-2** (south-west), and **Figure 5-3** (east).

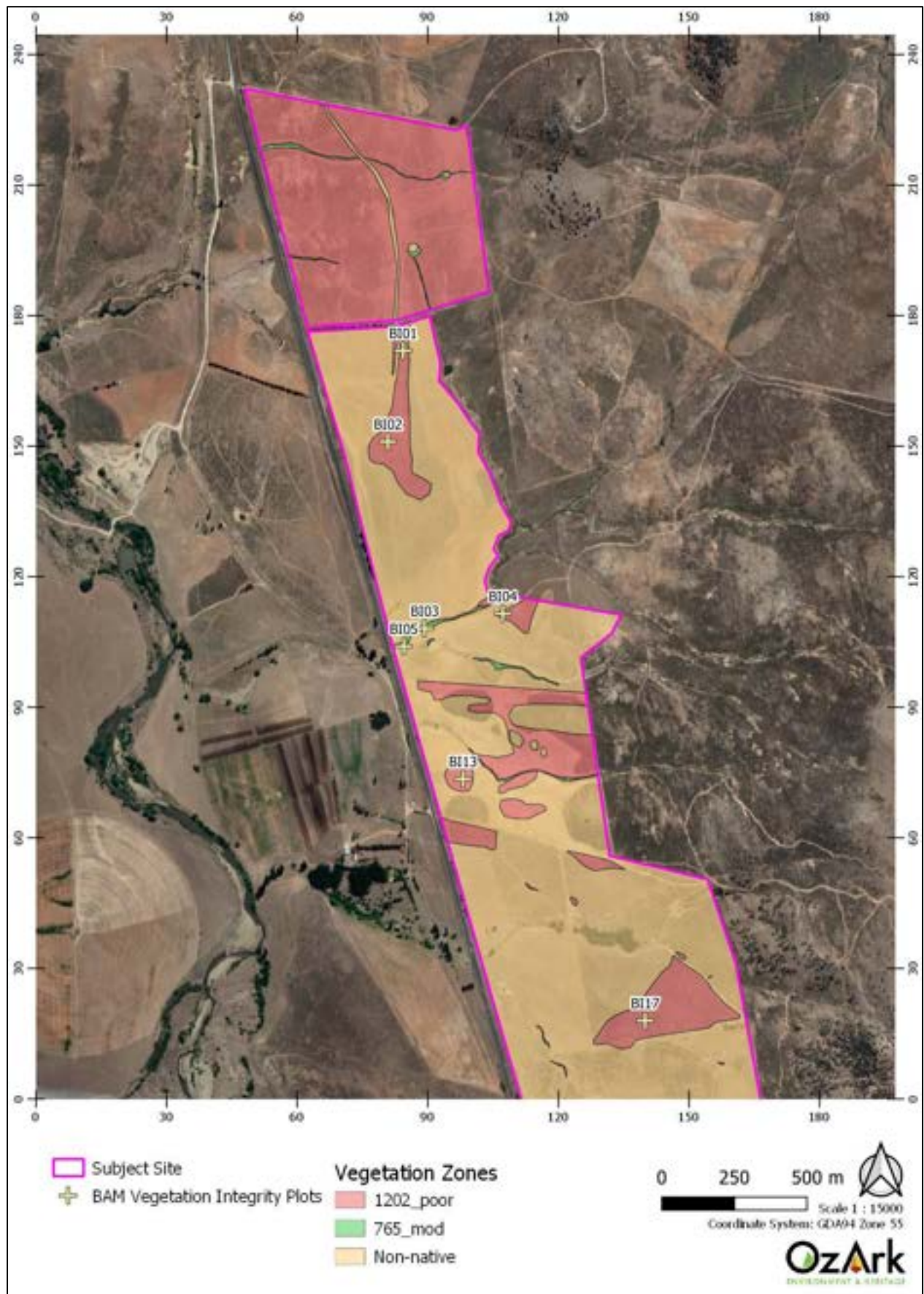
In total, seventeen Vegetation Integrity Plots (i.e., BAM plots) were conducted during the site assessment. The locations of these plots are given in **Figure 5-1** to **5-3**. Additional plot details, including photographs, are given in **Appendix B**.

Table 5-1. Plant Community Types (PCTs) within the subject land

PCT	Condition State	Vegetation Zone	Description	Area	Plots	Location
765	Moderate	765_mod	<ul style="list-style-type: none"> • A wetland or wet grassland community associated with creeks, dam margins, and drainage lines. • Dominated in wetland areas by the spike-rush <i>Eleocharis acuta</i> and in grassland areas by Tall Rush (<i>Carex appressa</i>), typically with <i>Juncus</i> spp. and other wet-area species. • Most occurrences are highly weed-invaded, with African Lovegrass (<i>Eragrostis curvula</i>) and Umbrella Sedge (<i>Cyperus eragrostis</i>) most prominent. 	5.05 ha	BI03 BI05 BI07 BI08	Occurrences are highly localised but distributed throughout the subject land, typically in association with creeks, gullies, dams and similar formations.
999	Moderate	999_mod	<ul style="list-style-type: none"> • A woodland community confined to a single rocky rise towards the eastern limit of the subject land. • Characteristic canopy species – Bundy (<i>Eucalyptus nortonii</i>) and Broad-leaved Peppermint (<i>Eucalyptus dives</i>) – are absent, perhaps due to past clearing. • Dominated by dense regrowth of Black Cypress-pine (<i>Callitris endlicheri</i>). PCT 999 is the only community mapped for the Monaro IBRA subregion to allow for the occurrence of this species. • Possesses a relatively high diversity of native shrub, forb, and grass species. • The BC Act- and EPBC Act-listed Vulnerable species Creeping Hop-bush (<i>Dodonaea procumbens</i>) occurs within this PCT. • Some encroachment by African Lovegrass (<i>Eragrostis curvula</i>) was noted. 	0.62 ha	BI10	Confined to a single small stand on Lot 1 DP449605.
1191	Good	1191_good	<ul style="list-style-type: none"> • An open woodland community confined to one single-species stand of Ribbon Gum (<i>Eucalyptus viminalis</i>) on a rocky rise towards the eastern limit of the subject land. • Ribbon Gum occurs both as immature regrowth and as relatively short, multi-stemmed mature trees, possibly indicating recovery from prior disturbance or stress. • Possesses a relatively high diversity of native shrub, forb, and grass species. • The BC Act- and EPBC Act-listed Vulnerable species Creeping Hop-bush (<i>Dodonaea procumbens</i>) occurs within this PCT. 	0.24 ha	BI16	Confined to a single small stand on Lot 1 DP449605.

PCT	Condition State	Vegetation Zone	Description	Area	Plots	Location
			<ul style="list-style-type: none"> Some encroachment by African Lovegrass (<i>Eragrostis curvula</i>) was noted. The High-threat Exotic species African Boxthorn (<i>Lycium ferocissimum</i>) and Sweet Briar (<i>Rosa rubiginosa</i>) were also noted. 			
1191	Poor	1191_poor	<ul style="list-style-type: none"> An open woodland community with a sparse canopy of Ribbon Gum (<i>Eucalyptus viminalis</i>). Ribbon Gum occurs both as immature regrowth and as relatively stunted, multi-stemmed mature trees, possibly indicating recovery from prior disturbance. Also occurs as isolated Snow Gum (<i>Eucalyptus pauciflora</i>) trees on ridges in the south of the footprint. Snow Gum (<i>Eucalyptus pauciflora</i>) increases in frequency with altitude, becoming the dominant canopy species on hilltops. Another associated species, Apple Box (<i>Eucalyptus bridgesiana</i>), occurs nearby, chiefly on the lower flanks of surrounding hills. The BC Act-listed Vulnerable species Silky Swainson-pea (<i>Swainsona sericea</i>) was located in occurrences of this PCT outside the subject land and may also occur within the subject land. Most occurrences were highly weed-invaded, with significant infestations of African Lovegrass (<i>Eragrostis curvula</i>), African Boxthorn (<i>Lycium ferocissimum</i>), and Sweet Briar (<i>Rosa rubiginosa</i>). 	1.23 ha	BI06 BI09	<p>Confined to Lot 1 DP449605, Lot 2 DP1106250, and Lots 78 and 113 DP 750531</p> <p>Occurs as isolated paddock trees and as small contiguous fragments around the margins of the subject land, typically on or around hills and ridges.</p>
1202	Poor	1202_good	<ul style="list-style-type: none"> Localised patches of highly modified native grassland embedded in a background of non-native pasture. The most frequently encountered natives include Knead Speargrass (<i>Austrostipa bigeniculata</i>), Wallaby Grasses (<i>Rytidosperma</i> spp.), Rough Speargrass (<i>Austrostipa scabra</i>), and Couch (<i>Cynodon dactylon</i>). A depauperate community often dominated by African Lovegrass (<i>Eragrostis curvula</i>), with significant infestations of the High-threat Exotic species Saffron Thistle (<i>Carthamus lanatus</i>), Sorrel (<i>Rumex acetosella</i>), and Bathurst Burr (<i>Xanthium spinosum</i>). 	177.17	BI01 BI02 BI04 BI13 BI14 BI17	The most commonly encountered PCT, occurring in all lots except for Lot 14 DP 750531 and Lot 52 DP750523.
1289	Good	1289_good	<ul style="list-style-type: none"> A grassland community occurring on shallow, stony soil below PCT 999. 	8.60	BI11 BI12	Largely confined to Lot 1 DP449605.

PCT	Condition State	Vegetation Zone	Description	Area	Plots	Location
			<ul style="list-style-type: none"> Varies in composition across its extent, with Red Grass (<i>Bothriochloa macra</i>), Wallaby Grasses (<i>Rytidosperma</i> spp.), Kangaroo Grass (<i>Themeda triandra</i>), Shorthair Plumegrass (<i>Dichelachne micrantha</i>), Knead Speargrass (<i>Austrostipa bigeniculata</i>), and Common Everlasting (<i>Chrysocephalum apiculatum</i>) being locally dominant. A form of this PCT with a covering of shrubs, chiefly Native Blackthorn (<i>Bursaria spinosa</i>), but otherwise very similar in composition to the grassland form, occurs on higher ground and may be derived from historical clearing of woodland vegetation. The BC Act- and EPBC Act-listed Vulnerable species Creeping Hop-bush (<i>Dodonaea procumbens</i>) occurs within this PCT, as does the BC Act-listed Vulnerable species Silky Swainson-pea (<i>Swainsona sericea</i>). Minor incursions of African Lovegrass (<i>Eragrostis curvula</i>) were noted within this community. 		BI15	



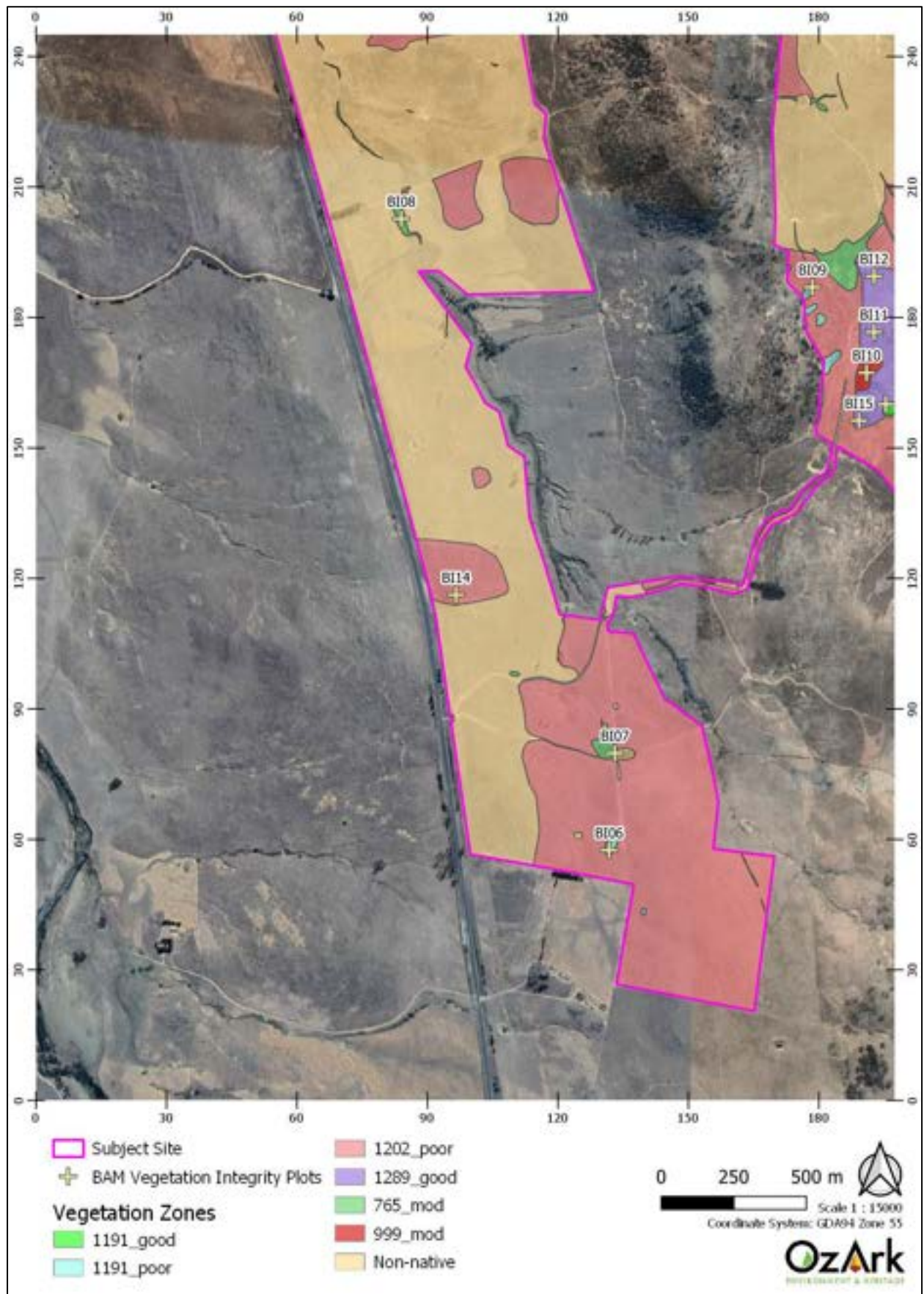


Figure 5-2. Plant Community Types and Vegetation Zones recorded within the subject land (south-west).

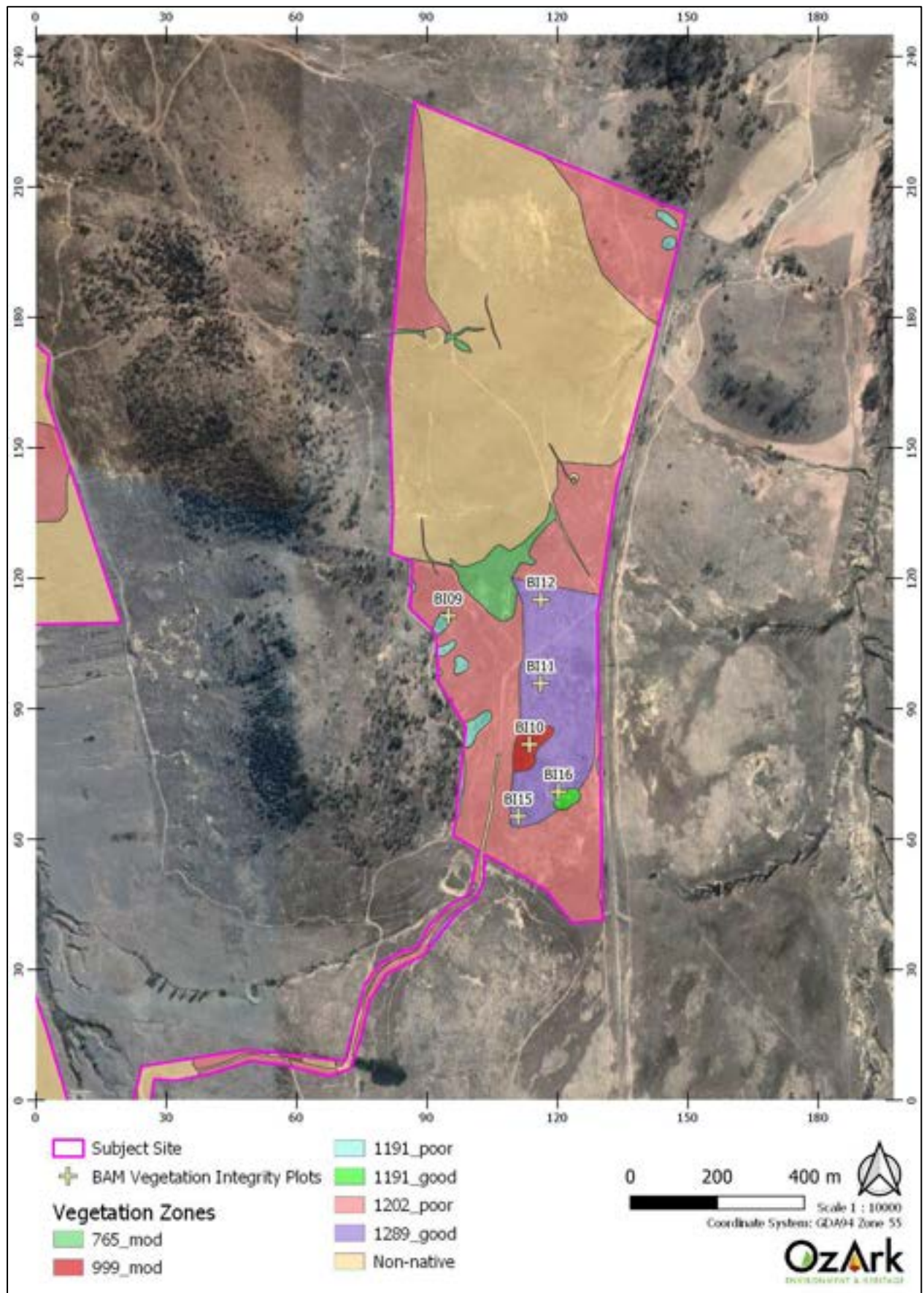


Figure 5-3. Plant Community Types and Vegetation Zones recorded within the subject land (east).

5.2 Flora Species Observed

The field survey identified a total of 156 flora species within the subject land (**Appendix C**). Of these, 91 species (58.33%) were native and 65 (41.67%) were exotic.

Two threatened plant species were recorded during the field survey. These are described in **Section 5.4**.

Fifteen species listed as High Threat Exotic weeds (HTE) under the BAM were recorded from the subject land (**Table 5-2**). Two of these are also listed as Priority Weeds for the South East LLS region (PW) and three as Weeds of National Significance (WoNS).

Table 5-2. Significant weeds recorded on the subject land.

Growth Form	Scientific Name	Common Name	HTE	PW	WoNS
TG	<i>Salix babylonica</i>	Weeping Willow	Y	N	Y
TG	<i>Pinus</i> sp.	Pine	Y	N	N
TG	<i>Populus alba</i>	White Poplar	Y	N	N
TG	<i>Populus nigra</i>	Black Poplar	Y	N	N
SG	<i>Lycium ferocissimum</i>	African Boxthorn	Y	Y	Y
SG	<i>Rubus fruticosus</i> species aggregate	Blackberry	Y	Y	Y
SG	<i>Rosa rubiginosa</i>	Sweet Briar	Y	N	N
FG	<i>Carthamus lanatus</i>	Saffron Thistle	Y	N	N
FG	<i>Hypericum perforatum</i>	St John's Wort	Y	N	N
FG	<i>Raphanus raphanistrum</i>	Wild Radish	Y	N	N
FG	<i>Rumex acetosella</i>	Sorrel	Y	N	N
FG	<i>Xanthium spinosum</i>	Bathurst Burr	Y	N	N
GG	<i>Cyperus eragrostis</i>	Umbrella Sedge	Y	N	N
GG	<i>Eragrostis curvula</i>	African Lovegrass	Y	N	N
GG	<i>Paspalum dilatatum</i>	Paspalum	Y	N	N

Plot data, plot photographs and a list of all flora species observed during the field assessment are provided in **Appendices B and C**.

5.3 Fauna Species Observed

The field survey identified a total of 20 fauna species within the subject land (**Appendix C**), comprising 17 birds, one mammal, and two reptiles. Of these, 18 species (90%) were native and two (10%) were exotic.

One threatened fauna species was recorded during the field survey. This species is described in **Section 5.4**.

5.4 Threatened Species Observed

Two threatened flora species were recorded on the subject land:

- Silky Swainson-pea (*Swainsona sericea*) – BC Act, Vulnerable
- Creeping Hop-bush (*Dodonaea procumbens*) – BC Act and EPBC Act, Vulnerable

Swainsona sericea was associated with PCT 1289 and PCT 1191, and also occurred in a gravel trail bordered by PCT 1202. *Dodonaea procumbens* was associated with PCT 999, PCT 1191, and PCT 1289. Both species were concentrated in the southern half of the eastern section of the subject land. As neither species was flowering at the time of the survey, it is very likely that additional undetected populations occur on the subject land. This is particularly true for *S. sericea*, which is inconspicuous when not in flower. These species are shown in **Figure 5-5**.



Figure 5-4. Threatened flora species recorded on the subject land: (left) Silky Swainson-pea (*Swainsona sericea*) and (right) Creeping Hop-bush (*Dodonaea procumbens*).

One threatened fauna species was recorded on the subject land:

- White-fronted Chat (*Epthianura albifrons*) – BC Act, Vulnerable

This species was associated with open grassland, including PCT 1202 and adjacent areas of non-native vegetation. Three birds were noted in one location, though others may be present.

The locations of these threatened species are mapped in **Figure 5-5**.

Additional threatened species which may make use of the subject land are given in **Appendix A**.

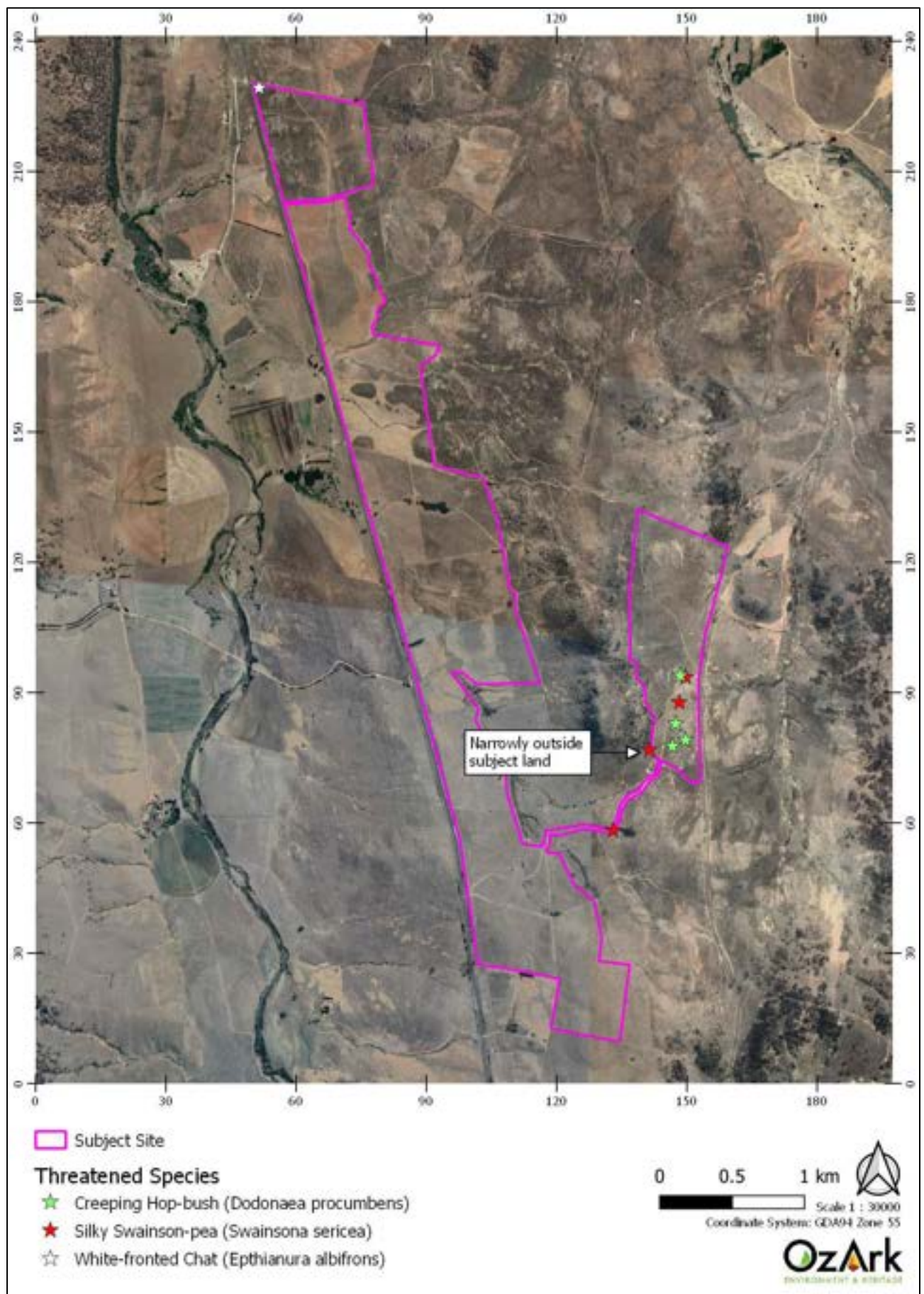


Figure 5-5. Locations of threatened species recorded on the subject land.

5.5 Threatened Ecological Communities

Four of the PCTs recorded within the subject land are associated with Threatened Ecological Communities (TECs). These are identified in **Table 5-3**. The occurrence of each PCT within the subject land was assessed against the relevant composition and condition criteria for each TEC to determine whether that TEC is present.

Table 5-3. Threatened Ecological Communities associated with each PCT recorded within the subject land.

PCT ID	PCT Name	TEC	Meets Criteria
765	Carex - Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion	<u>EPBC, Critically Endangered:</u> Natural Temperate Grassland of the South Eastern Highlands	Partly, see Table 5-4 .
999	Norton's Box - Broad-leaved Peppermint open forest on footslopes, central and southern South Eastern Highlands Bioregion	None	-
1191	Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion	<u>BC, Critically Endangered:</u> Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion	Yes, see Table 5-5 .
		<u>BC, Critically Endangered:</u> Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions	No, canopy composition differs from TEC.
1202	Speargrass grassland of the South Eastern Highlands Bioregion	<u>EPBC, Critically Endangered:</u> Natural Temperate Grassland of the South Eastern Highlands	No, see Table 5-4 .
1289	Wallaby Grass - Red-grass - Tall Speargrass - Kangaroo Grass dry tussock grassland of the North-western and Eastern Southern Tablelands in the South Eastern Highlands Bioregion	<u>EPBC, Critically Endangered:</u> Natural Temperate Grassland of the South Eastern Highlands	Partly, see Table 5-4 .

The grassland communities – PCTs 765, PCT 1202, and PCT 1289 – were assessed against the composition and condition criteria for the EPBC Act-listed Critically Endangered Ecological Community (CEEC) *Natural Temperate Grassland of the South Eastern Highlands* (**Table 5-4**). This assessment determined that parts of PCTs 765 and 1289 met the threshold criteria, while PCT 1202 did not. In total, 0.43 ha of PCT 765 and 4.92 ha of PCT 1289 met the criteria to be considered moderate to high condition (PCT 765) or high to very high condition (PCT 1289) examples of this CEEC. EPBC guidelines recommending implementing a 30 m protection buffer around each instance of the CEEC. In order to maintain the integrity of the CEEC, clearing activities should not be undertaken within this buffer. This buffer has not been included in the areas of impact cited above. The extent of this CEEC on the subject land is mapped in **Figure 5-6** and **Figure 5-7**.

Table 5-4. Assessment of grassland and wetland PCTs against the threshold criteria for the EPBC Act-listed *Natural Temperate Grasslands* CEEC.

Criterion	765	1202	1289
Key Diagnostic Criteria			
Located in the South Eastern Highlands or adjacent IBRA bioregions	Yes.	Yes	Yes
Between 250 – 1200 m elevation	Yes. Occurs between c. 715 m and 800 m	Yes. Occurs between c. 715 m and 800 m	Yes. Occurs between c. 770 m and 800 m
Native grasses dominant (chiefly <i>Themeda triandra</i>, <i>Poa sieberiana</i>, <i>Poa labillardierei</i>, <i>Austrostipa bigeniculata</i>, <i>Austrostipa scabra</i>, <i>Bothriochloa macra</i>, <i>Rytidosperma</i> spp., and <i>Lachnagrostis</i> spp.). OR Native sedges dominant (chiefly <i>Carex appressa</i> or <i>C. bichenoviana</i>)	Partly. <i>Carex appressa</i> dominant in wet grassland areas, but sparse in gullies and dams. <i>Austrostipa bigeniculata</i> , <i>Austrostipa scabra</i> , <i>Bothriochloa macra</i> , <i>Rytidosperma</i> spp., and <i>Lachnagrostis filiformis</i> occur in this community but are never dominant.	No. <i>Austrostipa bigeniculata</i> , <i>A. scabra</i> , and <i>Rytidosperma</i> spp. common but never individually or collectively accounting for ≥50% of vegetation cover.	Yes. Variously dominated by <i>Themeda triandra</i> , <i>Austrostipa bigeniculata</i> , <i>Bothriochloa macra</i> , and <i>Rytidosperma</i> spp., with <i>A. scabra</i> also present.
Native forbs present	Yes.	Yes.	Yes. Including the threatened species <i>Swainsona sericea</i> .
Tree, shrub or sub-shrub layer, if present, accounting for ≤10% of cover	Yes. No tree or shrub layer.	Yes. No tree or shrub layer.	Yes. Shrubs present but sparse.
Natural, not derived, grassland	Yes. No evidence of prior occupation by trees. Assumed natural.	Partly. Isolated paddock trees suggest that the southern extent of this PCT may be derived from past clearing.	Partly. Portions of this PCT located between PCT 999 and PCT 1191 (good condition) showed some evidence of prior clearing. It is uncertain whether the former canopy exceeded the 10% threshold; however, adjacent woodlands did meet or exceed this threshold. It has been assumed that this area is derived.
Condition Threshold Criteria			

Criterion	765	1202	1289
Percentage cover of native vascular plants (annual or perennial) exceeds percentage cover of exotic perennial plants.	Partly. The <i>Carex appressa</i> wet grassland met this criterion. Areas of the PCT associated with drains and gullies did not.	Partly. African Lovegrass (<i>Eragrostis curvula</i>) dominated in many areas.	Yes.
<u>MODERATE TO HIGH CONDITION</u> At least 8 non-grass native species (note that sites were not surveyed during a favourable season). OR At least 2 indicator species OR A Floristic Value Score (FVS) of ≥ 5	Partly. The <i>Carex appressa</i> wet grassland possessed 11 non-grass native species. It possessed one indicator species. FVS was not assessed.	No.	Yes. The areas least likely to be derived possessed 16 non-grass native species, including nine indicator species. FVS was not assessed.
<u>HIGH TO VERY HIGH CONDITION</u> At least 12 non-grass native species (note that sites were not surveyed during a favourable season). OR At least 3 indicator species OR A Floristic Value Score (FVS) of ≥ 6.5	No. Surveying in spring or early summer may reveal additional species.	No. Surveying in spring or early summer may reveal additional species; however, this PCT was highly depauperate.	Yes. See above.
Meets Threshold Criteria?	Partly. An area of <i>Carex appressa</i> wet grassland (0.43 ha) meets the conditions to be considered an example of this CEEC in Moderate to High condition.	No.	Partly. The area of this PCT least likely to be derived (c. 4.92 ha) meets or exceeds the conditions to be considered an example of this CEEC in High to Very High Condition.

PCT 1191 was assessed against the community descriptions for the BC Act-listed CEECs *Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion* and *Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions*. The latter CEEC was discounted as it does not allow for the co-dominance of Ribbon Gum (*Eucalyptus viminalis*), which was the species most frequently

encountered on the subject land. While the *Monaro Tablelands* CEEC lacks formal composition and condition criteria, the description of the community compiled in the Final Determination has been used to assess the likelihood that this community occurs on the subject land (**Table 5-5**). The vegetation within PCT 1191 broadly aligns with the description of the CEEC; however, this CEEC forms part of a continuum of related communities, not all of which are protected under the CEEC listing. The vegetation recorded on the subject land was in many respects intermediate between several of these communities (see **Table 5-5**). Owing to this uncertainty, it has been precautionarily identified as a component of the CEEC. Mapping is provided in **Figure 5-6** and **Figure 5-7**.

Table 5-5. Assessment of PCT 1191 against the threshold criteria for the BC Act-listed *Monaro Tablelands Cool Temperate Grassy Woodlands* CEEC.

Criterion	1191
Diagnostic Criteria	
Dominated by <i>Eucalyptus pauciflora</i>, with <i>E. rubida</i>, <i>E. stellulata</i>, and/or <i>E. viminalis</i> as co-dominants. Other species, including <i>E. bridgesiana</i>, <i>E. dives</i>, <i>E. blakelyi</i> and <i>E. melliodora</i>, may be present but are always sub-dominant.	Yes. Dominated by <i>E. pauciflora</i> on mid-slopes and ridges and by <i>E. viminalis</i> on mid-slopes. <i>Eucalyptus bridgesiana</i> is present but sub-dominant.
Alternatively, the community may lack a canopy layer due to past clearing.	
Presence of characteristic species	Yes. Twelve listed characteristic species were recorded.
Falls (“predominantly”) within the 600 – 800 mm rainfall isohyets	Indeterminate. The subject land falls approximately on the boundary of the 400 to 600 and 600 to 1000 mm rainfall isohyets, according to the Bureau of Meteorology (BOM 2022).
Occurs on “broad valley floors and the slopes and low rises of the moderately undulating tablelands,” within an altitude range of c. 700-1200 m	Yes. Occurs on low rises and slopes within an altitude range of c. 750 to 800 m.
Contains species characteristic of the <i>Monaro Tablelands</i> CEEC rather than the similar Ribbon Gum – Snow Gum – <i>Cassinia longifolia</i> (m31) community	Indeterminate. Contains species considered to be strongly or moderately indicative of the m31 community: <i>Cassinia longifolia</i> , <i>Bossiaea buxifolia</i> , <i>Bursaria spinosa</i> , and <i>Melichrus urceolatus</i> . Also contains species considered to be strongly or moderately indicative of the CEEC: <i>Poa labillardierei</i> , <i>Themeda triandra</i> , <i>Oxalis perennans</i> , <i>Chrysocephalum apiculatum</i> , and <i>Austrostipa scabra</i> . Surveying in spring or early summer may aid in discrimination between these two communities.
Contains species characteristic of the <i>Monaro Tablelands</i> CEEC rather than the similar Yellow Box – Apple Box tall grassy woodland (u178) community	Indeterminate. Contains species considered to be strongly or moderately indicative of the u178 community: <i>Austrostipa scabra</i> , <i>Vittadinia muelleri</i> , <i>Austrostipa bigeniculata</i> , <i>Melichrus urceolatus</i> , <i>Lomandra filiformis</i> , <i>Euchiton sphaericus</i> , and <i>Lomandra multiflora</i> subsp. <i>multiflora</i> .

Criterion	1191
	<p>Also contains species considered to be strongly or moderately indicative of the CEEC: <i>Poa labillardierei</i> and <i>Dichondra repens</i>.</p> <p>No Yellow Box (<i>Eucalyptus melliodora</i>) was detected within the subject land.</p> <p>Surveying in spring or early summer may aid in discrimination between these two communities.</p>
<p>Contains species characteristic of the Monaro Tablelands CEEC rather than the similar Werriwa Tablelands CEEC</p>	<p>Indeterminate.</p> <p>Contains species considered to be strongly or moderately indicative of the Werriwa Tablelands CEEC: <i>Chrysocephalum apiculatum</i>, <i>Goodenia pinnatifida</i>, <i>Solenogyne dominii</i>, <i>Acaena ovina</i>, <i>Lomandra filiformis</i> subsp. <i>filiformis</i>, and <i>Melichrus urceolatus</i>.</p> <p>Also contains species considered to be strongly or moderately indicative of the Monaro Tablelands CEEC: <i>Poa labillardierei</i>, <i>Desmodium varians</i>, <i>Bossiaea buxifolia</i>, and <i>Glycine clandestina</i>.</p> <p>Canopy composition (i.e. co-dominance of <i>Eucalyptus viminalis</i> and presence of <i>E. bridgesiana</i>) more closely resembles the Monaro Tablelands CEEC.</p> <p>Surveying in spring or early summer may aid in discrimination between these two communities.</p>

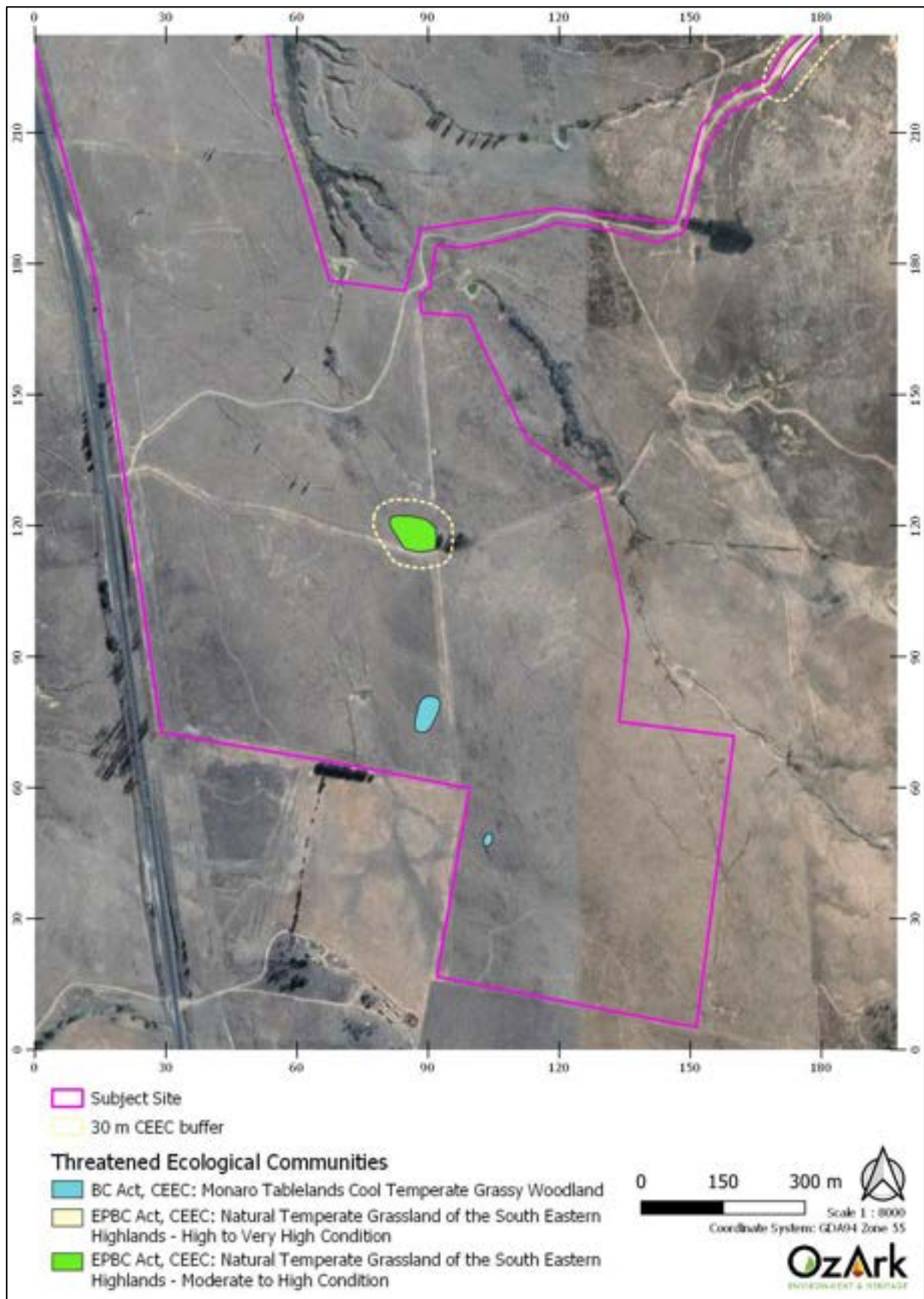


Figure 5-6. Extent of Threatened Ecological Communities within the subject land (south-west).

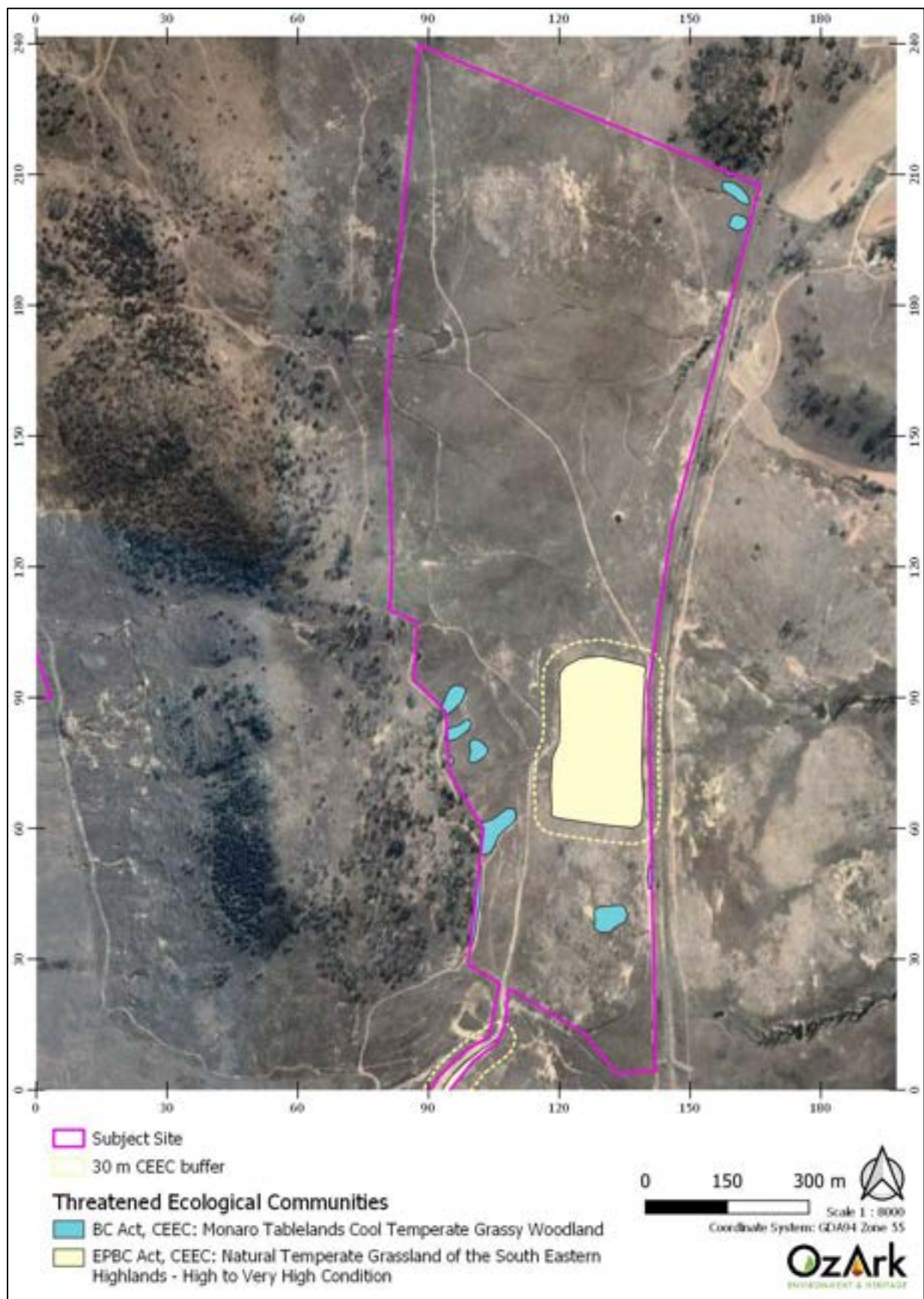


Figure 5-7. Extent of Threatened Ecological Communities within the subject land (east).

5.6 Habitat Features

The subject land was assessed for its potential to provide habitat for threatened flora and fauna known or predicted to occur in the study area. Habitat features including but not limited to rock outcrops, caves, hollow-bearing trees, nests, wetlands (including dams), and watercourses were searched for and recorded, if present.

Geological habitat features (caves, crevices, outcrops and similar) are discussed in **Section 4.4**. Wetlands and watercourses are discussed in **Section 4.10**.

Human-made structures are also regarded as potential habitat for fauna species, including bats and reptiles. Two small sheds or shelters occur within the subject land, and these may offer habitat for threatened species.

Eight hollow-bearing trees were recorded within the subject site, comprising four live trees and four standing dead trees (stags). These trees were found to possess a total of 12 large hollows (diameter > 20 cm) and 29 small hollows (diameter < 20 cm). All hollow-bearing trees occurred within the two condition classes of PCT 1191 (1191_good and 1191_poor). Additional habitat trees may be present within stands of non-native vegetation, as these areas were not assessed.

Habitat features are mapped in **Figure 5-8**, **Figure 5-9**, and **Figure 5-10**.

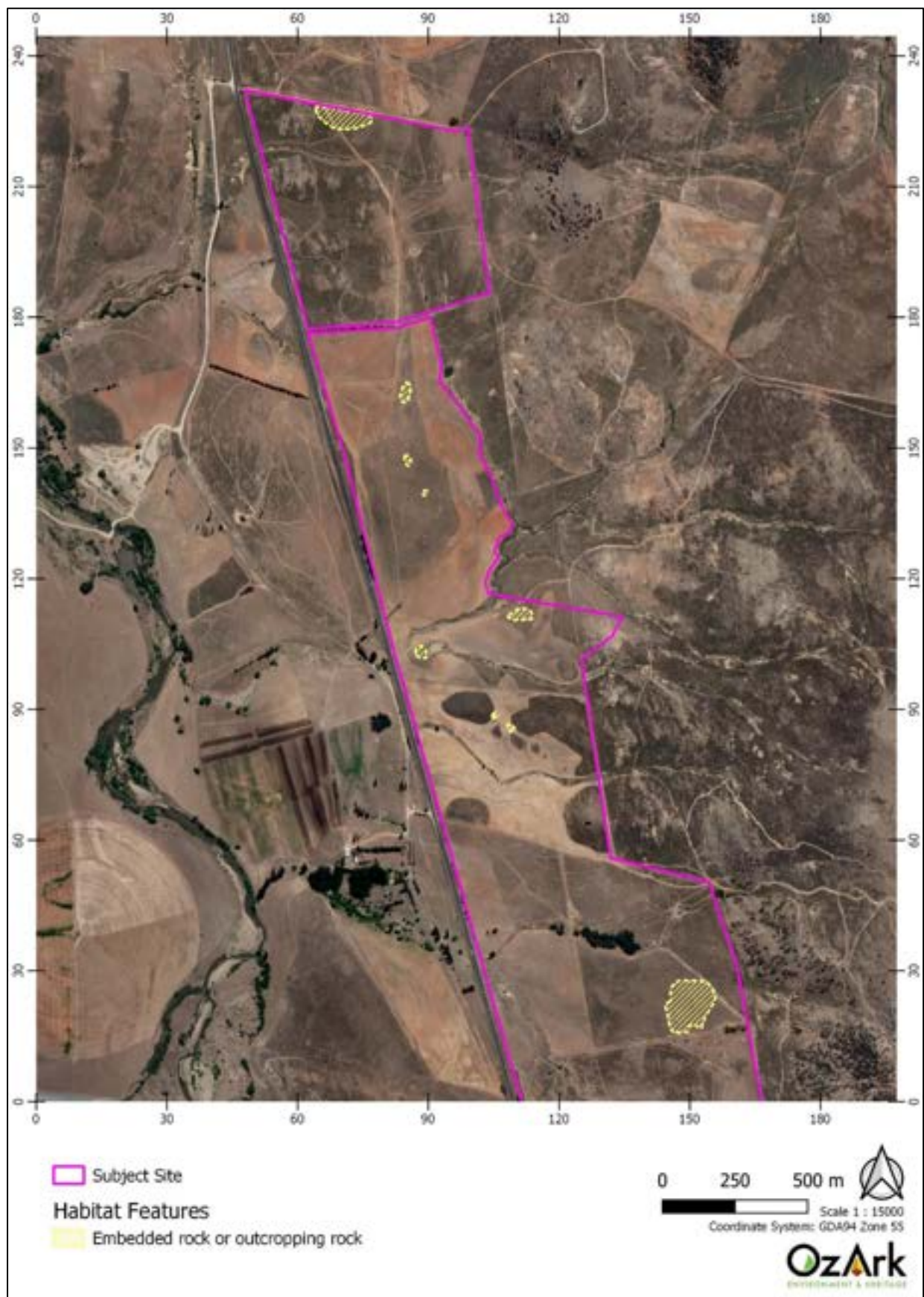


Figure 5-8. Habitat features recorded within the subject land (north-west).

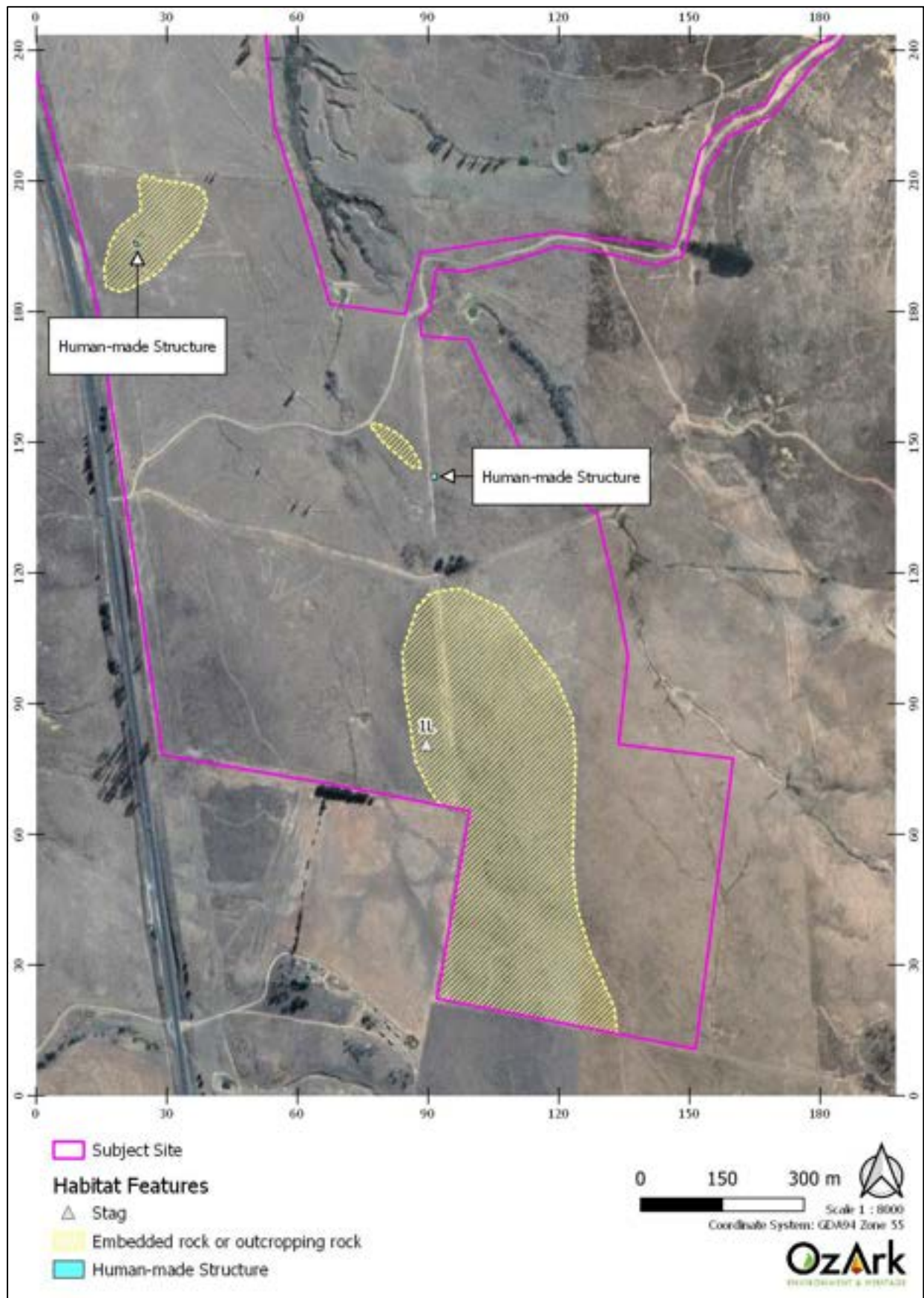


Figure 5-9. Habitat features recorded within the subject land (south-west).

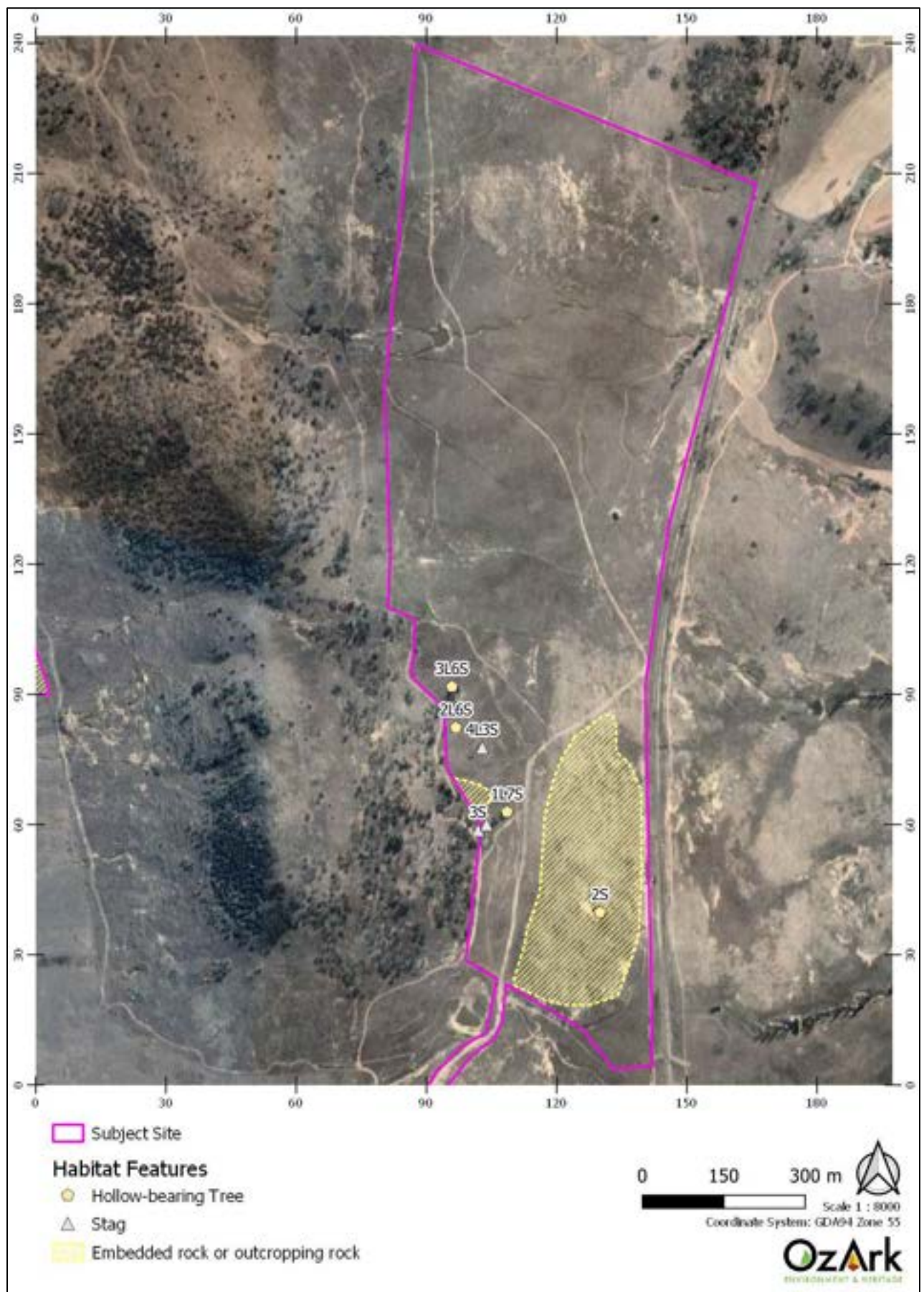


Figure 5-10. Habitat features recorded within the subject land (east).

5.7 Prescribed Impacts

The subject land was searched for habitat features associated with prescribed impacts identified under the BAM. These are detailed in **Table 5-6**.

Table 5-6. Potential prescribed impacts of the proposal.

Prescribed Impacts	Site Assessment
Impacts on the habitat of threatened species or ecological communities associated with karst, caves, crevices, cliffs and other features of geological significance.	Small crevices associated with rocky outcrops – most notably in the small occurrence of 1191_poor in the southwestern section of the subject land – were noted during the site survey. Additional geological features of note occur just outside of the subject land, around the lower slopes of hills.
Impacts of development on the habitat of threatened species or ecological communities associated with rocks.	Substantial areas of embedded rock and loose surface rock with minor outcroppings were noted, in addition to the larger outcrop described above.
Impacts of development on the habitat of threatened species or ecological communities associated with human made structures.	Small human-made structures (animal shelters with wooden walls and corrugated iron roofs) occur within the footprint (Figure 5-9). It was noted that these structures were utilised by reptiles.
Impacts of development on the habitat of threatened species or ecological communities associated with non-native vegetation.	Non-native vegetation on the subject land may still provide habitat for species or ecosystem credit species. These impacts may require consideration of mitigation strategies.
Impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range.	Connectivity between the subject land and nearby remnant vegetation is limited (see Section 4.12). Impacts to vegetation flanking watercourses may reduce connectivity for certain species.
Impacts of the development on movement of threatened species that maintains their life cycle.	Due to the limited connectivity and few habitat features offered by the site, no significant impacts to the movement of any threatened species are expected as a result of this proposal.
Impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities.	A detailed discussion of potential constraints concerning watercourses is given in Section 4.10 . It is anticipated that the proposal will avoid or minimise potential impacts.
Impacts of wind turbine strikes on protected animals.	None associated with the proposal.
Impact of vehicle strikes on threatened species of animals or on animals that are part of a TEC.	An increase in overall traffic movement is anticipated due to the construction and ongoing operation of the proposal. Maintaining suitably low speed limits on site will help to mitigate impacts that arise from this increase.

5.8 Matters of National Environmental Significance

Under the environmental assessment provisions of the EPBC Act, Matters of National Environmental Significance (MNES) and impacts on Commonwealth land must be considered

to assist in determining whether the proposal should be referred to the Australian Government DAWE.

The EPBC Act protected matters search has identified four Wetlands of International Importance, four TECs, 39 threatened species, 12 listed migratory species and 18 listed marine species with the potential to occur in the 10 km search area (**Appendix A**). The likelihood of the proposal causing a significant impact to any of these listed entities will depend on the final construction footprint. These impacts must be assessed as part of a BDAR.

Two MNES entities were recorded during the site survey:

- TEC:
 - Critically Endangered: *Natural Temperate Grassland of the South Eastern Highlands*.
- Threatened Species:
 - Vulnerable: Trailing (or Creeping) Hop-bush (*Dodonaea procumbens*).

Impacts to these entities may require referral to DAWE. Avoiding impacts to the areas of PCT 765 and 1289 would avoid impacts to the TEC. The threatened species was associated with PCTs 999, 1191, and 1289.

The Protected Matters Search Tool identified seven EPBC Act-listed threatened species with the potential to occur within the impact area that are either not listed under the BC Act or were not identified by BioNet as occurring in the relevant IBRA subregions. These are listed in **Table 5-7**. None are considered likely to occur on the subject land.

Table 5-7. MNES entities not identified by BioNet searches

Clade	Scientific Name	Common Name	*Comm. status	Likelihood of Occurrence
Actinopterygii	<i>Maccullochella macquariensis</i>	Trout Cod	E	Unlikely. While known from the nearby Murrumbidgee River, this species favours habitat (deep water with abundant woody debris) that does not occur on the subject land.
Actinopterygii	<i>Macquaria australasica</i>	Macquarie Perch	E	Unlikely. While known from the nearby Murrumbidgee River, this species favours habitat (clear water and deep, rocky holes) that does not occur on the subject land.
Actinopterygii	<i>Maccullochella peelii</i>	Murray Cod	V	Unlikely. While known from the nearby Murrumbidgee River, this species favours habitat (deeper water with woody or rocky snags) that does not occur on the subject land.
Aves	<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	CE	Unlikely. This species has rarely been sighted inland and is unlikely to make use of the habitat offered by the subject land.
Aves	<i>Pycnoptilus floccosus</i>	Pilotbird	V	Unlikely. The subject land falls outside the mapped distribution of this species

Clade	Scientific Name	Common Name	*Comm. status	Likelihood of Occurrence
				and lacks suitable habitat (dense forest with leaf litter).
Mammalia	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat, Large Pied Bat	V	Unlikely. There are no BioNet records of the species within c. 93 km. Some suitable habitat (rock crevices) occurs in and around the subject land.
Flora	<i>Lepidium aschersonii</i>	Spiny Pepper-cress	V	Unlikely. There are no records of the species within c. 160 km.

*Comm. Status: V = Vulnerable, E = Endangered, CE = Critically Endangered

6 Preliminary BAM-C Outputs

Data derived from the 17 BAM plots conducted during the site assessment were entered into the BAM Calculator (BAM-C) to determine the offset cost associated with each vegetation zone. As the likely footprint of the proposal is presently unknown, this assessment assumes that all vegetation within the c. 491 ha assessment area will be cleared. While this will significantly overstate the credit obligation likely to be generated by the proposal, it will allow for the identification of areas with a greater credit price. This should aid in project planning.

BAM-C calculations generate two classes of credit:

- Ecosystem credits account for direct impacts to PCTs, TECs, and habitat for threatened species that can be reliably predicted to occur within each PCT. Ecosystem credit species cannot be ruled out by targeted surveys (DPIE, 2020a). Ecosystem credit costs can be reduced only by reducing the area of impact or eliminating PCTs from the impact area.
- Species credits account for species whose likelihood of occurrence cannot be predicted by vegetation surrogates and/or landscape features and can be reliably detected by survey. A targeted survey or expert report is required to confirm presence/absence of these species (DPIE, 2020a). Alternatively, species credit species can be assumed present.

Credit outputs and indicative costings from this preliminary analysis are provided in **Appendix D** and **Appendix E** and discussed in **Section 6.1** and **Section 6.2**. Strategies to reduce the offset obligation generated by the proposal are given in **Section 7.2**.

6.1 Ecosystem Credits

Ecosystem credits account for direct impacts to PCTs, TECs, and habitat for threatened species that can be reliably predicted to occur within each PCT. In total, the BAM-C generated 26 predicted species for the identified PCTs (**Table 6-1**). One of these, the Glossy Black-cockatoo (*Calyptorhynchus lathami*) could be discounted as an Ecosystem Credit species because of habitat constraints for foraging (absence of *Casuarina* or *Allocasuarina* species). The remaining 25 species could not be ruled out on the basis of habitat constraints and cannot be ruled out by targeted surveys. Ecosystem credits can only be reduced by reducing the area of impact to associated PCTs.

Note that the habitat requirements for a species may differ depending on whether it is being assessed as an ecosystem credit species or a species credit species. This typically reflects the differences in habitat requirements for foraging activity (ecosystem credits) and breeding activity (species credits). A site may contain suitable habitat for foraging while lacking key features required for breeding. In cases like this, a species may be assumed present as an ecosystem credit species (for foraging) while being ruled out as a species credit species (for breeding). In general, few species can be ruled out as ecosystem credit species. Almost all ecosystem credit species must be assumed present.

Table 6-1. Ecosystem credit species predicted to occur and the nature of their presence within, or absence from, the subject land.

Common Name	Scientific Name	Presence
Barking Owl	<i>Ninox connivens</i>	Assumed Present

Common Name	Scientific Name	Presence
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	Assumed Present
Diamond Firetail	<i>Stagonopleura guttata</i>	Assumed Present
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	Assumed Present
Flame Robin	<i>Petroica phoenicea</i>	Assumed Present
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	Assumed Present
Hooded Robin (south-eastern form)	<i>Melanodryas 62ucullate cucullata</i>	Assumed Present
Koala	<i>Phascolarctos cinereus</i>	Assumed Present
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	Assumed Present
Little Eagle	<i>Hieraaetus morphnoides</i>	Assumed Present
Little Lorikeet	<i>Glossopsitta pusilla</i>	Assumed Present
Little Whip Snake	<i>Suta flagellum</i>	Assumed Present
Powerful Owl	<i>Ninox strenua</i>	Assumed Present
Regent Honeyeater	<i>Anthochaera phrygia</i>	Assumed Present
Rosenberg's Goanna	<i>Varanus rosenbergi</i>	Assumed Present
Scarlet Robin	<i>Petroica boodang</i>	Assumed Present
Speckled Warbler	<i>Chthonicola sagittata</i>	Assumed Present
Spotted Harrier	<i>Circus assimilis</i>	Assumed Present
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	Assumed Present
Square-tailed Kite	<i>Lophoictinia isura</i>	Assumed Present
Turquoise Parrot	<i>Neophema pulchella</i>	Assumed Present
Varied Sittella	<i>Daphoenositta chrysoptera</i>	Assumed Present
White-bellied Sea-eagle	<i>Haliaeetus leucogaster</i>	Assumed Present
White-fronted Chat	<i>Epthianura albifrons</i>	Assumed Present
White-throated Needle-tail	<i>Hirundapus caudacutus</i>	Assumed Present
Glossy Black-cockatoo	<i>Calyptorhynchus lathami</i>	Absent (habitat constraint)

Ecosystem credit outputs are given in **Table 6-2**. Note that vegetation zones 1191_poor and 1202_poor do not generate ecosystem credits. The majority of the estimated final credit price is associated with PCT 1289 and PCT 765. Avoiding impacts to these PCTs would significantly reduce the total ecosystem credit obligation.

A significant caveat in this assessment is that the BAM-C is unable to generate credit outputs for entities that are listed under the Commonwealth EPBC Act but not the NSW BC Act. This applies to the EPBC Act-listed CEEC associated with PCTs 765 and 1289. If these PCTs are to be impacted, consultation with DAWE is required.

Table 6-2. Ecosystem credits for PCTs, TECS, and threatened species habitat.

Zone	TEC	VI Score	Change in VI Score	Area (ha)	Sensitivity to Loss	Sensitivity to Gain Class	Biodiversity Risk Weighting	SAIL	Ecosystem Credits
765_mod	EPBC Act only* *Note: despite the apparent credit output, the BAM Calculator cannot generate credits for EPBC only entities.	53.7	-53.7	5.05	PCT Cleared - 90%	High Sensitivity to Potential Gain	2.50	False	167
999_mod	No.	39.5	-39.5	0.62	PCT Cleared - 15%	High Sensitivity to Potential Gain	1.50	False	9
1191_poor	Yes. Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion.	11.1	-11.1	1.23	PCT Cleared - 95%	High Sensitivity to Potential Gain	2.50	True	0
1191_good	Yes. Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion.	55.6	-55.6	0.24	PCT Cleared - 95%	High Sensitivity to Potential Gain	2.50	False	8
1202_poor	No.	16.0	-16.0	177.17	PCT Cleared - 68%	High Sensitivity to Potential Gain	1.75	False	0
1289_good	EPBC Act only* *Note: despite the apparent credit output, the BAM Calculator cannot generate credits for EPBC only entities.	72.8	-72.8	8.60	PCT Cleared - 57%	High Sensitivity to Potential Gain	1.75	False	274
TOTAL									458

6.2 Species Credits

In total, 37 species credit species were generated by the BAM-C (**Table 6-3**). According to the BAM, if suitable habitat for these species occurs on the subject land, they must be the subject of targeted survey according to recommended guidelines, or else assumed present. For the purposes of this preliminary assessment, all species have been assumed present within their appropriate vegetation zones unless specific geographic limitations were identified or required habitat features were absent; four species were ruled out in this way:

- Regent Honeyeater (*Anthochaera phrygia*) – outside of mapped breeding areas.
- Buttercup Doubletail (*Diuris aequalis*) – subject land is south of Hoskinstown and outside distribution of this species.
- Koala (*Phascolarctos cinereus*) – subject land does not constitute important habitat owing to scarcity of records and lack of suitable woody vegetation.
- White-bellied Sea-eagle (*Haliaeetus leucogaster*) – No potential nesting trees occur within 1 km of a suitable waterbody.

The remaining 33 species were assumed present. For species assessed on the basis of the number of individuals present, rather than on the area of occupation, an estimate of the likely number of individuals present has been provided. These estimates are necessarily imprecise and may be subsequently refined, which would alter the credit output.

Table 6-3. Species credit species predicted to occur and the nature of their presence within, or absence from, the subject land.

Common Name	Scientific Name	Presence
Pink-tailed Legless Lizard	<i>Aprasia parapulchella</i>	Assumed Present
Thick Lip Spider Orchid	<i>Caladenia tessellata</i>	Assumed Present
Mauve Burr-daisy	<i>Calotis glandulosa</i>	Assumed Present
Glossy Black-cockatoo	<i>Calyptorhynchus lathami</i>	Assumed Present
Eastern Pygmy-possum	<i>Cercartetus nanus</i>	Assumed Present
Striped Legless Lizard	<i>Delma impar</i>	Assumed Present
Creeping Hop-bush	<i>Dodonaea procumbens</i>	Assumed Present
Silver-leafed Gum	<i>Eucalyptus pulverulenta</i>	Assumed Present
Rough Eyebright	<i>Euphrasia scabra</i>	Assumed Present
Baeuerlen's Gentian	<i>Gentiana baeuerlenii</i>	Assumed Present
Aromatic Peppergrass	<i>Lepidium hyssopifolium</i>	Assumed Present
Southern Bell Frog	<i>Litoria raniformis</i>	Assumed Present
Square-tailed Kite	<i>Lophoictinia isura</i>	Assumed Present
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	Assumed Present
Southern Myotis	<i>Myotis macropus</i>	Assumed Present
Barking Owl	<i>Ninox connivens</i>	Assumed Present
Powerful Owl	<i>Ninox strenua</i>	Assumed Present
Squirrel Glider	<i>Petaurus norfolcensis</i>	Assumed Present
Pink Robin	<i>Petroica rodinogaster</i>	Assumed Present
Tarengo Leek Orchid	<i>Prasophyllum petilum</i>	Assumed Present
Dwarf Kerrawang	<i>Commersonia prostrata</i>	Assumed Present

Common Name	Scientific Name	Presence
Button Wrinklewort	<i>Rutidosia leptorhynchoides</i>	Assumed Present
Silky Swainson-pea	<i>Swainsona sericea</i>	Assumed Present
Golden Sun Moth	<i>Synemon plana</i>	Assumed Present
Austral Toadflax	<i>Thesium australe</i>	Assumed Present
Grassland Earless Dragon	<i>Tympanocryptis pinguicolla</i>	Assumed Present
Lemon Zieria	<i>Zieria citriodora</i>	Assumed Present
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	Assumed Present
Paddys River Box	<i>Eucalyptus macarthurii</i>	Assumed Present
Black Gum	<i>Eucalyptus aggregata</i>	Assumed Present
Little Eagle	<i>Hieraaetus morphnoides</i>	Assumed Present
Omeo Storksbill	<i>Pelargonium</i> sp. Striatellum	Assumed Present
Hoary Sunray	<i>Leucochrysum albicans</i> var. <i>tricolor</i>	Assumed Present
Buttercup Doubletail	<i>Diuris aequalis</i>	Absent (geographical limitation)
White-bellied Sea-eagle	<i>Haliaeetus leucogaster</i>	Absent (habitat constraint)
Regent Honeyeater	<i>Anthochaera phrygia</i>	Absent (habitat constraint)
Koala	<i>Phascolarctos cinereus</i>	Absent (habitat constraint)

Species credit outputs are given in **Table 6-4**. The majority of the final credit price is associated with the Golden Sun Moth (*Synemon plana*). **Table 6-4** identifies the vegetation zones associated with each species credit species. Reducing or avoiding impacts to these zones will reduce or eliminate this credit obligation. Where impacts cannot be avoided, targeted surveys or expert reports may be used to determine whether a species is present or absent. Where targeted surveys determine that a species is absent, the associated credit obligation is eliminated.

Targeted surveys must be carried out using an approved methodology and in the appropriate month. Targeted survey requirements for the species credit species generated by this proposal are given in **Section 6.3**.

A significant caveat in this assessment is that the BAM-C is unable to generate credit outputs for entities that are listed under the Commonwealth EPBC Act but not the NSW BC Act. This applies to Hoary Sunray (*Leucochrysum albicans* var. *tricolor*), a species listed as threatened under the EPBC Act but not listed as threatened in NSW. If the associated PCTs are to be impacted, and the species is not ruled out by a targeted survey or an expert report, consultation with the DAWE is required.

Table 6-4. Species credits for threatened species assumed present.

Species	Associated Vegetation Zones	Threat Status	No. Credits
Pink-tailed Legless Lizard <i>Aprasia parapulchella</i>	1191_poor, 1191_good, 1202_poor	Vulnerable	1429
Thick Lip Spider Orchid <i>Caladenia tessellata</i>	1191_poor, 1191_good	Endangered	20
Mauve Burr-daisy <i>Calotis glandulosa</i>	1191_poor, 1191_good	Vulnerable	20
Glossy Black-cockatoo <i>Calyptorhynchus lathami</i>	1191_poor, 1191_good	Vulnerable	14
Eastern Pygmy-possum <i>Cercartetus nanus</i>	1191_poor, 1191_good, 999_mod	Vulnerable	26
Striped Legless Lizard <i>Delma impar</i>	1191_poor, 1191_good 1202_poor	Vulnerable	1071
Creeping Hop-bush <i>Dodonaea procumbens</i>	1191_poor, 1191_good, 1202_poor, 1289_good	Vulnerable	1350
Silver-leafed Gum <i>Eucalyptus pulverulenta</i>	999_mod	Vulnerable	20
Rough Eyebright <i>Euphrasia scabra</i>	1191_poor, 1191_good	Endangered	20
Baeuerlen's Gentian <i>Gentiana baeuerlenii</i>	1289_good	Endangered	470
Aromatic Peppercress <i>Lepidium hyssopifolium</i>	1202_poor, 1289_good	Endangered	1728
Southern Bell Frog <i>Litoria raniformis</i>	1289_good	Endangered	313
Square-tailed Kite <i>Lophoictinia isura</i>	999_mod	Vulnerable	9
Large Bent-winged Bat	1191_poor, 1191_good, 999_mod, 1289_good	Vulnerable	508

Species	Associated Vegetation Zones	Threat Status	No. Credits
<i>Miniopterus orianae oceanensis</i>			
Southern Myotis <i>Myotis Macropus</i>	1191_poor, 1191_good, 1289_good	Vulnerable	327
Barking Owl <i>Ninox connivens</i>	1191_poor, 1191_good, 999_mod	Vulnerable	26
Powerful Owl <i>Ninox strenua</i>	1191_poor, 1191_good, 999_mod	Vulnerable	26
Squirrel Glider <i>Petaurus norfolcensis</i>	999_mod	Vulnerable	12
Pink Robin <i>Petroica rodinogaster</i>	1191_poor, 1191_good, 999_mod	Vulnerable	26
Brush-tailed Phascogale <i>Phascogale tapoatafa</i>	999_mod	Vulnerable	12
Tarengo Leek Orchid <i>Prasophyllum petilum</i>	1191_poor, 1191_good, 1289_good	Endangered	327
Dwarf Kerrawang <i>Commersonia prostrata</i>	1191_poor, 1191_good, 1289_good	Endangered	327
Button Wrinklewort <i>Rutidosia leptorhynchoides</i>	1191_poor, 1191_good, 1202_poor, 1289_good	Endangered	2600
Silky Swainson-pea <i>Swainsona sericea</i>	1191_poor, 1191_good, 1289_good	Vulnerable	327
Golden Sun Moth <i>Synemon plana</i>	1202_poor, 1289_good	Endangered	2592
Austral Toadflax <i>Thesium australe</i>	1191_poor, 1191_good, 1289_good	Vulnerable	245
Grassland Earless Dragon <i>Tympanocryptis pinguicolla</i>	1202_poor, 1289_good	Endangered	1728
Lemon Zieria <i>Zieria citriodora</i>	999_mod	Endangered	150

Species	Associated Vegetation Zones	Threat Status	No. Credits
Gang-gang Cockatoo <i>Callocephalon fimbriatum</i>	1191_poor, 1191_good, 999_mod	Vulnerable	26
Paddys River Box <i>Eucalyptus macarthurii</i>	1191_poor, 1191_good, 1289_mod	Endangered	60
Black Gum <i>Eucalyptus aggregata</i>	1191_poor, 1191_good, 1202_poor, 1289_good	Vulnerable	160
Little Eagle <i>Hieraaetus morphnoides</i>	1191_poor, 1191_good, 1202_poor, 999_mod	Assumed Present	1315
Omeo Storksbill <i>Pelargonium</i> sp. <i>Striatellum</i>	1289_good	Endangered	470
Hoary Sunray <i>Leucochrysum albicans</i> var. <i>tricolor</i>	1191_poor, 1191_good, 999_mod, 1289_good	EPBC Act only* *Note: despite the apparent credit output, the BAM Calculator cannot generate credits for EPBC only entities.	700
TOTAL			18454

6.3 Targeted Surveys

Targeted surveys may be carried out to determine whether a threatened species is present on the subject land. Where a species credit species is determined by survey to be absent, the credit obligation associated with that species is eliminated. Survey requirements vary depending on the nature of the threatened entity – e.g. threatened plants have different requirements to threatened birds – and a targeted survey plan, if required, can be tailored to the species credit species associated with the final impact footprint. Surveys must also be carried out at the appropriate time of the year. **Table 6-5** identifies the appropriate time period for each species credit species generated by the proposal. The most productive period for survey is likely to be October-November (27 species). Note, however, that if the final footprint omits certain PCTs, associated species credit species may also be eliminated and no longer require survey. A list of threatened species recorded within 10 km of the subject land is given in **Table 6-6**. This provides an indication of the likelihood that targeted surveys may detect the presence of a species credit species within the impact area. The closest record of the Golden Sun Moth – the species responsible for more than half of the total species credit output – is c. 64 km north of the subject land. The survey window for Rough Eyebright (*Euphrasia scabra*) ends in April and for Baeuerlen's Gentian (*Gentiana baeuerlenii*) in May.

Table 6-5. Species credit species predicted to occur and the nature of their presence within, or absence from, the subject land.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pink-tailed Legless Lizard <i>Aprasia parapulchella</i>	N	N	N	N	N	N	N	N	Y	Y	Y	N
Thick Lip Spider Orchid <i>Caladenia tessellata</i>	N	N	N	N	N	N	N	N	Y	Y	N	N
Mauve Burr-daisy <i>Calotis glandulosa</i>	Y	Y	Y	N	N	N	N	N	N	Y	Y	Y
Glossy Black-cockatoo <i>Calyptorhynchus lathami</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Eastern Pygmy-possum <i>Cercartetus nanus</i>	Y	Y	Y	N	N	N	N	N	N	Y	Y	Y
Striped Legless Lizard <i>Delma impar</i>	N	N	N	N	N	N	N	N	Y	Y	Y	Y
Creeping Hop-bush <i>Dodonaea procumbens</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Silver-leafed Gum <i>Eucalyptus pulverulenta</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Rough Eyebright <i>Euphrasia scabra</i>	N	Y	Y	Y	N	N	N	N	N	N	N	N
Baeuerlen's Gentian <i>Gentiana baeuerlenii</i>	N	N	Y	Y	Y	N	N	N	N	N	N	N
Aromatic Peppergrass <i>Lepidium hyssopifolium</i>	N	N	N	N	N	N	N	N	N	Y	Y	Y
Southern Bell Frog <i>Litoria raniformis</i>	Y	N	N	N	N	N	N	N	N	Y	Y	Y

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Square-tailed Kite <i>Lophoictinia isura</i>	Y	N	N	N	N	N	N	N	Y	Y	Y	Y
Large Bent-winged Bat <i>Miniopterus orianae oceanensis</i>	Y	N	N	N	N	N	N	N	N	N	Y	Y
Southern Myotis <i>Myotis macropus</i>	Y	Y	Y	N	N	N	N	N	N	Y	Y	Y
Barking Owl <i>Ninox connivens</i>	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Powerful Owl <i>Ninox strenua</i>	N	N	N	N	Y	Y	Y	Y	N	N	N	N
Squirrel Glider <i>Petaurus norfolcensis</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pink Robin <i>Petroica rodinogaster</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tarengo Leek Orchid <i>Prasophyllum petilum</i>	N	N	N	N	N	N	N	N	Y	Y	Y	Y
Dwarf Kerrawang <i>Commersonia prostrata</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Button Wrinklewort <i>Rutidosia leptorhynchoides</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Silky Swainson-pea <i>Swainsona sericea</i>	N	N	N	N	N	N	N	N	Y	Y	Y	N
Golden Sun Moth <i>Synemon plana</i>	N	N	N	N	N	N	N	N	N	Y	Y	Y
Austral Toadflax <i>Thesium australe</i>	Y	Y	N	N	N	N	N	N	N	N	Y	Y
Grassland Earless Dragon <i>Tympanocryptis pinguicolla</i>	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y
Lemon Zieria <i>Zieria citriodora</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gang-gang Cockatoo <i>Callocephalon fimbriatum</i>	Y	N	N	N	N	N	N	N	N	Y	Y	Y
Paddys River Box <i>Eucalyptus macarthurii</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Black Gum <i>Eucalyptus aggregata</i>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Little Eagle <i>Hieraaetus morphnoides</i>	N	N	N	N	N	N	N	Y	Y	Y	N	N
Omeo Storksbill <i>Pelargonium</i> sp. Striatellum	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Hoary Sunray <i>Leucochrysum albicans</i> var. <i>tricolor</i>	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y
Total no. species available for survey	21	18	18	16	14	13	13	14	20	27	27	25

Table 6-6. BioNet species records from within 10 km of the subject land.

Scientific Name	Common Name	NSW Status	Comm. Status	No. Records
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V		30
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V,3	E	8
<i>Calotis glandulosa</i>	Mauve Burr-daisy	V	V	12
<i>Chthonicola sagittata</i>	Speckled Warbler	V		3
<i>Circus assimilis</i>	Spotted Harrier	V		3
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V		21
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V		1
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	2
<i>Dodonaea procumbens</i> ¹	Creeping Hop-bush	V	V	48
<i>Epthianura albifrons</i> ¹	White-fronted Chat	V		7
<i>Eucalyptus pulverulenta</i>	Silver-leafed Gum	V	V	19
<i>Falco subniger</i>	Black Falcon	V		1
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V		3
<i>Hieraaetus morphnoides</i>	Little Eagle	V		3
<i>Hirundapus caudacutus</i>	White-throated Needletail		V,C,J,K	2
<i>Lepidium hyssopifolium</i>	Aromatic Peppercress	E1	E	1
<i>Litoria castanea</i>	Yellow-spotted Tree Frog	E4A	E	1
<i>Lophoictinia isura</i>	Square-tailed Kite	V,3		1
<i>Melanodryas cucullata cucullata</i>	Hooded Robin (south-eastern form)	V		20
<i>Neophema pulchella</i>	Turquoise Parrot	V,3		1
<i>Petroica boodang</i>	Scarlet Robin	V		10
<i>Petroica phoenicea</i>	Flame Robin	V		20
<i>Phascolarctos cinereus</i>	Koala	V	E	66
<i>Polytelis swainsonii</i>	Superb Parrot	V,3	V	1
<i>Rutidosia leptorrhynchoidea</i>	Button Wrinklewort	E1	E	5
<i>Stagonopleura guttata</i>	Diamond Firetail	V		25
<i>Suta flagellum</i>	Little Whip Snake	V		1
<i>Swainsona sericea</i> ¹	Silky Swainson-pea	V		66
<i>Varanus rosenbergi</i>	Rosenberg's Goanna	V		5

¹Recorded during survey.

NSW Status: V = Vulnerable, E1 = Endangered, E4A = Critically Endangered, 3 = Category 3 Sensitive Species
Comm. Status: V = Vulnerable, E – Endangered, C = CAMBA, J = JAMBA, K = ROKAMBA

6.4 Serious and Irreversible Impacts

Threatened entities are considered to be at risk of serious and irreversible impacts (SAILs) if those impacts are “likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct” (BAM 2020). The BAM-C identified nine entities as being at risk of SAILs (**Table 6-7**). Of these, five are associated with PCT 1191, four with PCT 1289, two with PCT 999, and one with PCT 1202.

Table 6-7. List of potential Serious and Irreversible Impacts entities

Entity	Associated Vegetation Zones
Plant Community Types (PCTs)	
Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion	1191_poor 1191_good
Species	
<i>Caladenia tessellata</i> (Thick Lip Spider Orchid)	1191_poor 1191_good
<i>Calotis glandulosa</i> (Mauve Burr-daisy)	1191_poor 1191_good
<i>Euphrasia scabra</i> (Rough Eyebright)	1191_poor 1191_good
<i>Gentiana baeuerlenii</i> (Baeuerlen's Gentian)	1289_good
<i>Miniopterus orianae oceanensis</i> (Large Bent-winged Bat)	999_mod 1191_poor 1191_good 1289_good
<i>Pelargonium</i> sp. Striatellum (Omeo Storksbill)	1289_good
<i>Synemon plana</i> (Golden Sun Moth)	1202_poor 1289_good
<i>Zieria citriodora</i> (Lemon Zieria)	999_mod

7 Constraints and Recommendations

7.1 Summary of Constraints

The following constraints were identified during the preliminary ecological assessment:

- Threatened Ecological Communities:
 - Portions of PCTs 765 and 1289 represent occurrences of the EPBC Act-listed CEEC *Natural Temperate Grassland of the South Eastern Highlands*.
 - PCT 1191 represents an occurrence of the BC Act-listed EEC *Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion*.
- Threatened Species:
 - The BC Act- and EPBC Act-listed vulnerable Creeping Hop-bush (*Dodonaea procumbens*) was recorded on the subject land.
 - The BC Act-listed vulnerable Silky Swainson-pea (*Swainsona sericea*) was recorded on the subject land.
 - The BC Act-listed vulnerable White-fronted Chat (*Epthianura albifrons*) was recorded on the subject land. As this species appeared to make use of non-native vegetation, it may be less significantly impacted by proposal activities.
- Serious and Irreversible Impacts:
 - Nine entities (the TEC associated with PCT 1191 and eight threatened species) were identified as being susceptible to SALLs. Of these, five are associated with PCT 1191, four with PCT 1289, two with PCT 999, and one with PCT 1202.
- Ecosystem Credits:
 - Potential impacts to vegetation within the subject land generated 458 ecosystem credits, most of which are accounted for by PCT 1289 and PCT 7765. PCT 1202 did not generate ecosystem credits.
- Species Credits:
 - Potential impacts to threatened species generated 18454 species credits. The Golden Sun Moth (*Synemon plana*) accounted for the majority of the estimated credit value and represents a significant constraint to the proposal.
 - Two species credit species are, at the time of writing, approaching the end of their survey windows. The survey window for Rough Eyebright (*Euphrasia scabra*) ends in April and for Baeuerlen's Gentian (*Gentiana baeuerlenii*) in May.
- Fauna Habitat:
 - Fauna habitat associated with dams, creeks, drainage lines, hollow-bearing trees, surface or embedded rock, and rock outcrops occur on the subject land.
- Watercourses:
 - Two watercourses traversing the subject land – Billilingra Creek and an unnamed Strahler 4th order stream – are mapped as Key Fish Habitat.
 - Billilingra Creek is also mapped as Protected Riparian Land.
- Groundwater-dependent Ecosystems:
 - Areas of high potential for interaction with aquatic GDEs are mapped along Billilingra Creek.
- Prescribed Impacts:

- Impacts to rock outcroppings, embedded surface rock, and human-made structures may result from this proposal.
- Impacts to non-native vegetation may also impact habitat for threatened species and must be considered in any ecological assessment.

7.2 Avoidance, Minimisation and Mitigation Recommendations

The following specific recommendations are provided to avoid or minimise impacts to biodiversity values within the subject land:

- Avoid impacts to PCT 1289, which has a high per credit cost and is associated with an EPBC Act-listed TEC, which may incur additional offset requirements following consultation with DAWE. Avoiding impacts to this PCT would also avert or reduce impacts to four SAIL entities.
- Avoid or minimise impacts to PCT 765, which, as presently assessed, generates 167 ecosystem credits. In particular, impacts to the *Carex appressa* grassland (see **Figure 5-6**) should be avoided, as this is also associated with the EPBC Act-listed TEC and may incur additional offset requirements.
- Maintain a buffer of 30 m between development activities and the EPBC Act-listed TEC in PCT 1289 and PCT 765.
- Avoid or minimise impacts to PCTs 999 and 1191. While these PCTs do not generate significant ecosystem credits, they do provide habitat for species credit species, and these would need to be excluded by targeted survey or expert report, or else assumed present. The area of PCT 1191 in the southwestern section of the subject land is also associated with a large rocky outcrop, which provides habitat for reptiles.
 - PCT 1191 is associated with five SAIL entities and PCT 999 with two. Reducing or avoiding impacts to these PCTs would in turn reduce or avert impacts to these SAIL entities.
- If PCT 1191 must be included, avoid or reduce impacts to live or dead hollow-bearing trees.
- Allow a suitable buffer between watercourses (e.g. Billililingra Creek and the Strahler 4th order stream) and development activities.
 - The recommended buffer for Billililingra Creek (a Strahler 3rd order watercourse) is 30 m.
 - The recommended buffer for the Strahler 4th order stream is 40 m.
- Similarly, avoid or minimise impacts to dams, which offer habitat value.
- To the extent possible, situate the proposal within Category 1 – exempt land. The BOS does not apply to these areas.
- Where it is not possible to use Category 1 land, the vegetation zone 1202_poor is recommended for use, as it does not generate ecosystem credits. Confining the proposal to 1202_poor would eliminate all but nine species credit species. Note, however, that this zone is habitat for the Golden Sun Moth (*Synemon plana*).
- Conduct targeted surveys for threatened species, most significantly the Golden Sun Moth (*Synemon plana*). As the habitat in 1202_poor, particularly in the northern section of the subject site, is in a generally degraded condition, and as the nearest records of the species are c. 64 km from the subject land, targeted surveys are likely to rule this species out. This would eliminate more than half of the estimated species credit value.

- Excluding the Golden Sun Moth, most species with high credit values can be eliminated by avoiding impacts to PCTs 1191 and 1289, and all species with credit values greater than \$500.00 can be eliminated by avoiding impacts to PCTs 999, 1191, and 1289:
 - *Eucalyptus macarthurii* (Paddys River Box) - \$3,460.33 per credit – PCTs 1191 and 1289
 - *Euphrasia scabra* (Rough Eyebright) - \$865.08 per credit – PCT 1191
 - *Gentiana baeuerlenii* (Baeuerlen's Gentian) - \$865.08 per credit – PCT 1289
 - *Caladenia tessellata* (Thick Lip Spider Orchid) - \$865.08 per credit – PCT 1191
 - *Prasophyllum petilum* (Tarengo Leek Orchid) - \$865.08 per credit – PCTs 1191 and 1289
 - *Miniopterus orianae oceanensis* (Large Bent-winged Bat) - \$741.31 per credit – PCTs 999, 1191, and 1289
 - *Myotis macropus* (Southern Myotis) - \$741.31 per credit – PCTs 1191 and 1289
- Biosecurity measures should be implemented to reduce the spread of significant weeds. There may be opportunities to implement control measures for these weeds during construction activities.

Note that credit prices are accurate at the time of writing but are subject to change in response to market forces.

8 Conclusion

The following summary of findings is provided to aid in ongoing project planning. It should be read in concert with the detailed summary of constraints and recommendations provided in **Section 7**.

The proposal for a hybrid solar-plus-battery power station at Billililgra, near Bredbo, NSW, is likely to trigger the vegetation clearing threshold (1 ha) for entry into the NSW Biodiversity Offset Scheme. It may also trigger entry via impacts to mapped biodiversity values, as the subject land surrounding Billililgra Creek is mapped as Protected Riparian Land.

Land category assessment determined that as much as 244.3 ha of the subject land is likely to constitute Category 1 – exempt land. Clearing of vegetation in this area will not attract an offset obligation.

Five Plant Community Types (PCTs) were recorded during the site assessment:

- PCT 765: Carex - Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion
- PCT 999: Norton's Box - Broad-leaved Peppermint open forest on footslopes, central and southern South Eastern Highlands Bioregion
- PCT 1191: Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion
- PCT 1202: Speargrass grassland of the South Eastern Highlands Bioregion
- PCT 1289: Wallaby Grass - Red-grass - Tall Speargrass - Kangaroo Grass dry tussock grassland of the North-western and Eastern Southern Tablelands in the South Eastern Highlands Bioregion

Parts of PCTs 765 (0.43 ha) and 1289 (4.92 ha) were found to represent occurrences of the EPBC Act-listed Critically Endangered Ecological Community (CEEC) *Natural Temperate Grassland of the South Eastern Highlands*. PCT 1191 was found to represent an occurrence of the BC Act-listed CEEC *Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion*.

The most significant constraints to the proposal were as follows:

- The generation of 461 ecosystem credits. Most of these credits (444) were associated with PCTs 1289 and 765.
- The occurrence of the *Natural Temperate Grassland* CEEC and the possibility that impacts to this CEEC may attract additional offset requirements, following consultation with the Commonwealth DAWE.
- The generation of 18,454 species credits. The majority of the estimated cost of these credits is associated with the Golden Sun Moth (*Synemon plana*). Targeted surveys or expert reports may be used to reduce or eliminate this offset obligation.
 - At the time of writing, two species credit species are approaching the ends of their respective survey windows. The survey window for Rough Eyebright (*Euphrasia scabra*) ends in April and for Baeuerlen's Gentian (*Gentiana baeuerlenii*) in May.

- The presence of two threatened species – Creeping Hop-bush (*Dodonaea procumbens*; BC and EPBC Act, Vulnerable) and Silky Swainson-pea (*Swainsona sericea*; BC Act, Vulnerable) – on the subject land.
- The occurrence of the *Monaro Tableland Cool Temperate Grassy Woodland* CEEC within the subject land. This is one of nine entities generated by the BAM-C considered to be at risk of a serious and irreversible impact.
- Potential impacts to fauna habitat associated with dams, creeks (including Key Fish Habitat), drainage lines, hollow-bearing trees, surface or embedded rock, rock outcrops, and human-made structures.

Note that the credit figures above assume total clearance of the 491-ha assessed area. It is not anticipated that the proposal will entail total clearance in this manner. This calculation has been carried out to allow for the identification of constraints to project planning.

Seventeen vegetation integrity plots (i.e., BAM plots) were completed during the site assessment, meeting the requirement specified under the BAM. A targeted survey plan may now be devised to determine whether species credit species occur on the subject land. Where species credit species are found to be absent, they are removed from credit calculations.

Assessments of significance to BC Act and EPBC Act entities should be completed once the final impact footprint is known.

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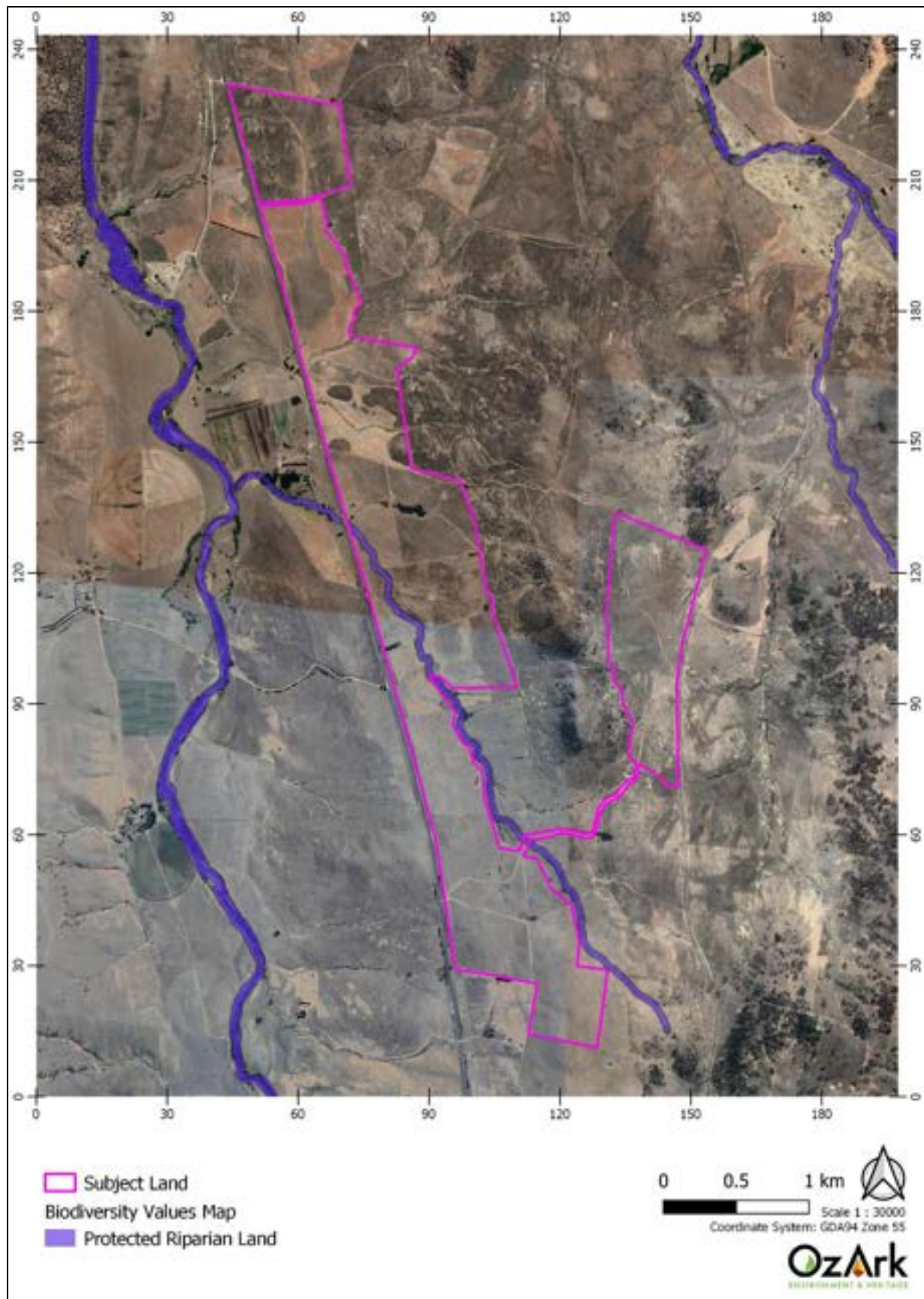
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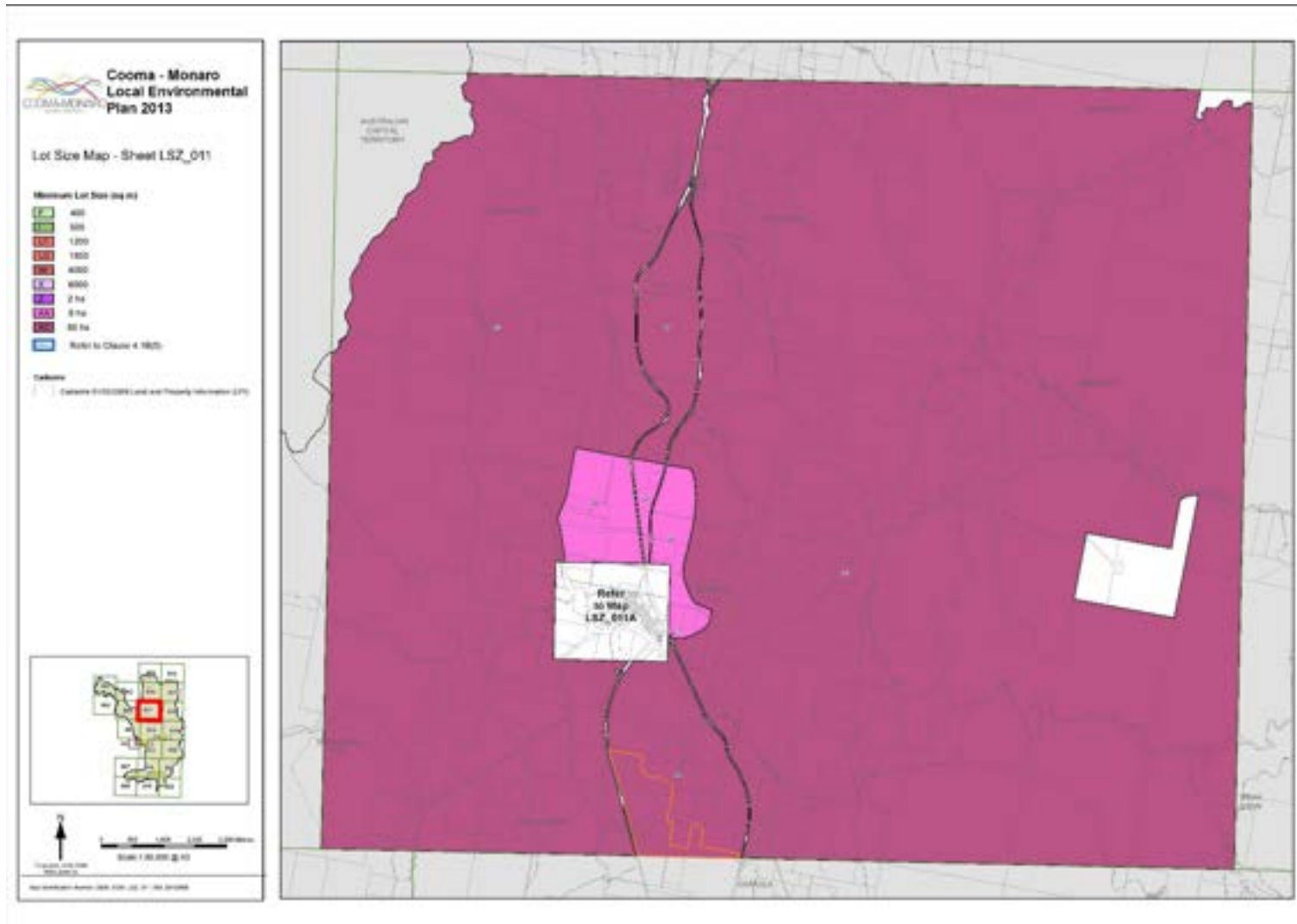
Appendix A: Database search results

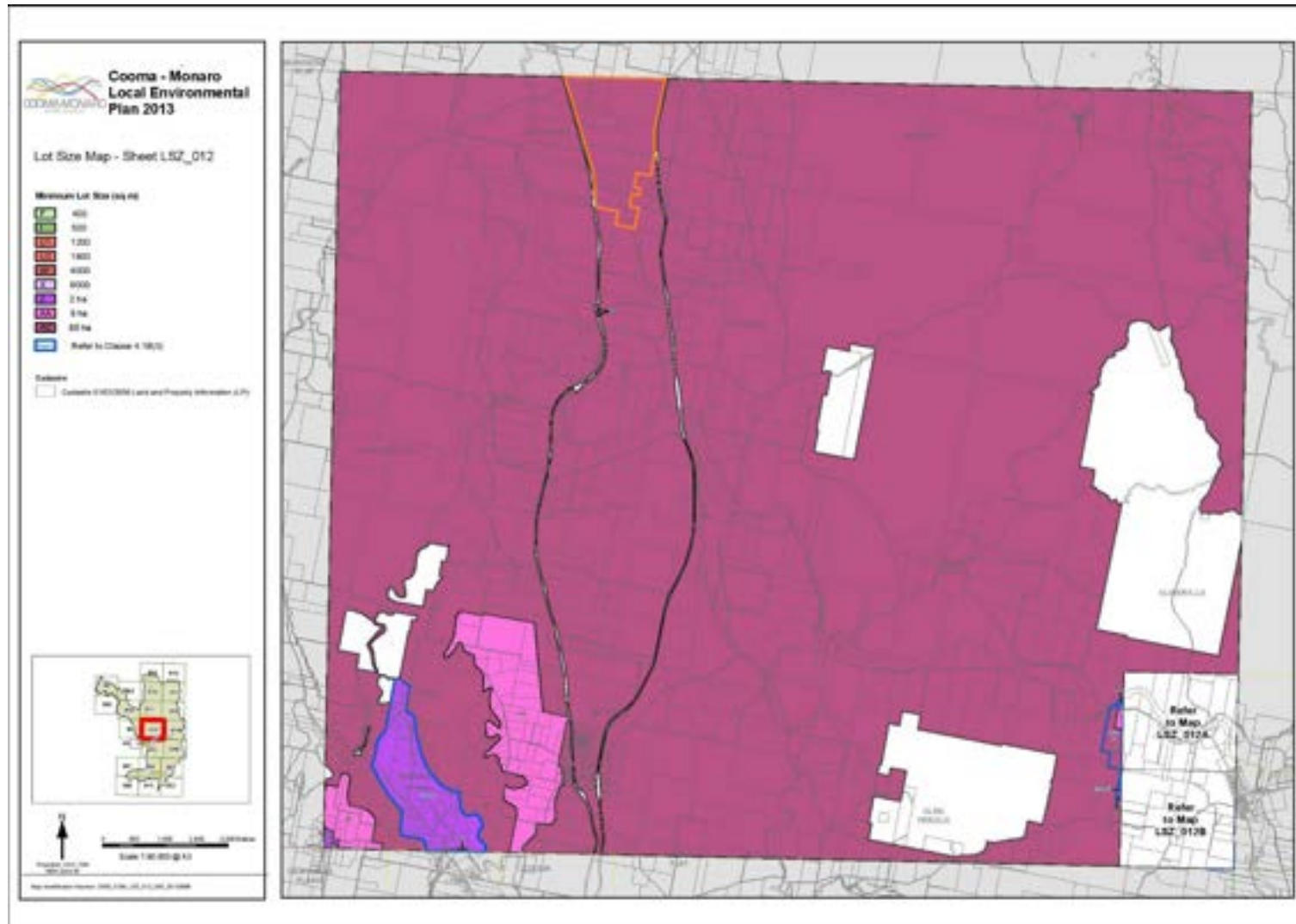
Biodiversity Values Map



Minimum Lot Size and Area Clearing Threshold

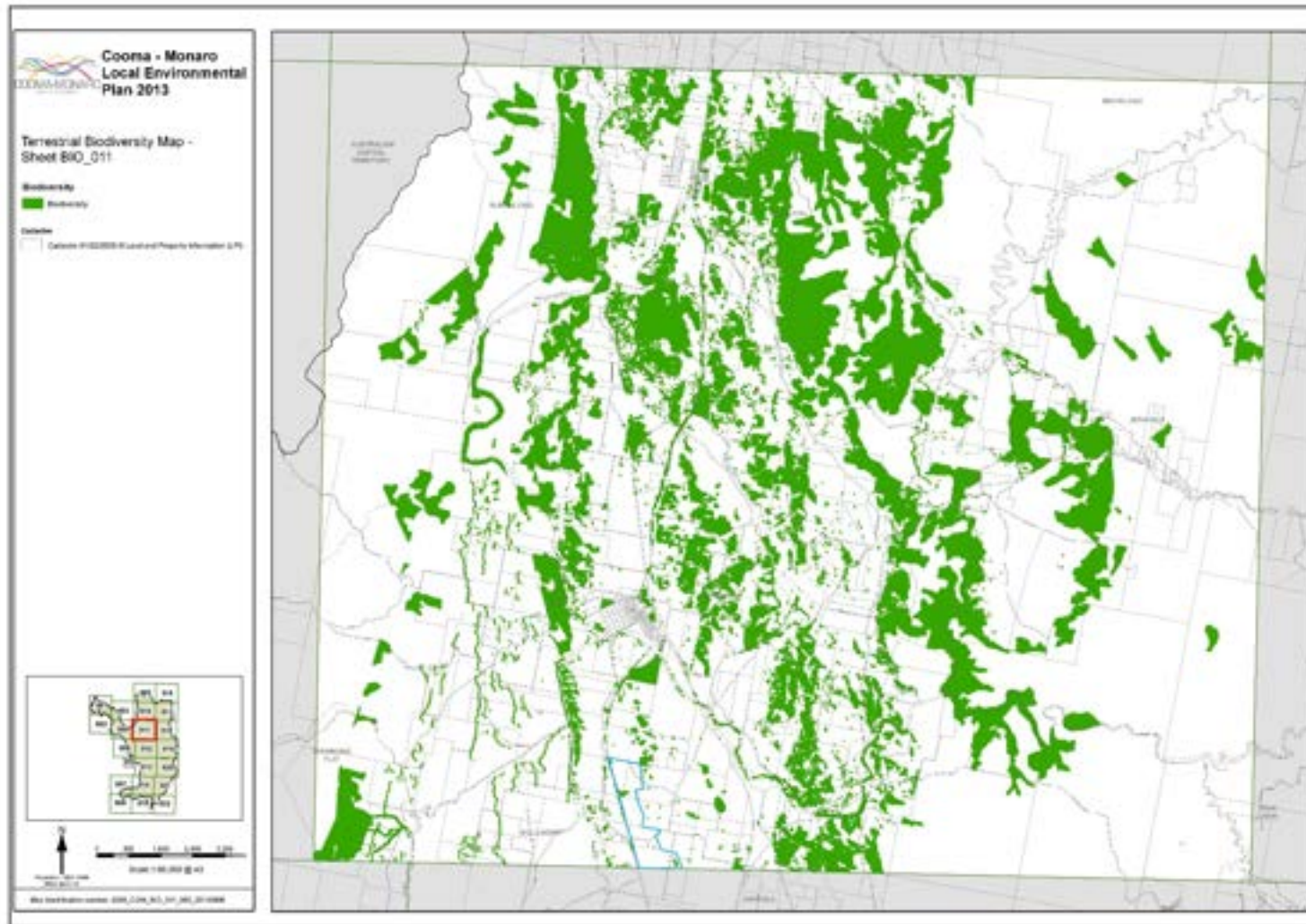
Lots relevant to the present proposal are outlined in orange. All lots have been assigned a minimum lot size of 80 ha and hence the area clearing threshold is 1 ha.

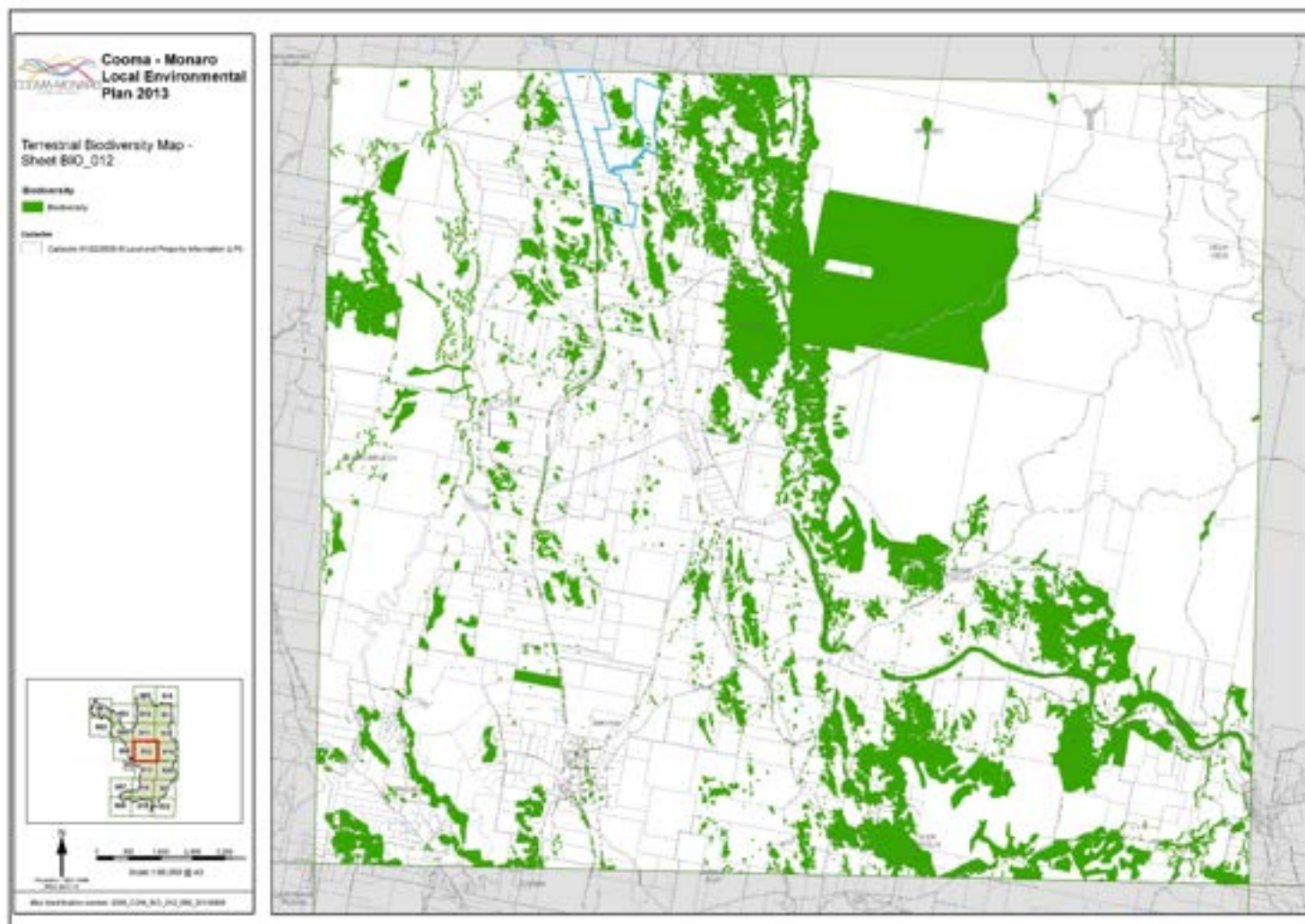




Cooma-Monaro Local Environmental Plan 2013 – Terrestrial Biodiversity Values Mapping.

The approximate location of the subject land is indicated in blue.





EPBC Act Protected Matters Report

Australian Government
Department of Agriculture,
Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 09-Mar-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar):	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	39
Listed Migratory Species:	12

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	3
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	7
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)

[Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	800 - 900km upstream from Ramsar site	In feature area
Hattah-kulkyne lakes	600 - 700km upstream from Ramsar site	In feature area
Riverland	700 - 800km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	800 - 900km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities

[Resource Information]

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Alpine Sphagnum Bogs and Associated Fens	Endangered	Community likely to occur within area	In buffer area only
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community likely to occur within area	In feature area
Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)	Endangered	Community likely to occur within area	In buffer area only
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species

[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In feature area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat known to occur within area	In feature area
FROG			
Litoria castanea Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Litoria verreauxii alpina Alpine Tree Frog, Verreaux's Alpine Tree Frog [66669]	Vulnerable	Species or species habitat may occur within area	In buffer area only
INSECT			
Synemon plana Golden Sun Moth [25234]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
<i>Calotis glandulosa</i> Mauve Burr-daisy [7842]	Vulnerable	Species or species habitat known to occur within area	In feature area
<i>Dodonaea procumbens</i> Trailing Hop-bush [12149]	Vulnerable	Species or species habitat known to occur within area	In feature area
<i>Eucalyptus pulverulenta</i> Silver-leaved Mountain Gum, Silver-leaved Gum [21537]	Vulnerable	Species or species habitat known to occur within area	In feature area
<i>Lepidium aschersonii</i> Spiny Pepper-cress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
<i>Lepidium hyssopifolium</i> Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat known to occur within area	In feature area
<i>Leucochrysum albicans subsp. tricolor</i> Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat likely to occur within area	In feature area
<i>Pomaderris pallida</i> Pale Pomaderris [13684]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<i>Prasophyllum petilum</i> Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In feature area
<i>Pterostylis oreophila</i> Blue-tongued Orchid, Kiandra Greenhood [22903]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
<i>Rutidosia leptorhynchoides</i> Button Wrinklewort [67251]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Senecio macrocarpus Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat may occur within area	In buffer area only
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Tympanocryptis pinguicollis Grassland Earless Dragon [66727]	Endangered	Species or species habitat may occur within area	In feature area
Listed Migratory Species			
		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanops Black-faced Monarch [609]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands

[Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Commonwealth Trading Bank of Australia		

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Commonwealth Trading Bank of Australia [12282]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [12281]	NSW	In buffer area only

Listed Marine Species	[Resource Information]		
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<i>Hirundapus caudacutus</i> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<i>Lathamus discolor</i> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
<i>Merops ornatus</i> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
<i>Monarcha melanopsis</i> Black-faced Monarch [609]		Species or species habitat may occur within area overfly marine area	In buffer area only
<i>Motacilla flava</i> Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
<i>Myiagra cyanoleuca</i> Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
<i>Neophema chrysostoma</i> Blue-winged Parrot [726]		Species or species habitat may occur within area overfly marine area	In feature area
<i>Numerius madagascariensis</i> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
<i>Rhipidura rufifrons</i> Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Binjura	Nature Reserve	NSW	In buffer area only
Mount Clifford	Nature Reserve	NSW	In buffer area only
Scottsdale	Conservation Reserve	NSW	In buffer area only

Regional Forest Agreements		[Resource Information]
Note that all areas with completed RFAs have been included.		
RFA Name	State	Buffer Status
Southern RFA	New South Wales	In feature area

EPBC Act Referrals					[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Controlled action					
Rural Sub-division between Monaro Highway & Murrumbidgee River	2002/591	Controlled Action	Completed	In buffer area only	
Not controlled action					
Improving rabbit biocontrol: releasing another strain of RHDV, sthm two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area	
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area	
Rural Sub-division Between Monaro HWY & Murrumbidgee River	2003/1148	Not Controlled Action	Completed	In buffer area only	
Not controlled action (particular manner)					
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In feature area	
Aerial Baiting For Wild Dogs	2005/2342	Not Controlled Action (Particular	Post-Approval	In buffer area only	

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
		Manner)		
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modeling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [Office of Environment and Heritage, New South Wales](#)
- [Department of Environment and Primary Industries, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment, Water and Natural Resources, South Australia](#)
- [Department of Land and Resource Management, Northern Territory](#)
- [Department of Environmental and Heritage Protection, Queensland](#)
- [Department of Parks and Wildlife, Western Australia](#)
- [Environment and Planning Directorate, ACT](#)
- [Birdlife Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [South Australian Museum](#)
- [Queensland Museum](#)
- [Online Zoological Collections of Australian Museums](#)
- [Queensland Herbarium](#)
- [National Herbarium of NSW](#)
- [Royal Botanic Gardens and National Herbarium of Victoria](#)
- [Tasmanian Herbarium](#)
- [State Herbarium of South Australia](#)
- [Northern Territory Herbarium](#)
- [Western Australian Herbarium](#)
- [Australian National Herbarium, Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- [Australian Tropical Herbarium, Cairns](#)
- [eBird Australia](#)
- [Australian Government – Australian Antarctic Data Centre](#)
- [Museum and Art Gallery of the Northern Territory](#)
- [Australian Government National Environmental Science Program](#)
- [Australian Institute of Marine Science](#)
- [Reef Life Survey Australia](#)
- [American Museum of Natural History](#)
- [Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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BioNET Atlas search – threatened species predicted to occur within the Monaro subregion of the South East Highlands bioregion and the Snowy Mountains subregion of the Australian Alps bioregion

*NSW Status: P=Protected, P13=Protected native plant, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.

+Comm. Status: C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable.

'Records: Number of records, P = predicted to occur, K = known to occur.

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	'Records
Amphibia	<i>Pseudophryne corroboree</i>	Southern Corroboree Frog	E4A,P,2	CE	86
Amphibia	<i>Pseudophryne pengilleyi</i>	Northern Corroboree Frog	E4A,P,2	CE	24
Amphibia	<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V,P	V	1
Amphibia	<i>Litoria aurea</i>	Green and Golden Bell Frog	E1,P	V	15
Amphibia	<i>Litoria booroolongensis</i>	Booroolong Frog	E1,P	E	2
Amphibia	<i>Litoria castanea</i>	Yellow-spotted Tree Frog	E4A,P	E	5
Amphibia	<i>Litoria raniformis</i>	Southern Bell Frog	E1,P	V	2
Amphibia	<i>Litoria spenceri</i>	Spotted Tree Frog	E4A,P	E	6
Amphibia	<i>Litoria verreauxii alpina</i>	Alpine Tree Frog	E1,P	V	267
Aves	<i>Calyptrorhynchus lathamii</i>	Glossy Black-Cockatoo	V,P,2		124
Aves	<i>Actitis hypoleucos</i>	Common Sandpiper	P	C,J,K	2
Aves	<i>Anseranas semipalmata</i>	Magpie Goose	V,P		2
Aves	<i>Anthochaera phrygia</i>	Regent Honeyeater	E4A,P	CE	5
Aves	<i>Apus pacificus</i>	Fork-tailed Swift	P	C,J,K	9
Aves	<i>Ardenna tenuirostris</i>	Short-tailed Shearwater	P	C,J,K	1
Aves	<i>Arenaria interpres</i>	Ruddy Turnstone	P	C,J,K	1
Aves	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P		574
Aves	<i>Botaurus poiciloptilus</i>	Australasian Bittern	E1,P	E	8
Aves	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	P	C,J,K	35
Aves	<i>Calidris ferruginea</i>	Curlew Sandpiper	E1,P	CE,C,J,K	1
Aves	<i>Calidris melanotos</i>	Pectoral Sandpiper	P	J,K	6
Aves	<i>Calidris ruficollis</i>	Red-necked Stint	P	C,J,K	13
Aves	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V,P,3		930
Aves	<i>Chlidonias leucopterus</i>	White-winged Black Tern	P	C,J,K	4
Aves	<i>Chthonicola sagittata</i>	Speckled Warbler	V,P		208
Aves	<i>Circus assimilis</i>	Spotted Harrier	V,P		41
Aves	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V,P		210

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	'Records
Aves	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		148
Aves	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		1
Aves	<i>Epthianura albifrons</i>	White-fronted Chat	V,P		175
Aves	<i>Epthianura albifrons</i>	White-fronted Chat	V,P		2
Aves	<i>Falco subniger</i>	Black Falcon	V,P		22
Aves	<i>Gallinago hardwickii</i>	Latham's Snipe	P	J,K	154
Aves	<i>Gelochelidon nilotica</i>	Gull-billed Tern	P	C	1
Aves	<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		6
Aves	<i>Grantiella picta</i>	Painted Honeyeater	V,P	V	1
Aves	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P		64
Aves	<i>Hieraaetus morphnoides</i>	Little Eagle	V,P		94
Aves	<i>Hirundapus caudacutus</i>	White-throated Needletail	P	V,C,J,K	125
Aves	<i>Hydroprogne caspia</i>	Caspian Tern	P	J	1
Aves	<i>Lathamus discolor</i>	Swift Parrot	E1,P,3	CE	8
Aves	<i>Limosa lapponica</i>	Bar-tailed Godwit	P	C,J,K	5
Aves	<i>Lophoictinia isura</i>	Square-tailed Kite	V,P,3		4
Aves	<i>Melanodryas cucullata cucullata</i>	Hooded Robin (south-eastern form)	V,P		142
Aves	<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	V,P		3
Aves	<i>Neophema chrysogaster</i>	Orange-bellied Parrot	E4A,P,3	CE	1
Aves	<i>Neophema pulchella</i>	Turquoise Parrot	V,P,3		11
Aves	<i>Ninox connivens</i>	Barking Owl	V,P,3		11
Aves	<i>Ninox strenua</i>	Powerful Owl	V,P,3		41
Aves	<i>Numenius minutus</i>	Little Curlew	P	C,J,K	2
Aves	<i>Oxyura australis</i>	Blue-billed Duck	V,P		22
Aves	<i>Pachycephala inornata</i>	Gilbert's Whistler	V,P		1
Aves	<i>Pachycephala olivacea</i>	Olive Whistler	V,P		322
Aves	<i>Petroica boodang</i>	Scarlet Robin	V,P		747
Aves	<i>Petroica phoenicea</i>	Flame Robin	V,P		1430
Aves	<i>Petroica rodinogaster</i>	Pink Robin	V,P		69
Aves	<i>Pluvialis fulva</i>	Pacific Golden Plover	P	C,J,K	9
Aves	<i>Pluvialis squatarola</i>	Grey Plover	P	C,J,K	1
Aves	<i>Polytelis swainsonii</i>	Superb Parrot	V,P,3	V	5
Aves	<i>Rostratula australis</i>	Australian Painted Snipe	E1,P	E	5
Aves	<i>Stagonopleura guttata</i>	Diamond Firetail	V,P		361
Aves	<i>Stictonetta naevosa</i>	Freckled Duck	V,P		83
Aves	<i>Tringa glareola</i>	Wood Sandpiper	P	C,J,K	1
Aves	<i>Tringa nebularia</i>	Common Greenshank	P	C,J,K	7

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	'Records
Aves	<i>Tringa stagnatilis</i>	Marsh Sandpiper	P	C,J,K	2
Aves	<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3		11
Aves	<i>Tyto tenebricosa</i>	Sooty Owl	V,P,3		4
Mammalia	<i>Burramys parvus</i>	Mountain Pygmy-possum	E1,P	E	739
Mammalia	<i>Cercartetus nanus</i>	Eastern Pygmy-possum	V,P		60
Mammalia	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	71
Mammalia	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V,P		173
Mammalia	<i>Mastacomys fuscus</i>	Broad-toothed Rat	V,P	V	559
Mammalia	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		91
Mammalia	<i>Myotis macropus</i>	Southern Myotis	V,P		4
Mammalia	<i>Petauroides volans</i>	Greater Glider	P	V	72
Mammalia	<i>Petaurus australis</i>	Yellow-bellied Glider population on the Bago Plateau	E2,V,P		352
Mammalia	<i>Petaurus australis</i>	Yellow-bellied Glider	V,P		382
Mammalia	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		9
Mammalia	<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	E1,P	V	1
Mammalia	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		1
Mammalia	<i>Phascolarctos cinereus</i>	Koala	V,P	V	583
Mammalia	<i>Potorous tridactylus</i>	Long-nosed Potoroo	V,P	V	P
Mammalia	<i>Pseudomys fumeus</i>	Smoky Mouse	E4A,P	E	36
Mammalia	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	63
Mammalia	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		1
Mammalia	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		1
Mammalia	<i>Sminthopsis leucopus</i>	White-footed Dunnart	V,P		P
Reptilia	<i>Liopholis guthaga</i>	Guthaga Skink	E1,P,2	E	531
Reptilia	<i>Aprasia parapulchella</i>	Pink-tailed Legless Lizard	V,P	V	75
Reptilia	<i>Cyclodomorphus praealtus</i>	Alpine She-oak Skink	E1,P	E	140
Reptilia	<i>Delma impar</i>	Striped Legless Lizard	V,P	V	63
Reptilia	<i>Suta flagellum</i>	Little Whip Snake	V,P		52
Reptilia	<i>Tympanocryptis pinguicollis</i>	Grassland Earless Dragon	E1,P	E	260
Reptilia	<i>Varanus rosenbergi</i>	Rosenberg's Goanna	V,P		21
Insecta	<i>Keyacris scurra</i>	Key's Matchstick Grasshopper	E1		3

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	'Records
Insecta	<i>Synemon plana</i>	Golden Sun Moth	E1	CE	209
Flora	<i>Caladenia montana</i>		V,P,2		2
Flora	<i>Caladenia tessellata</i>	Thick Lip Spider Orchid	E1,P,2	V	1
Flora	<i>Diuris aequalis</i>	Buttercup Doubletail	E1,P,2	V	25
Flora	<i>Diuris ochroma</i>	Pale Golden Moths	E1,P,2	V	64
Flora	<i>Prasophyllum bagoense</i>		E4A,P,2	CE	399
Flora	<i>Prasophyllum innubum</i>		E4A,P,2	CE	8
Flora	<i>Prasophyllum keltonii</i>	Kelton's Leek Orchid	E4A,P,2	CE	62
Flora	<i>Prasophyllum petilum</i>	Tarengo Leek Orchid	E1,P,2	E	17
Flora	<i>Prasophyllum retroflexum</i>	Kiandra Leek Orchid	V,P,2	V	12
Flora	<i>Prasophyllum sandrae</i>	Majors Creek Leek Orchid	E4A,2		K
Flora	<i>Pterostylis alpina</i>	Alpine Greenhood	V,P,2		4
Flora	<i>Pterostylis foliata</i>	Slender Greenhood	V,P,2		5
Flora	<i>Pterostylis oreophila</i>	Blue-tongued Greenhood	E4A,P,2	CE	9
Flora	<i>Thelymitra alpicola</i>	Alpine Sun-orchid	V,P,2		3
Flora	<i>Thelymitra atronitida</i>	Black-hooded Sun Orchid	E4A,P,2		K
Flora	<i>Zieria adenophora</i>	Araluen Zieria	E4A,2	E	P
Flora	<i>Argyrotegium nitidulum</i>	Shining Cudweed	V	V	25
Flora	<i>Bossiaea bombayensis</i>	Bombay Bossiaea	V		P
Flora	<i>Bossiaea oligosperma</i>	Few-seeded Bossiaea	V	V	1
Flora	<i>Calotis glandulosa</i>	Mauve Burr-daisy	V	V	367
Flora	<i>Calotis pubescens</i>	Max Mueller's Burr-daisy	E1		35
Flora	<i>Carex archeri</i>	Archer's Carex	E1		4
Flora	<i>Carex raleighii</i>	Raleigh Sedge	E1		15
Flora	<i>Commersonia prostrata</i>	Dwarf Kerrawang	E1	E	10
Flora	<i>Dampiera fusca</i>	Kydra Dampiera	E1		19
Flora	<i>Dillwynia glauca</i>	Michelago Parrot-pea	E1		19
Flora	<i>Dillwynia tenuifolia</i>		V		1
Flora	<i>Discaria nitida</i>	Leafy Anchor Plant	V		76
Flora	<i>Dodonaea procumbens</i>	Creeping Hop-bush	V	V	128
Flora	<i>Eucalyptus aggregata</i>	Black Gum	V	V	30
Flora	<i>Eucalyptus kartzoffiana</i>	Araluen Gum	V	V	P
Flora	<i>Eucalyptus macarthurii</i>	Paddys River Box, Camden Woollybutt	E1	E	7
Flora	<i>Eucalyptus parvula</i>	Small-leaved Gum	E1	V	5
Flora	<i>Eucalyptus pulverulenta</i>	Silver-leafed Gum	V	V	101
Flora	<i>Eucalyptus saxatilis</i>	Suggan Buggan Mallee	E1		5

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	'Records
Flora	<i>Euphrasia scabra</i>	Rough Eyebright	E1,3		22
Flora	<i>Gentiana baeuerlenii</i>	Baeuerlen's Gentian	E1	E	2
Flora	<i>Glycine latrobeana</i>	Clover Glycine	E4A	V	8
Flora	<i>Haloragis exalata</i> subsp. <i>exalata</i>	Square Raspwort	V	V	P
Flora	<i>Irenepharsus magicus</i>	Elusive Cress	E1		1
Flora	<i>Lepidium hyssopifolium</i>	Aromatic Peppergrass	E1	E	19
Flora	<i>Leucochrysum albicans</i> var. <i>tricolor</i>	Hoary Sunray		E	296
Flora	<i>Monotoca rotundifolia</i>	Trailing Monotoca	E1		1
Flora	<i>Pelargonium</i> sp. <i>Striatellum</i>	Omeo Storksbill	E1	E	28
Flora	<i>Pimelea bracteata</i>		E4A		45
Flora	<i>Pomaderris delicata</i>	Delicate Pomaderris	E4A	CE	1
Flora	<i>Pomaderris pallida</i>	Pale Pomaderris	V	V	62
Flora	<i>Ranunculus anemoneus</i>	Anemone Buttercup	V	V	2126
Flora	<i>Rutidosia leioplepis</i>	Monaro Golden Daisy	V	V	87
Flora	<i>Rutidosia leptorrhynchoidea</i>	Button Wrinklewort	E1	E	34
Flora	<i>Rytidosperma pumilum</i>	Feldmark Grass	V	V	71
Flora	<i>Rytidosperma vickeryae</i>	Perisher Wallaby-grass	E1		88
Flora	<i>Senecio macrocarpus</i>			V	1
Flora	<i>Swainsona recta</i>	Small Purple-pea	E1	E	44
Flora	<i>Swainsona sericea</i>	Silky Swainson-pea	V		402
Flora	<i>Thesium australe</i>	Austral Toadflax	V	V	26
Flora	<i>Westringia kydrensis</i>	Kydra Westringia	E1	E	26
Flora	<i>Wilsonia rotundifolia</i>	Round-leafed Wilsonia	E1		40
Flora	<i>Xerochrysum palustre</i>	Swamp Everlasting		V	10
Flora	<i>Zieria citriodora</i>	Lemon Zieria	E1	V	6

BioNET Atlas search – threatened ecological communities predicted to occur within the Monaro subregion of the South East Highlands bioregion and the Snowy Mountains subregion of the Australian Alps bioregion

*NSW Status: E3=Endangered Ecological Community, E4B= Critically Endangered Ecological Community

*Comm. Status: CE=Critically Endangered, E=Endangered.

'Records: K = known, P= predicted.



TEC	*NSW status	+Comm. status	'Records
Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion	E4B		K
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern	E3	E	K
Natural Temperate Grassland of the South Eastern Highlands			P
Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	E3		P
Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions	E4B		K
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England	E4B	CE	K
Snowpatch Feldmark in the Australian Alps Bioregion	E4B		K
Snowpatch Herbfield in the Australian Alps Bioregion	E4B		K
Windswept Feldmark in the Australian Alps Bioregion	E4B		K

BioNET Atlas search – key threatening processes (KTPs) predicted to occur within the within the Monaro subregion of the South East Highlands bioregion and the Snowy Mountains subregion of the Australian Alps bioregion

Common Name	NSW status	Comm status	Records
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, <i>Manorina melanocephala</i> (Latham, 1802)	KTP	KTP	P
Alteration of habitat following subsidence due to longwall mining	KTP		P
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP		P
Anthropogenic Climate Change	KTP	KTP	P
Bushrock removal	KTP		P
Clearing of native vegetation	KTP	KTP	P
Competition and grazing by the feral European Rabbit, <i>Oryctolagus cuniculus</i> (L.)	KTP	KTP	P
Competition and habitat degradation by Feral Goats, <i>Capra hircus</i> Linnaeus 1758	KTP	KTP	P
Competition from feral honey bees, <i>Apis mellifera</i> L.	KTP		P
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP		P
Herbivory and environmental degradation caused by feral deer	KTP		P
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP		P
Importation of Red Imported Fire Ants <i>Solenopsis invicta</i> Buren 1972	KTP	KTP	P
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	P
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	P
Infection of native plants by <i>Phytophthora cinnamomi</i>	KTP	KTP	P
Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae	KTP		P
Introduction of the Large Earth Bumblebee <i>Bombus terrestris</i> (L.)	KTP		P
Invasion and establishment of exotic vines and scramblers	KTP		P
Invasion and establishment of Scotch Broom (<i>Cytisus scoparius</i>)	KTP		P
Invasion and establishment of the Cane Toad (<i>Bufo marinus</i>)	KTP	KTP	P
Invasion of native plant communities by African Olive <i>Olea europaea</i> subsp. <i>cuspidata</i> (Wall. ex G. Don) Cif.	KTP		P
Invasion of native plant communities by <i>Chrysanthemoides monilifera</i>	KTP		P
Invasion of native plant communities by exotic perennial grasses	KTP		P
Invasion of the Yellow Crazy Ant, <i>Anoplolepis gracilipes</i> (Fr. Smith) into NSW	KTP		P
Invasion, establishment and spread of Lantana (<i>Lantana camara</i> L. sens. Lat)	KTP		P
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	P
Loss of Hollow-bearing Trees	KTP		P
Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP		P
Predation and hybridisation by Feral Dogs, <i>Canis lupus familiaris</i>	KTP		P
Predation by <i>Gambusia holbrooki</i> Girard, 1859 (Plague Minnow or Mosquito Fish)	KTP		P

Common Name	NSW status	Comm status	Records
Predation by the European Red Fox <i>Vulpes vulpes</i> (Linnaeus, 1758)	KTP	KTP	P
Predation by the Feral Cat <i>Felis catus</i> (Linnaeus, 1758)	KTP	KTP	P
Predation, habitat degradation, competition and disease transmission by Feral Pigs, <i>Sus scrofa</i> Linnaeus 1758	KTP	KTP	P
Removal of dead wood and dead trees	KTP		P

Appendix B: Vegetation plot locations



Plot Name	PCT	Condition	Easting (Zone 55)	Northing (Zone 55)	Photographs	
BI01	1202	Poor	693276	6014418		


BI02	1202	Poor	693222	6014106		
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BI03	765	Mod	693350	6013462		
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BI04	1202	Poor	693619	6013512		
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BI05	765	Mod	693278	6013400		
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BI06	1191	Poor	694767	6009253		
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BI07	765	Mod	694787	6009587		
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BI08	765	Mod	694050	6011431		
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BI09	1191	Poor	695468	6011196		
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B110	999	Mod	695655	6010900		
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B111	1289	Good	695681	6011041		
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B112	1289	Good	695681	6011233		
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B113	1202	Poor	693481	6012941		
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B114	1202	Poor	694239	6010134		
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B115	1289	Good	695629	6010735		
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B116	1191	Good	695722	6010791		
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B117	1202	Poor	694110	6012106		
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Appendix C: Field survey results

BAM Data Sheets

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	20.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B101
Photo #		Zone ID	1202_poor
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	693276	Zone	55
Northings	6014418	Plot bearing along midline	181

Record easting, northing at plot marker 30 m point. Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	South Eastern Highlands
Subregion	Monaro
Likely Vegetation Class	
Plant Community Type	1202
Condition state	Poor

Floristics plot is centred on the midline, at 0m point, 10m either side

Function plot is an extension of floristics plot out to 50 m along midline (for equis. area)

BAM Composition / Structure plot (400m ²)			
Dimensions (circle applicable size)			
20 x 20 m	10 x 40 m	Sum values*	
Native Richness (count of native species)	Trees		0
	Shrubs		0
	Grasses etc		3
	Forbs		6
	Ferns		0
Cover (sum of cover of natives species)	Other		0
	Trees		0
	Shrubs		0
	Grasses etc		20.1
	Forbs		0.8
High threat weed cover	Ferns		0
	Other		0
			35.3

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m ²)			
Dimensions (circle applicable size)			
20 x 50 m	10 x 100 m		
Tree stem DBH (cm)		Notes on function attributes:	
>80	0	Stem size class records # large trees (cf. benchmark)	
50 - 79	0	Record stems for living trees only, and for all species	
30 - 49	-	For multi-stemmed trees, record only the largest stem	
20 - 29	-	Presence of <5cm stems records regeneration	
10 - 19	-	Record # trees with hollows, not number of hollows	
5 - 9	-	Count as one stem where tree is multi-stemmed	
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)	
# Trees with hollows		<20cm	0
0		>20cm**	0
Length of logs		Total #	0
		Total (m)	0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)							
Litter cover is used for BAM, other attributes are useful for recording site condition in general							
Sub-plot score (% cover)		1	2	3	4	5	Average
	Litter	20	10	10	10	0	10
	Bare ground						
	Cryptogam						
		Rock					

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground searers, mtd, canopy burn etc)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0= no evidence, 1= slight, 2= moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

[illegible]

MS - Version 1.3 - Date 1/12/2013

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	20.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B102
Photo #		Zone ID	1202_poor
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	693222	Zone	55
Northing	6014106	Plot bearing along midline	51

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0 m point and 50 m point, looking into plot.

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 1202

Condition state Poor

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extension of Floristics plot out to 50 m along midline (for equal area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size)

20 x 20 m 10 x 40 m Sum values*

Native Richness (count of native species)	Trees	0
	Shrubs	0
	Grasses etc	4
	Forbs	3
	Ferns	0
Cover (sum of cover of natives species)	Other	0
	Trees	0
	Shrubs	0
	Grasses etc	51.1
	Forbs	0.3
High threat weed cover	Ferns	0
	Other	0

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size)

20 x 50 m 10 x 100 m

Tree stem DBH (cm)		Notes on function attributes:
>80	0	Item size class records # large trees (cf. benchmark)
50 - 79	0	Record stems for living trees only, and for all species
30 - 49	-	For multitempered trees, record only the largest stem
20 - 29	-	Presence of <5cm stems records regeneration
10 - 19	-	Record # trees with hollows, not number of hollows
5 - 9	-	Count as one stem where tree is multitempered
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)

# Trees with hollows	<20cm	0	Total #
	>20cm**	0	0

Length of logs	Total (m)
	0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >30cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM, other attributes are useful for recording site condition in general

Sub-plot score (% cover)	Litter	5	10	10	0	20	Average
	Bare ground						9
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground or stem, mol, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3=severe

Timing code: R = recent (<3y), NR = not recent, 0 = old/previous

Notes

Growth Form (see BAM Appendix 4): Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (FG), Other (OG)
Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 30, 15, 20, 25, ..., 100% (incl. leaf, branch, stem cover per species).
Abundance for each species with ≥5% cover: 1, 2, 3, 4, ..., 100, 500, 1000, 1500, 2000 stems.
N=native, **E**=exotic, **HTE**=high threat exotic
 All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifier e.g. Genus sp1, Genus sp2 etc.
 Identify top 3 dominants in each stratum (use own stratum definition) Cover area examples: 0.1% = 8.1x6.3cm, 0.5% = 1.4x1.4m, 1% = 2x2 m, 5% = 4x5m, 25% = 10x10m

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	20.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B103
Photo #		Zone ID	765_mod
Datum	GDA 94	Plot dimensions	10 x 50 m
Easting	693350	Zone	55
Northing	6013462	Plot bearing along midline	62

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 765

Condition state

Moderate

Floristic plot is centred on the midline, at 0m point, 10 m either side

Function plot is an extension of floristic plot out to 50 m along midline (or equiv. area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size)

20 x 20 m 10 x 40 m

Sum values*

Native Richness (count of native species)

Trees 0

Shrubs 0

Grasses etc 6

Forbs 5

Ferns 0

Other 0

Cover (sum of cover of natives species)

Trees 0

Shrubs 0

Grasses etc 50.5

Forbs 0.5

Ferns 0

Other 0

High threat weed cover 15.4

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size)

20 x 50 m 10 x 100 m 10 x 50 m

Tree stem DBH (cm)

>80 0

50 - 79 0

30 - 49 +

20 - 29 +

10 - 19 +

5 - 9 +

< 5 +

Trees with hollows

<20cm 0

0 >20cm** 0

Length of logs

Total #

Total (m)

0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM, other attributes are useful for recording site condition in general

Sub-plot score (% cover)

Litter 10

Bare ground 0

Cryptogam 5

Rock 0

Average 3

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance Severity Timing Landform

Clearing (incl. logging)

Cultivation

Grazing (native / stock)

Soil erosion

Firewood removal

Fire (ground or crown, road, canopy burnt?)

Storm damage

Weediness

Site drainage

Distance to nearest water

Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=light, 2=moderate, 3=severe

Timing code: R = recent (3yrs), NR = not recent, O = old/historic

Notes

BR - Version 3.1 - Date 3/12/2017

886 - Version 1.0 - Date 1/22/2017

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	20.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	BIO4
Photo #		Zone ID	1202_poor
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	693619	Plot bearing along midline	10
Northing	6013512	Record magnetic bearing along midline from 0 m point	

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0 m point and 50 m point, looking into plot.

IBRA region	South Eastern Highlands
Subregion	Monaro
Likely Vegetation Class	
Plant Community Type	1202
Condition state	Poor

Floristics plot is centred on the midline, at 0 m point, 50 m either side

Function plot is an extension of floristics plot out to 50 m along midline (or equive. area)

BAM Composition / Structure plot (400m ²)		
Dimensions (circle applicable size)		
20 x 20 m	10 x 40 m	Sum values*
Native Richness (count of native species)	Trees	0
	Shrubs	0
	Grasses etc	3
	Forbs	3
	Ferns	0
Cover (sum of cover of natives species)	Other	0
	Trees	0
	Shrubs	0
	Grasses etc	17.1
	Forbs	0.4
	Ferns	0
	Other	0
High threat weed cover		50.6

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m ²)			
Dimensions (circle applicable size)			
20 x 50 m	10 x 100 m		
Tree stem DBH (cm)			
>80	0	Notes on function attributes: Stem size class records if large trees (cf. benchmark) Record stems for living trees only, and for all species For multitemmed trees, record only the largest stem Presence of <5cm stems records regeneration Record # trees with hollows, not number of hollows Count as one stem where tree is multitemmed Hollow bearing stem may be a dead stem (incl. snag)	
50 - 79	0		
30 - 49	-		
20 - 29	-		
10 - 19	-		
5 - 9	-		
< 5	-		
# Trees with hollows	<20cm	0	Total #
	>20cm**	0	0
Length of logs			Total (m)
			0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)							
Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	5	10	0	0	0	3
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground sprouts, mid. canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=light, 2=moderate, 3=severe

Timing code: R = recent (<3yL, NR = not recent, O = old/historic

Notes

000 - Version 1.1 - State 12/12/2013

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	20.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B105
Photo #		Zone ID	765_mod
Datum	GDA 94	Plot dimensions	10 x 50 m
Easting	693278	Zone	55
Northing	6013400	Plot bearing along midline	26

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0 m point and 50 m point, looking into plot.

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 765

Condition state Moderate

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extension of floristics plot out to 50 m along midline (or equal area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size)

20 x 20 m 10 x 40 m Sum values*

Native Richness (count of native species)	Trees	0
	Shrubs	0
	Grasses etc	8
	Forbs	4
	Ferns	0
Cover (sum of cover of natives species)	Other	0
	Trees	0
	Shrubs	0
	Grasses etc	50.7
	Forbs	0.4
	Ferns	0
	Other	0
High threat weed cover		20.3

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size)

20 x 50 m 10 x 100 m 10 x 50 m

Tree stem DBH (cm)		Notes on function attributes:	
>80	0	Stem size class records # large trees (d.f. benchmark)	
50 - 79	0	Record stems for living trees only, and for all species	
30 - 49	-	For multitemmed trees, record only the largest stem	
20 - 29	-	Presence of +50m stems, records regeneration	
10 - 19	-	Record # trees with hollows, not number of hollows	
5 - 9	-	Count as one stem where tree is multitemmed	
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)	
# Trees with hollows		<20cm	0
		>20cm**	0
		Total #	0
Length of logs		Total (m)	0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

(litter cover is used for BAM, other attributes are useful for recording site condition in general)

Sub-plot score (% cover)		1	2	3	4	5	Average
	Litter	5	10	5	0	10	6
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (after-nesting sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground/straw, and canopy burn?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=light, 2=moderate, 3=severe

Timing code: R = recent (only), NR = not recent, O = old/historic

Notes

BR - Version 1.5 - Date 1/10/2017

888 • Revision 1.0 • Date 1/20/2017

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	20.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B106
Photo #		Zone ID	1191_poor
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	694767	Zone	55
Northing	6009253	Plot bearing along midline	23

Record easting, northing at plot marker (0-m point). Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	South Eastern Highlands
Subregion	Monaro

Likely Vegetation Class	
Plant Community Type	1191
Condition state	Poor

Floristics plot is centred on the midline, at 0 m point, 10-m either side

Function plot is an extension of floristics plot out to 50 m along midline (or equal area)

BAM Composition / Structure plot (400m ²)		
Dimensions (circle applicable size)		
20 x 20 m	10 x 40 m	Sum values*
Native Richness (count of native species)	Trees	1
	Shrubs	0
	Grasses etc	3
	Forbs	4
	Ferns	0
	Other	0
Cover (sum of cover of natives species)	Trees	1
	Shrubs	0
	Grasses etc	5.2
	Forbs	0.4
	Ferns	0
	Other	0
High threat weed cover		65.2

*These values summarise the floristics data for input into BAM calculator

BAM Function plot (1000m ²)		
Dimensions (circle applicable size)		
20 x 50 m	10 x 100 m	
Tree stem DBH (cm)		Notes on function attributes:
>80	0	Stem size class records # large trees (cf. benchmark)
50 - 79	0	Record stems for living trees only, and for all species
30 - 49	-	For multiteminal trees, record only the largest stem
20 - 29	-	Presence of <5cm stems records regeneration
10 - 19	+	Record # trees with hollows, not number of hollows
5 - 9	-	Count as one stem where tree is multiteminal
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)
# Trees with hollows	<20cm	1
	>20cm**	0
Length of logs		Total (m)
		22

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)							
Litter cover is used for BAM; other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	0	0	5	0	0	1
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground surface, not canopy burnt)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=not evident, 1=light, 2=moderate, 3=severe

Timing code: R = recent (c3y), NR = not recent, D = old/historic

Notes

BAM - Version 1.0 - Date 1/10/2017

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	20.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B107
Photo #		Zone ID	765_mod
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	694787	Zone	55
Northings	6009587	Plot bearing along midline	276

Record easting, northing at plot marker 30 m point. Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 765

Condition state

Moderate

Floristics plot is centred on the midline, at 0m point, 10m either side

Function plot is an extension of floristics plot out to 50 m along midline (or equis. area)

BAM Composition / Structure plot (400m²)

Dimensions (single applicable size)

20 x 20 m 10 x 40 m Sum values*

Native Richness (count of native species)	Trees	0
	Shrubs	0
	Grasses etc	9
	Forbs	6
	Ferns	0
Cover (sum of cover of natives species)	Other	0
	Trees	0
	Shrubs	0
	Grasses etc	55.8
	Forbs	0.8
High threat weed cover	Ferns	0
	Other	0

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (single applicable size)

20 x 50 m 10 x 100 m 10 x 50 m

Tree stem DBH (cm)		Notes on function attributes:	
>80	0	Stem size class records # large trees (cf. benchmark)	
50 - 79	0	Record stems for living trees only, and for all species	
30 - 49	-	For multi-stemmed trees, record only the largest stem	
20 - 29	-	Presence of <5cm stems records regeneration	
10 - 19	-	Record # trees with hollows, not number of hollows	
5 - 9	-	Count as one stem where tree is multi-stemmed	
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)	

# Trees with hollows	<20cm	0	Total #
	>20cm**	0	0

Length of logs	Total (m)
	0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM, other attributes are useful for recording site condition in general

Sub-plot score (% cover)		1	2	3	4	5	Average
	Litter	0	0	0	5	20	5
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground searers, mtd, canopy burn etc)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=none evidence, 1=slight, 2=moderate, 3=severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

[illegible]

MSB - Version 1.3 - Date 1/12/2013

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	21.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B108
Photo #		Zone ID	765_mod
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	694050	Zone	55
Northing	6011431	Plot bearing along midline	346

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0 m point and 50 m point, looking into plot.

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 765

Condition state Moderate

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extension of Floristics plot out to 50 m along midline (for equiv. area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size)

20 x 20 m 10 x 40 m Sum values*

Native Richness (count of native species)	Trees	0
	Shrubs	0
	Grasses etc	7
	Forbs	5
	Ferns	0
Cover (sum of cover of natives species)	Other	0
	Trees	0
	Shrubs	0
	Grasses etc	56.2
	Forbs	0.7
High threat weed cover	Ferns	0
	Other	0

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size)

20 x 50 m 10 x 100 m

Tree stem DBH (cm)		Notes on function attributes:	
>80	0	Item size class records # large trees (cf. benchmark)	
50 - 79	0	Record stems for living trees only, and for all species	
30 - 49	-	For multitemned trees, record only the largest stem	
20 - 29	-	Presence of <5cm stems records regeneration	
10 - 19	-	Record # trees with hollows, not number of hollows	
5 - 9	-	Count as one stem where tree is multitemned	
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)	

# Trees with hollows	<20cm	0	Total #
	>20cm**	0	0

Length of logs	Total (m)
	3

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >30cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM, other attributes are useful for recording site condition in general

Sub-plot score (% cover)	Litter	1	2	3	4	5	Average
	Bare ground	5	10	0	20	10	9
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground or stem, mol, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3=severe

Timing code: R = recent (<3y), NR = not recent, O = old/Previous

Notes

Growth Form (see BAM Appendix 4) - Tree (TQ), Shrub (SQ), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)
Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 30, 15, 20, 25, ..., 100% (incl. leaf, branch, stem cover per species)
Abundance for each species with $\geq 5\%$ cover: 1, 2, 3, 4, ..., 10, 20, 30, ..., 100, 500, 1000, 1500, 2000 stems
N=native, **E**=exotic, **HTE**=high threat exotic
 All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifier e.g. Genus: sp.1, Genus: sp.2 etc.
 Identify top 3 dominants in each stratum (see own stratum definitions) Cover area examples: 0.1% = 0.6x3.0m, 0.5% = 1.4x1.4m, 2% = 2x2m, 5% = 4x5m, 25% = 10x10m

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	21.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	8109
Photo #		Zone ID	1191_poor
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	695468	Zone	55
Northings	6011196	Plot bearing along midline	218

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 1191

Condition state

Poor

Floristic plot is centred on the midline, at 0m point, 10 m either side

Function plot is an extension of floristic plot out to 50 m along midline (or equiv. area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size)

20 x 20 m 10 x 40 m

Sum values*

Native Richness (count of native species)	Trees	1
	Shrubs	0
	Grasses etc	3
	Forbs	5
	Ferns	0

Cover (sum of cover of natives species)	Other	0
	Trees	10
	Shrubs	0
	Grasses etc	10.1

	Forbs	0.5
	Ferns	0
	Other	0

High threat weed cover 30.5

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size)

20 x 50 m 10 x 100 m

Tree stem DBH (cm)

>80	1
50 - 79	0
30 - 49	+
20 - 29	+
10 - 19	+
5 - 9	+
< 5	+

Notes on function attributes:

Stem size class records # large trees (yfl. benchmark)

Record stems for living trees only, and for all species

For multitempered trees, record only the largest stem

Presence of <5cm stems records regeneration

Record # trees with hollows, not number of hollows

Count as one stem where tree is multitempered

Hollow bearing stem may be a dead stem (incl. snag)

Trees with hollows

<20cm

1 >20cm**

Total #

3

6

Length of logs

Total (m)

33

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	30	20	0	10	10	14
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground fire, crown, mixed, canopy forest fire)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=light, 2=moderate, 3=severe

Timing code: R = recent (10y), NR = not recent, O = old/historic

Notes

888 - Version 1.0 - Date 1/20/2017

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	21.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	BI10
Photo #		Zone ID	999_mod
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	695655	Zone	55
Northing	6010900	Plot bearing along midline	193

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot.

IBRA region	South Eastern Highlands
Subregion	Monaro
Likely Vegetation Class	
Plant Community Type	999
Condition state	Moderate

Floristics plot is centred on the midline, at 0 m point, 50 m either side

Function plot is an extension of floristics plot out to 50 m along midline (or equive. area)

BAM Composition / Structure plot (400m ²)		
Dimensions (circle applicable size)		
20 x 20 m	10 x 40 m	Sum values*
Native Richness (count of native species)	Trees	1
	Shrubs	4
	Grasses etc	9
	Forbs	11
	Ferns	1
Cover (sum of cover of natives species)	Other	1
	Trees	20
	Shrubs	0.8
	Grasses etc	19.7
	Forbs	2.2
	Ferns	1
	Other	0.1
High threat weed cover		10

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m ²)		
Dimensions (circle applicable size)		
20 x 50 m	10 x 100 m	10 x 50 m
Tree stem DBH (cm)		
>80	0	Notes on function attributes: Stem size class records # large trees (cf. benchmark) Record stems for living trees only, and for all species For multiteminal trees, record only the largest stem Presence of <5cm stems records regeneration Record # trees with hollows, not number of hollows Count as one stem where tree is multiteminal Hollow bearing stem may be a dead stem (incl. snag)
50 - 79	0	
30 - 49	-	
20 - 29	-	
10 - 19	-	
5 - 9	+	
< 5	+	
# Trees with hollows		
<20cm	0	Total #
0	>20cm**	0
Length of logs		Total (m)
		10

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)							
Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	5	0	0	0	0	2
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground surface, mid, canopy level?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=light, 2=moderate, 3=severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

000 - Version 1.1 - State 12/12/2013

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	21.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B111
Photo #		Zone ID	1289_good
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	695681	Zone	55
Northing	6011041	Plot bearing along midline	1

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0 m point and 50 m point, looking into plot.

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 1289

Condition state Good

Floristic plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extension of floristic plot out to 50 m along midline (or equal area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size)

20 x 20 m 10 x 40 m

Sum values*

Native Richness (count of native species)

Trees 0

Shrubs 0

Grasses etc 5

Forbs 7

Ferns 0

Other 1

Cover (sum of cover of natives species)

Trees 0

Shrubs 0

Grasses etc 45.2

Forbs 2.3

Ferns 0

Other 0.5

High threat weed cover 5.1

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size)

20 x 50 m 10 x 100 m

Tree stem DBH (cm)

>80 0

50 - 79 0

30 - 49 -

20 - 29 -

10 - 19 -

5 - 9 -

< 5 -

Trees with hollows

<20cm 0

0 >20cm** 0

Length of logs

Total (m)

0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

(litter cover is used for BAM, other attributes are useful for recording site condition in general)

1 2 3 4 5 Average

Litter 0 0 0 0 0 0

Sub-plot score (% cover)

Bare ground

Cryptogam

Rock

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (after-nesting sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground surface, and canopy burn %)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=light, 2=moderate, 3=severe

Timing code: R = recent (only), NR = not recent, O = old/historic

Notes

BR - Version 1.5 - Date 1/10/2017

Page 2 of (2)

[illegible]

BAM Plot - Field Survey Sheet

Page 1 of 1

Date	21.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B112
Photo #		Zone ID	1289_good
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	695681	Zone	55
Northing	6011233	Plot bearing along midline	111

Record easting, northing at plot marker (0-m point). Photos taken vertically and horizontally at 0-m point and 50-m point, looking into plot.

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 1289

Condition state Good

Floristics plot is centred on the midline, at 0-m point, 10-m either side

Function plot is an extension of floristics plot out to 50-m along midline (for equal area)

BAM Composition / Structure plot (400m²)Dimensions (circle applicable size)
20 x 20 m 10 x 40 m Sum values*

Native Richness (count of native species)	Trees	0
	Shrubs	3
	Grasses etc	6
	Forbs	7
	Ferns	0
	Other	1
Cover (sum of cover of natives species)	Trees	0
	Shrubs	0.3
	Grasses etc	50.1
	Forbs	1.8
	Ferns	0
	Other	0.5
High threat weed cover		5.2

*These values summarise the floristics data for input into BAM calculator

BAM Function plot (1000m²)Dimensions (circle applicable size)
20 x 50 m 10 x 100 m

Tree stem DBH (cm)		Notes on function attributes:	
>80	0	Stem size class records # large trees (cf. benchmark)	
50 - 79	0	Record stems for living trees only, and for all species	
30 - 49	-	For multiteminal trees, record only the largest stem	
20 - 29	-	Presence of <5cm stems records regeneration	
10 - 19	-	Record # trees with hollows, not number of hollows	
5 - 9	-	Count as one stem where tree is multiteminal	
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)	
# Trees with hollows		<20cm	0
0		>20cm**	0
Length of logs		Total (m)	
		0	

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM; other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	5	0	0	0	0	1
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45-m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground surface, incl. canopy burnt)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=not evident, 1=light, 2=moderate, 3=severe

Timing code: R = recent (c3y), NR = not recent, O = old/historic

Notes

404 - Version 2.1 - State 1/11/2019

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	22.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B113
Photo #		Zone ID	1202_poor
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	693481	Zone	55
Northings	6012941	Plot bearing along midline	357

Record easting, northing at plot marker 30 m point. Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 1202

Condition state Poor

Floristics plot is centred on the midline, at 0m point, 10m either side

Function plot is an extension of floristics plot out to 50 m along midline (or equis. area)

BAM Composition / Structure plot (400m²)

Dimensions (single applicable size)

20 x 20 m 10 x 40 m Sum values*

Native Richness (count of native species)	Trees	0
	Shrubs	0
	Grasses etc	2
	Forbs	1
	Ferns	0
Cover (sum of cover of natives species)	Other	0
	Trees	0
	Shrubs	0
	Grasses etc	20.5
	Forbs	0.1
High threat weed cover	Ferns	0
	Other	0

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (single applicable size)

20 x 50 m 10 x 100 m

Tree stem DBH (cm)		Notes on function attributes:
>80	0	Stem size class records # large trees (cf. benchmark)
50 - 79	0	Record stems for living trees only, and for all species
30 - 49	-	For multi-stemmed trees, record only the largest stem
20 - 29	-	Presence of <5cm stems records regeneration
10 - 19	-	Record # trees with hollows, not number of hollows
5 - 9	-	Count as one stem where tree is multi-stemmed
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)

# Trees with hollows	<20cm	0	Total #
	>20cm**	0	0

Length of logs	Total (m)
	0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM, other attributes are useful for recording site condition in general

Sub-plot score (% cover)		1	2	3	4	5	Average
	Litter	5	10	0	0	0	3
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground searers, med. canopy burn etc)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=none evidence, 1=slight, 2=moderate, 3=severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

[illegible]

MSB - Version 1.3 - Date 1/12/2013

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	22.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	B114
Photo #		Zone ID	1202_poor
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	694239	Zone	55
Northing	6010134	Plot bearing along midline	32

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0 m point and 50 m point, looking into plot.

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 1202

Condition state Poor

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extension of Floristics plot out to 50 m along midline (for eq. area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size)

20 x 20 m 10 x 40 m Sum values*

Native Richness (count of native species)	Trees	0
	Shrubs	0
	Grasses etc	2
	Forbs	3
	Ferns	0
Cover (sum of cover of natives species)	Other	0
	Trees	0
	Shrubs	0
	Grasses etc	6
	Forbs	0.7
High threat weed cover	Ferns	0
	Other	0

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size)

20 x 50 m 10 x 100 m

Tree stem DBH (cm)		Notes on function attributes:	
>80	0	Item size class records # large trees (cf. benchmark)	
50 - 79	0	Record stems for living trees only, and for all species	
30 - 49	-	For multitemned trees, record only the largest stem	
20 - 29	-	Presence of <5cm stems records regeneration	
10 - 19	-	Record # trees with hollows, not number of hollows	
5 - 9	-	Count as one stem where tree is multitemned	
< 5	-	Hollow bearing stem may be a dead stem (incl. snag)	
# Trees with hollows		<20cm	0
		>20cm**	0
Length of logs		Total #	0
		Total (m)	0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >30cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM, other attributes are useful for recording site condition in general

Sub-plot score (% cover)	Litter	1	2	3	4	5	Average
	Bare ground	0	0	0	0	0	0
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground or stem, mol, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3=severe

Timing code: R = recent (<3y), NR = not recent, O = old/Previous

Notes

886 - Version 1.1 - Date 11/11/2017

Version 1.1 - Date 3/13/2009

886 - Version 1.0 - Date 1/22/2017

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	22.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard and Ian Griffith	Plot ID #	BI16
Photo #		Zone ID	1191_good
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	695722	Zone	55
Northing	6010791	Plot bearing along midline	166

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot.

IBRA region	South Eastern Highlands
Subregion	Monaro
Likely Vegetation Class	
Plant Community Type	1191
Condition state	Good

Floristics plot is centred on the midline, at 0 m point, 50 m either side

Function plot is an extension of floristics plot out to 50 m along midline (or equiv. area)

BAM Composition / Structure plot (400m ²)		
Dimensions (circle applicable size)		
20 x 20 m	10 x 40 m	Sum values*
Native Richness (count of native species)	Trees	1
	Shrubs	9
	Grasses etc	6
	Forbs	8
	Ferns	0
Cover (sum of cover of natives species)	Other	0
	Trees	10
	Shrubs	1.4
	Grasses etc	21.4
	Forbs	10.7
	Ferns	0
	Other	0
High threat weed cover		5.2

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m ²)			
Dimensions (circle applicable size)			
20 x 50 m	10 x 100 m		
Tree stem DBH (cm)			
>80	0	Notes on function attributes: Stem size class records # large trees (cf. benchmark) Record stems for living trees only, and for all species For multitemmed trees, record only the largest stem Presence of <5cm stems records regeneration Record # trees with hollows, not number of hollows Count as one stem where tree is multitemmed Hollow bearing stem may be a dead stem (incl. snag)	
50 - 79	1		
30 - 49	+		
20 - 29	-		
10 - 19	+		
5 - 9	-		
< 5	+		
# Trees with hollows	<20cm	0	Total #
	>20cm**	2	2
Length of logs			Total (m)
			46

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)							
Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	50	20	10	10	50	28
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground sprouts, mid. canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=light, 2=moderate, 3=severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

BAM Plot - Field Survey Sheet

Page 1 of (1)

Date	22.01.2022	Survey Name	Billilngra Solar Farm
Recorders	David Orchard	Plot ID #	B117
Photo #		Zone ID	1202_poor
Datum	GDA 94	Plot dimensions	20 x 50 m
Easting	694110	Zone	55
Northing	6012106	Plot bearing along midline	331

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0 m point and 50 m point, looking into plot.

IBRA region South Eastern Highlands

Subregion Monaro

Likely Vegetation Class

Plant Community Type 1202

Condition state Poor

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extension of floristics plot out to 50 m along midline (or equal area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size)

20 x 20 m 10 x 40 m

Sum values*

Native Richness (count of native species)

Trees 0

Shrubs 0

Grasses etc 3

Forbs 3

Ferns 0

Other 0

Cover (sum of cover of natives species)

Trees 0

Shrubs 0

Grasses etc 10.4

Forbs 0.7

Ferns 0

Other 0

High threat weed cover 27

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size)

20 x 50 m 10 x 100 m

Tree stem DBH (cm)

>80 0

50 - 79 0

30 - 49 -

20 - 29 -

10 - 19 -

5 - 9 -

< 5 -

Trees with hollows

<20cm 0

0 >20cm** 0

Length of logs

Total (m)

0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

(litter cover is used for BAM, other attributes are useful for recording site condition in general)

Sub-plot score (% cover)

Litter 5

Bare ground

Cryptogam

Rock

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (after-nesting sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground surface, and canopy burn %)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop / cave

Severity code: 0=no evidence, 1=light, 2=moderate, 3=severe

Timing code: R = recent (only), NR = not recent, O = old/historic

Notes

Flora species list

In total, 156 flora species were recorded during the biodiversity survey in January, of which 91 (58.33%) were native and 65 (41.67%) introduced. The following table should not be regarded as a comprehensive listing of all species occurring on the subject land.

Growth form: TG = Tree, SG = Shrub, FG = Forb, GG = Grass and Grass-like, EG = Fern, OG = Other

Status: N = Native, E = Exotic, HTE = High Threat Exotic

BC Act/EPBC Act: V = Vulnerable

Growth Form	Scientific name	Common name	BC Act	EPBC Act	Status
TG	<i>Callitris endlicheri</i>	Black Cypress-pine	-	-	N
TG	<i>Eucalyptus bridgesiana</i>	Apple Box	-	-	N
TG	<i>Eucalyptus pauciflora</i>	Snow Gum	-	-	N
TG	<i>Eucalyptus viminalis</i>	Ribbon Gum	-	-	N
TG	<i>Pinus</i> sp.	Pine	-	-	HTE
TG	<i>Populus albens</i>	White Poplar	-	-	HTE
TG	<i>Populus nigra</i>	Black Poplar	-	-	HTE
TG	<i>Salix babylonica</i>	Weeping Willow	-	-	HTE
SG	<i>Acacia dawsonii</i>	Dawson's Wattle	-	-	N
SG	<i>Bossiaea buxifolia</i>	Bossiaea	-	-	N
SG	<i>Bossiaea riparia</i>	Leafless Bossiaea	-	-	N
SG	<i>Bursaria spinosa</i>	Native Blackthorn	-	-	N
SG	<i>Cassinia longifolia</i>	Shiny Cassinia	-	-	N
SG	<i>Cryptandra amara</i>	Bitter Cryptandra	-	-	N
SG	<i>Dodonaea procumbens</i>	Creeping Hop-bush	V	V	N
SG	<i>Lissanthe strigosa</i>	Peach Heath	-	-	N
SG	<i>Melichrus urceolatus</i>	Urn Heath	-	-	N
SG	<i>Lycium ferocissimum</i>	African Boxthorn	-	-	HTE
SG	<i>Rosa rubiginosa</i>	Sweet Briar	-	-	HTE
SG	<i>Rubus fruticosus</i> species aggregate	Blackberry	-	-	HTE
FG	<i>Acaena ovina</i>	Sheep's Burr	-	-	N
FG	<i>Asperula conferta</i>	Common Woodruff	-	-	N
FG	<i>Brachyscome dentata</i>	Brachyscome	-	-	N
FG	<i>Calotis anthemoides</i>	Cut-leaved Burr-daisy	-	-	N
FG	<i>Cardamine paucijuga</i>	Native Cardamine	-	-	N
FG	<i>Chrysocephalum apiculatum</i>	Common Everlasting	-	-	N
FG	<i>Crassula sieberiana</i>	Austral Stonecrop	-	-	N
FG	<i>Cymbonotus</i> sp.	Bear's Ear	-	-	N
FG	<i>Dianella revoluta</i>	Black-anther Flax-lily	-	-	N

Growth Form	Scientific name	Common name	BC Act	EPBC Act	Status
FG	<i>Dysphania pumilio</i>	Small Crumbweed	-	-	N
FG	<i>Einadia nutans</i>	Climbing Saltbush	-	-	N
FG	<i>Elatine gratioloides</i>	Waterwort	-	-	N
FG	<i>Epilobium billardioreanum</i>	Willowherb	-	-	N
FG	<i>Epilobium hirtigerum</i>	Willowherb	-	-	N
FG	<i>Eryngium ovium</i>	Blue Devil	-	-	N
FG	<i>Euchiton sphaericus</i>	Star Cudweed	-	-	N
FG	<i>Euphorbia dallachyana</i>	Mat Spurge	-	-	N
FG	<i>Gonocarpus tetragynus</i>	Common Raspwort	-	-	N
FG	<i>Goodenia pinnatifida</i>	Scrambled Eggs	-	-	N
FG	<i>Haloragis heterophylla</i>	Rough Raspwort	-	-	N
FG	<i>Hovea heterophylla</i>	Hovea	-	-	N
FG	<i>Hydrocotyle tripartita</i>	Pennywort	-	-	N
FG	<i>Juncus bufonius</i>	Toad Rush	-	-	N
FG	<i>Lythrum hyssopifolia</i>	Hyssop Loosestrife	-	-	N
FG	<i>Oxalis perennans</i>	Native Oxalis	-	-	N
FG	<i>Oxalis radicata</i>	Native Oxalis	-	-	N
FG	<i>Pimelea curviflora</i> var. <i>sericea</i>	Rice-flower	-	-	N
FG	<i>Plantago hispida</i>	Native Plantain	-	-	N
FG	<i>Potamogeton sulcatus</i>	Pondweed	-	-	N
FG	<i>Pseudognaphalium luteoalbum</i>	Jersey Cudweed	-	-	N
FG	<i>Rumex brownii</i>	Swamp Cudweed	-	-	N
FG	<i>Scleranthus diander</i>	Tufted Knawel	-	-	N
FG	<i>Senecio quadridentatus</i>	Cotton Fireweed	-	-	N
FG	<i>Solenogyne dominii</i>	Smooth Solenogyne	-	-	N
FG	<i>Swainsona sericea</i>	Silky Swainson-pea	V	-	N
FG	<i>Vittadinia cuneata</i> var. <i>cuneata</i>	Fuzzweed	-	-	N
FG	<i>Vittadinia muelleri</i>	New Holland Daisy	-	-	N
FG	<i>Wahlenbergia communis</i>	Tufted Bluebell	-	-	N
FG	<i>Carthamus lanatus</i>	Saffron Thistle	-	-	HTE
FG	<i>Centaurea calcitrapa</i>	Star Thistle	-	-	E
FG	<i>Chondrilla juncea</i>	Skeleton Weed	-	-	E
FG	<i>Cirsium vulgare</i>	Spear Thistle	-	-	E
FG	<i>Conyza bilbaoana</i>	Fleabane	-	-	E
FG	<i>Conyza bonariensis</i>	Flaxleaf Fleabane	-	-	E
FG	<i>Echium plantagineum</i>	Paterson's Curse	-	-	E
FG	<i>Echium vulgare</i>	Viper's Bugloss	-	-	E
FG	<i>Gamochaeta calviceps</i>	Cudweed	-	-	E
FG	<i>Hirschfeldia incana</i>	Buchan Weed	-	-	E

Growth Form	Scientific name	Common name	BC Act	EPBC Act	Status
FG	<i>Hypericum perforatum</i>	St John's Wort	-	-	HTE
FG	<i>Hypochaeris glabra</i>	Smooth Catsear	-	-	E
FG	<i>Hypochaeris radicata</i>	Flatweed	-	-	E
FG	<i>Lactuca serriola</i>	Prickly Lettuce	-	-	E
FG	<i>Lepidium africanum</i>	African Peppergrass	-	-	E
FG	<i>Linaria arvensis</i>	Toadflax	-	-	E
FG	<i>Malva neglecta</i>	Dwarf Mallow	-	-	E
FG	<i>Malva parviflora</i>	Small-flowered Mallow	-	-	E
FG	<i>Medicago sativa</i>	Lucerne	-	-	E
FG	<i>Modiola caroliniana</i>	Red-flowered Mallow	-	-	E
FG	<i>Onopordum acanthium</i>	Scotch Thistle	-	-	E
FG	<i>Paronychia brasiliensis</i>	Chilean Whitlow Wort	-	-	E
FG	<i>Petrorhagia nanteuillii</i>	Proliferous Pink	-	-	E
FG	<i>Plantago lanceolata</i>	Narrow-leaf Plantain	-	-	E
FG	<i>Polygonum aviculare</i>	Wireweed	-	-	E
FG	<i>Ranunculus sceleratus</i>	Celery Buttercup	-	-	E
FG	<i>Raphanus raphanistrum</i>	Wild Radish	-	-	HTE
FG	<i>Rumex acetosella</i>	Sorrel	-	-	HTE
FG	<i>Rumex conglomeratus</i>	Clustered Dock	-	-	E
FG	<i>Rumex crispus</i>	Curled Dock	-	-	E
FG	<i>Salvia verbenaca</i>	Wild Sage	-	-	E
FG	<i>Sonchus asper</i>	Prickly Sowthistle	-	-	E
FG	<i>Spergularia rubra</i>	Sandspurry	-	-	E
FG	<i>Taraxacum officinale</i>	Dandelion	-	-	E
FG	<i>Tragopogon dubius</i>	Goatsbeard	-	-	E
FG	<i>Trifolium arvense</i>	Haresfoot Clover	-	-	E
FG	<i>Trifolium repens</i>	White Clover	-	-	E
FG	<i>Urtica urens</i>	Small Nettle	-	-	E
FG	<i>Verbascum thapsus</i>	Great Mullein	-	-	E
FG	<i>Veronica anagallis-aquatica</i>	Blue Water Speedwell	-	-	E
FG	<i>Xanthium spinosum</i>	Bathurst Burr	-	-	HTE
GG	<i>Amphibromus nervosus</i>	Common Swamp Wallaby Grass	-	-	N
GG	<i>Anthosachne scabra</i>	Common Wheatgrass	-	-	N
GG	<i>Aristida ramosa</i>	Purple Wiregrass	-	-	N
GG	<i>Austrostipa bigeniculata</i>	Kneed Speargrass	-	-	N
GG	<i>Austrostipa densiflora</i>	Foxtail Speargrass	-	-	N
GG	<i>Austrostipa scabra</i>	Rough Speargrass	-	-	N
GG	<i>Bothriochloa macra</i>	Red Grass	-	-	N

Growth Form	Scientific name	Common name	BC Act	EPBC Act	Status
GG	<i>Carex appressa</i>	Tall Sedge	-	-	N
GG	<i>Carex inversa</i>	Sedge	-	-	N
GG	<i>Cymbopogon refractus</i>	Barbed Wire Grass	-	-	N
GG	<i>Cynodon dactylon</i>	Couch	-	-	N
GG	<i>Cyperus gunnii</i> subsp. <i>gunnii</i>	Sedge	-	-	N
GG	<i>Cyperus lhotskyanus</i>	Sedge	-	-	N
GG	<i>Cyperus sanguinolentus</i>	Sedge	-	-	N
GG	<i>Dichelachne micrantha</i>	Shorthair Plumegrass	-	-	N
GG	<i>Dichondra repens</i>	Kidneyweed	-	-	N
GG	<i>Eleocharis acuta</i>	Spike-rush	-	-	N
GG	<i>Enneapogon nigricans</i>	Nineawn Grass	-	-	N
GG	<i>Eragrostis parviflora</i>	Weeping Lovegrass	-	-	N
GG	<i>Juncus australis</i>	Rush	-	-	N
GG	<i>Juncus filicaulis</i>	Rush	-	-	N
GG	<i>Juncus homalocaulis</i>	Rush	-	-	N
GG	<i>Juncus usitatus</i>	Rush	-	-	N
GG	<i>Lachnagrostis filiformis</i>	Common Blown Grass	-	-	N
GG	<i>Lomandra filiformis</i>	Wattle Mat-rush	-	-	N
GG	<i>Lomandra longifolia</i>	Spiny Mat-rush	-	-	N
GG	<i>Lomandra multiflora</i>	Many-flowered Mat-rush	-	-	N
GG	<i>Microlaena stipoides</i>	Weeping Grass	-	-	N
GG	<i>Panicum effusum</i>	Hairy Panic	-	-	N
GG	<i>Poa labillardierei</i>	River Tussock	-	-	N
GG	<i>Poa sieberiana</i>	Snow Grass	-	-	N
GG	<i>Rytidosperma caespitosum</i>	Ringed Wallaby Grass	-	-	N
GG	<i>Rytidosperma erianthum</i>	Wallaby Grass	-	-	N
GG	<i>Rytidosperma laeve</i>	Wallaby Grass	-	-	N
GG	<i>Rytidosperma pallidum</i>	Red-anther Wallaby Grass	-	-	N
GG	<i>Themeda triandra</i>	Kangaroo Grass	-	-	N
GG	<i>Arrhenatherum elatius</i>	Oatgrass	-	-	E
GG	<i>Avena barbata</i>	Bearded Oat	-	-	E
GG	<i>Bromus catharticus</i>	Prairie Grass	-	-	E
GG	<i>Bromus hordeaceus</i>	Soft Brome	-	-	E
GG	<i>Bromus inermis</i>	Awnless Brome	-	-	E
GG	<i>Bromus rubens</i>	Red Brome	-	-	E
GG	<i>Cyperus eragrostis</i>	Umbrella Sedge	-	-	HTE
GG	<i>Dactylis glomerata</i>	Cocksfoot	-	-	E
GG	<i>Eleusine tristachya</i>	Goose Grass	-	-	E
GG	<i>Eragrostis curvula</i>	African Lovegrass	-	-	HTE

Growth Form	Scientific name	Common name	BC Act	EPBC Act	Status
GG	<i>Hordeum leporinum</i>	Barley Grass	-	-	E
GG	<i>Lolium perenne</i>	Perennial Ryegrass	-	-	E
GG	<i>Paspalum dilatatum</i>	Paspalum	-	-	E
GG	<i>Pentstemon airoides</i>	False Hairgrass	-	-	HTE
GG	<i>Phalaris aquatica</i>	Phalaris	-	-	E
GG	<i>Polypogon monspeliensis</i>	Annual Beardgrass	-	-	E
GG	<i>Vulpia bromoides</i>	Squirrel Tail Fescue	-	-	E
EG	<i>Cheilanthes sieberi</i>	Poison Rock Fern	-	-	N
EG	<i>Pteridium esculentum</i>	Bracken	-	-	N
OG	<i>Convolvulus angustissimus</i>	Bindweed	-	-	N
OG	<i>Grona varians</i>	Slender Tick-trefoil	-	-	N

Fauna species list

In total, 20 fauna species were recorded during the biodiversity survey, of which 18 (90%) were native and 2 (10%) introduced. The following table should not be regarded as a comprehensive listing of all species likely to make use of the subject land.

BC Act/EPBC Act: V = Vulnerable. Status: N = Native, E = Exotic

Class	Species Name	Common Name	BC Act	EPBC Act	Status
Aves	<i>Anas gracilis</i>	Grey Teal	-	-	N
Aves	<i>Anas superciliosa</i>	Pacific Black Duck	-	-	N
Aves	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	-	-	N
Aves	<i>Chenonetta jubata</i>	Australian Wood Duck	-	-	N
Aves	<i>Cinchorhamphus cruralis</i>	Brown Songlark	-	-	N
Aves	<i>Cinchorhamphus mathewsi</i>	Rufous Songlark	-	-	N
Aves	<i>Corvus coronoides</i>	Australian Raven	-	-	N
Aves	<i>Coturnix pectoralis</i>	Stubble Quail	-	-	N
Aves	<i>Eolophus roseicapilla</i>	Galah	-	-	N
Aves	<i>Epthianura albifrons</i>	White-fronted Chat	V	-	N
Aves	<i>Hirundo neoxena</i>	Welcome Swallow	-	-	N
Aves	<i>Ocyphaps lophotes</i>	Crested Pigeon	-	-	N
Aves	<i>Passer domesticus</i>	House Sparrow	-	-	E
Aves	<i>Platycercus eximius</i>	Eastern Rosella	-	-	N
Aves	<i>Psephotus haematonotus</i>	Red-rumped Parrot	-	-	N
Aves	<i>Rhipidura leucophrys</i>	Willie Wagtail	-	-	N
Aves	<i>Sturnus vulgaris</i>	Common Starling	-	-	N
Mammalia	<i>Oryctolagus cuniculus</i>	European Rabbit	-	-	E
Reptilia	<i>Chelodina longicollis</i>	Eastern Long-necked Turtle	-	-	N
Reptilia	<i>Egernia cunninghami</i>	Cunningham's Skink	-	-	N

Appendix D: BAM Credit Summary Report



BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00031339/BAA521028/22/00031340	Billilngra Solar - All Cleared	24/11/2021
Assessor Name	Report Created	BAM Data version *
David Orchard	04/03/2022	50
Assessor Number	BAM Case Status	Date Finalised
BAAS21028	Open	To be finalised
Assessment Revision	Assessment Type	BOS entry trigger
0	Part 4 Developments (General)	BOS Threshold: Biodiversity Values Map and area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAI	Ecosystem credits
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Assessment Id
00031339/BAA521028/22/00031340

Proposal Name
Billilngra Solar - All Cleared

Page 1 of 10



BAM Credit Summary Report

Carex - Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion

2	765_mod	Not a TEC	53.7	53.7	5	PCT Cleared - 90%	High Sensitivity to Potential Gain		2.50		170
										Subtotal	170

Norton's Box - Broad-leaved Peppermint open forest on footslopes, central and southern South Eastern Highlands Bioregion

5	999_mod	Not a TEC	39.5	39.5	0.62	PCT Cleared - 15%	High Sensitivity to Potential Gain		1.50		9
										Subtotal	9

Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion

3	1191_poor	Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion	11.1	11.1	1.2	PCT Cleared - 95%	High Sensitivity to Potential Gain	Critically Endangered Ecological Community	Not Listed	2.50	TRUE	0
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Assessment Id

00031339/BAAS21028/22/00031340

Proposal Name

Billilngra Solar - All Cleared

Page 2 of 10



BAM Credit Summary Report

4	1191_good	Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion	55.6	55.6	0.24	PCT Cleared - 95%	High Sensitivity to Potential Gain	Critically Endangered Ecological Community	Not Listed	2.50	TRUE	8
											Subtotal	8
Speargrass grassland of the South Eastern Highlands Bioregion												
1	1202_poor	Not a TEC	16	16.0	177	PCT Cleared - 2 68%	High Sensitivity to Potential Gain			1.75		0
											Subtotal	0
Wallaby Grass - Red-grass - Tall Speargrass - Kangaroo Grass dry tussock grassland of the North-western and Eastern Southern Tablelands in the South Eastern Highlands Bioregion												
6	1289_good	Not a TEC	72.8	72.8	8.6	PCT Cleared - 57%	High Sensitivity to Potential Gain			1.75		274
											Subtotal	274
											Total	461

Species credits for threatened species

Assessment Id
00031339/BAAS21028/22/00031340

Proposal Name
Billililgra Solar - All Cleared

Page 3 of 10



BAM Credit Summary Report

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAI	Species credits
<i>Aprasia parapulchella</i> / Pink-tailed Legless Lizard (Fauna)									
1202_poor	16.0	16.0	177.2			Vulnerable	Vulnerable	False	1415
1191_poor	11.1	11.1	1.2			Vulnerable	Vulnerable	False	7
1191_good	55.6	55.6	0.24			Vulnerable	Vulnerable	False	7
								Subtotal	1429
<i>Caladenia tessellata</i> / Thick Lip Spider Orchid (Flora)									
1191_poor	11.1	11.1	1.2			Endangered	Vulnerable	True	10
1191_good	55.6	55.6	0.24			Endangered	Vulnerable	True	10
								Subtotal	20
<i>Collocephalon fimbriatum</i> / Gang-gang Cockatoo (Fauna)									
1191_poor	11.1	11.1	1.2			Vulnerable	Not Listed	False	7
1191_good	55.6	55.6	0.24			Vulnerable	Not Listed	False	7
999_mod	39.5	39.5	0.62			Vulnerable	Not Listed	False	12
								Subtotal	26
<i>Calotis glandulosa</i> / Mauve Burr-daisy (Flora)									
1191_poor	11.1	11.1	1.2			Vulnerable	Vulnerable	True	10
1191_good	55.6	55.6	0.24			Vulnerable	Vulnerable	True	10
								Subtotal	20
<i>Calyptorhynchus lathami</i> / Glossy Black-Cockatoo (Fauna)									
1191_poor	11.1	11.1	1.2			Vulnerable	Not Listed	False	7
1191_good	55.6	55.6	0.24			Vulnerable	Not Listed	False	7

Assessment Id
00031339/BAAS21028/22/00031340

Proposal Name
Billilngra Solar - All Cleared

Page 4 of 10



BAM Credit Summary Report

								Subtotal	14
<i>Cercartetus nanus / Eastern Pygmy-possum (Fauna)</i>									
1191_poor		11.1	11.1	1.2		Vulnerable	Not Listed	False	7
1191_good		55.6	55.6	0.24		Vulnerable	Not Listed	False	7
999_mod		39.5	39.5	0.62		Vulnerable	Not Listed	False	12
								Subtotal	26
<i>Commersonia prostrata / Dwarf Kewong (Flora)</i>									
1191_poor		11.1	11.1	1.2		Endangered	Endangered	False	7
1191_good		55.6	55.6	0.24		Endangered	Endangered	False	7
1289_good		72.8	72.8	8.6		Endangered	Endangered	False	313
								Subtotal	327
<i>Delma impar / Striped Legless Lizard (Fauna)</i>									
1202_poor		16.0	16.0	177.2		Vulnerable	Vulnerable	False	1061
1191_poor		11.1	11.1	1.2		Vulnerable	Vulnerable	False	5
1191_good		55.6	55.6	0.24		Vulnerable	Vulnerable	False	5
								Subtotal	1071
<i>Dodonaea procumbens / Creeping Hop-bush (Flora)</i>									
1202_poor	N/A	N/A		500		Vulnerable	Vulnerable	False	750
1191_poor	N/A	N/A		50		Vulnerable	Vulnerable	False	75
1191_good	N/A	N/A		150		Vulnerable	Vulnerable	False	225
1289_good	N/A	N/A		200		Vulnerable	Vulnerable	False	300
								Subtotal	1350
<i>Eucalyptus aggregata / Black Gum (Flora)</i>									
1202_poor	N/A	N/A		50		Vulnerable	Vulnerable	False	100

Assessment Id
00031339/BAAS21028/22/00031340

Proposal Name
Billilngra Solar - All Cleared

Page 5 of 10



BAM Credit Summary Report

1191_poor	N/A	N/A	10		Vulnerable	Vulnerable	False	20
1191_good	N/A	N/A	10		Vulnerable	Vulnerable	False	20
1289_good	N/A	N/A	10		Vulnerable	Vulnerable	False	20
Subtotal								160
<i>Eucalyptus macarthurii</i> / Paddys River Box, Camden Woollybutt (Flora)								
1191_poor	N/A	N/A	10		Endangered	Endangered	False	20
1191_good	N/A	N/A	10		Endangered	Endangered	False	20
1289_good	N/A	N/A	10		Endangered	Endangered	False	20
Subtotal								60
<i>Eucalyptus pulverulenta</i> / Silver-leafed Gum (Flora)								
999_mod	N/A	N/A	10		Vulnerable	Vulnerable	False	20
Subtotal								20
<i>Euphrasia scabra</i> / Rough Eyebright (Flora)								
1191_poor	11.1	11.1	1.2		Endangered	Not Listed	True	10
1191_good	55.6	55.6	0.24		Endangered	Not Listed	True	10
Subtotal								20
<i>Gentiana baeuerlenii</i> / Baeuerlen's Gentian (Flora)								
1289_good	72.8	72.8	8.6		Endangered	Endangered	True	470
Subtotal								470
<i>Hieraaetus morphnoides</i> / Little Eagle (Fauna)								
1202_poor	16.0	16.0	177.2		Vulnerable	Not Listed	False	1061
1191_poor	11.1	11.1	1.2		Vulnerable	Not Listed	False	5
1191_good	55.6	55.6	0.24		Vulnerable	Not Listed	False	5
999_mod	39.5	39.5	0.62		Vulnerable	Not Listed	False	9

Assessment Id
00031339/BAAS21028/22/00031340

Proposal Name
Billilngra Solar - All Cleared

Page 6 of 10



BAM Credit Summary Report

1289_good	72.8	72.8	8.6		Vulnerable	Not Listed	False	235
Subtotal								1315
<i>Lepidium hyssopifolium</i> / Aromatic Peppercress (Flora)								
1202_poor	16.0	16.0	177.2		Endangered	Endangered	False	1415
1289_good	72.8	72.8	8.6		Endangered	Endangered	False	313
Subtotal								1728
<i>Leucochrysum albicans</i> var. <i>tricolor</i> / Hoary Sunray (Flora)								
1191_poor	N/A	N/A	50		Not Listed	Endangered	False	100
1191_good	N/A	N/A	50		Not Listed	Endangered	False	100
999_mod	N/A	N/A	50		Not Listed	Endangered	False	100
1289_good	N/A	N/A	200		Not Listed	Endangered	False	400
Subtotal								700
<i>Litoria raniformis</i> / Southern Bell Frog (Fauna)								
1289_good	72.8	72.8	8.6		Endangered	Vulnerable	False	313
Subtotal								313
<i>Lopholictinia isura</i> / Square-tailed Kite (Fauna)								
999_mod	39.5	39.5	0.62		Vulnerable	Not Listed	False	9
Subtotal								9
<i>Miniopterus orianae oceanensis</i> / Large Bent-winged Bat (Fauna)								
1191_poor	11.1	11.1	1.2		Vulnerable	Not Listed	True	10
1191_good	55.6	55.6	0.24		Vulnerable	Not Listed	True	10
999_mod	39.5	39.5	0.62		Vulnerable	Not Listed	True	18
1289_good	72.8	72.8	8.6		Vulnerable	Not Listed	True	470

Assessment Id
00031339/BAAS21028/22/00031340

Proposal Name
Billilngra Solar - All Cleared

Page 7 of 10



BAM Credit Summary Report

								Subtotal	508
<i>Myotis macropus / Southern Myotis (Fauna)</i>									
1191_poor	11.1	11.1	1.2		Vulnerable	Not Listed	False		7
1191_good	55.6	55.6	0.24		Vulnerable	Not Listed	False		7
1289_good	72.8	72.8	8.6		Vulnerable	Not Listed	False		313
								Subtotal	327
<i>Ninox connivens / Barking Owl (Fauna)</i>									
1191_poor	11.1	11.1	1.2		Vulnerable	Not Listed	False		7
1191_good	55.6	55.6	0.24		Vulnerable	Not Listed	False		7
999_mod	39.5	39.5	0.62		Vulnerable	Not Listed	False		12
								Subtotal	26
<i>Ninox strenua / Powerful Owl (Fauna)</i>									
1191_poor	11.1	11.1	1.2		Vulnerable	Not Listed	False		7
1191_good	55.6	55.6	0.24		Vulnerable	Not Listed	False		7
999_mod	39.5	39.5	0.62		Vulnerable	Not Listed	False		12
								Subtotal	26
<i>Pelargonium sp. Striatellum / Omeo Storksbill (Flora)</i>									
1289_good	72.8	72.8	8.6		Endangered	Endangered	True		470
								Subtotal	470
<i>Petaurus norfolcensis / Squirrel Glider (Fauna)</i>									
999_mod	39.5	39.5	0.62		Vulnerable	Not Listed	False		12
								Subtotal	12
<i>Petroica rodinogaster / Pink Robin (Fauna)</i>									
1191_poor	11.1	11.1	1.2		Vulnerable	Not Listed	False		7

Assessment Id

00031339/BAAS21028/22/00031340

Proposal Name

Billilngra Solar - All Cleared

Page 8 of 10



BAM Credit Summary Report

1191_good		55.6	55.6	0.24		Vulnerable	Not Listed	False	7
999_mod		39.5	39.5	0.62		Vulnerable	Not Listed	False	12
Subtotal									26
<i>Phascogale tapoatafa / Brush-tailed Phascogale (Fauna)</i>									
999_mod		39.5	39.5	0.62		Vulnerable	Not Listed	False	12
Subtotal									12
<i>Prasophyllum petilum / Tarengo Leek Orchid (Flora)</i>									
1191_poor		11.1	11.1	1.2		Endangered	Endangered	False	7
1191_good		55.6	55.6	0.24		Endangered	Endangered	False	7
1289_good		72.8	72.8	8.6		Endangered	Endangered	False	313
Subtotal									327
<i>Rutidosia leptorrhynchoides / Button Wrinklewort (Flora)</i>									
1202_poor	N/A	N/A		1000		Endangered	Endangered	False	2000
1191_poor	N/A	N/A		50		Endangered	Endangered	False	100
1191_good	N/A	N/A		50		Endangered	Endangered	False	100
1289_good	N/A	N/A		200		Endangered	Endangered	False	400
Subtotal									2600
<i>Swainsona sericea / Silky Swainson-pea (Flora)</i>									
1191_poor		11.1	11.1	1.2		Vulnerable	Not Listed	False	7
1191_good		55.6	55.6	0.24		Vulnerable	Not Listed	False	7
1289_good		72.8	72.8	8.6		Vulnerable	Not Listed	False	313
Subtotal									327

Assessment Id
00031339/BAAS21028/22/00031340

Proposal Name
Billilngra Solar - All Cleared

Page 9 of 10



BAM Credit Summary Report

Synemon plana / Golden Sun Moth (Fauna)

1202_poor	16.0	16.0	177.2		Endangered	Critically Endangered	True	2122
1289_good	72.8	72.8	8.6		Endangered	Critically Endangered	True	470
							Subtotal	2592

Thesium australe / Austral Toadflax (Flora)

1191_poor	11.1	11.1	1.2		Vulnerable	Vulnerable	False	5
1191_good	55.6	55.6	0.24		Vulnerable	Vulnerable	False	5
1289_good	72.8	72.8	8.6		Vulnerable	Vulnerable	False	235
							Subtotal	245

Tympanocryptis pinguicollis / Grassland Earless Dragon (Fauna)

1202_poor	16.0	16.0	177.2		Endangered	Endangered	False	1415
1289_good	72.8	72.8	8.6		Endangered	Endangered	False	313
							Subtotal	1728

Zieria citriodora / Lemon Zieria (Flora)

999_mod	N/A	N/A	50		Endangered	Vulnerable	True	150
							Subtotal	150

Assessment Id

00031339/BAAS21028/22/00031340

Proposal Name

Billilunga Solar - All Cleared

Page 10 of 10

Appendix E: BAM Payment Summary Report



Biodiversity payment summary report

Assessment Id 00031339/BAAS21028/22/00031340	Payment data version	Assessment Revision 0	Report created 04/03/2022
Assessor Name David Orchard	Assessor Number BAAS21028	Proposal Name Billilngra Solar - All Cleared	BAM Case Status Open
Assessment Type Part 4 Developments (General)	Date Finalised To be finalised	BOS entry trigger BOS Threshold: Biodiversity Values Map and area clearing threshold	

PCT list

Price calculated	PCT common name	Credits
Yes	1202 - Speargrass grassland of the South Eastern Highlands Bioregion	0
Yes	765 - Carex - Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion	170
Yes	1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion	8
Yes	999 - Norton's Box - Broad-leaved Peppermint open forest on footslopes, central and southern South Eastern Highlands Bioregion	9
Yes	1289 - Wallaby Grass - Red-grass - Tall Speargrass - Kangaroo Grass dry tussock grassland of the North-western and Eastern Southern Tablelands in the South Eastern Highlands Bioregion	274

Species list

Assessment Id 00031339/BAAS21028/22/00031340	Proposal Name Billilngra Solar - All Cleared	Page 1 of 8
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Biodiversity payment summary report

Price calculated	Species	Credits
Yes	<i>Aprasia parapulchella</i> (Pink-tailed Legless Lizard)	1429
Yes	<i>Caladenia tessellata</i> (Thick Lip Spider Orchid)	20
Yes	<i>Calotis glandulosa</i> (Mauve Burr-daisy)	20
Yes	<i>Calyptorhynchus lathami</i> (Glossy Black-Cockatoo)	14
Yes	<i>Cercartetus nanus</i> (Eastern Pygmy-possum)	26
Yes	<i>Delma impar</i> (Striped Legless Lizard)	1071
Yes	<i>Dodonaea procumbens</i> (Creeping Hop-bush)	1350
Yes	<i>Eucalyptus pulverulenta</i> (Silver-leafed Gum)	20
Yes	<i>Euphrasia scabra</i> (Rough Eyebright)	20
Yes	<i>Gentiana baeuerlenii</i> (Baeuerlen's Gentian)	470
Yes	<i>Lepidium hyssopifolium</i> (Aromatic Peppergrass)	1728
Yes	<i>Litoria raniformis</i> (Southern Bell Frog)	313
Yes	<i>Lophoictinia isura</i> (Square-tailed Kite)	9
Yes	<i>Miniopterus orianae oceanensis</i> (Large Bent-winged Bat)	508
Yes	<i>Myotis macropus</i> (Southern Myotis)	327
Yes	<i>Ninox connivens</i> (Barking Owl)	26
Yes	<i>Ninox strenua</i> (Powerful Owl)	26
Yes	<i>Petaurus norfolcensis</i> (Squirrel Glider)	12
Yes	<i>Petroica rodinogaster</i> (Pink Robin)	26
Yes	<i>Phascogale tapoatafa</i> (Brush-tailed Phascogale)	12

Assessment Id

00031339/BAAS21028/22/00031340

Proposal Name

Billilngra Solar - All Cleared

Page 2 of 8



Biodiversity payment summary report

Yes	<i>Prasophyllum petilum</i> (Tarengo Leek Orchid)	327
Yes	<i>Commersonia prostrata</i> (Dwarf Kerrawang)	327
Yes	<i>Rutidosia leptorrhynchoides</i> (Button Wrinklewort)	2600
Yes	<i>Swainsona sericea</i> (Silky Swainson-pea)	327
Yes	<i>Synemon plana</i> (Golden Sun Moth)	2592
Yes	<i>Thesium australe</i> (Austral Toadflax)	245
Yes	<i>Tympanocryptis pinguicolla</i> (Grassland Earless Dragon)	1728
Yes	<i>Zieria citriodora</i> (Lemon Zieria)	150
Yes	<i>Callocephalon fimbriatum</i> (Gang-gang Cockatoo)	26
Yes	<i>Eucalyptus macarthurii</i> (Paddys River Box, Camden Woollybutt)	60
Yes	<i>Eucalyptus aggregata</i> (Black Gum)	160
Yes	<i>Hieraaetus morphnoides</i> (Little Eagle)	1315
Yes	<i>Pelargonium sp. Striatellum</i> (Omeo Storksbill)	470
Yes	<i>Leucochrysum albicans</i> var. <i>tricolor</i> (Hoary Sunray)	700

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Assessment Id

00031339/BAAS21028/22/00031340

Proposal Name

Billilngra Solar - All Cleared

Page 3 of 8



Biodiversity payment summary report

IBRA sub region	PCT common name	Threat status	Offset trading group	Risk premium	Administrative cost	Methodology adjustment factor	Price per credit	No. of ecosystem credits	Final credits price
Monaro	1202 - Speargrass grassland of the South Eastern Highlands Bioregion	No	Temperate Montane Grasslands >=50% and <70%	20.69%	\$643.48	2.0318	\$20,058.85	0	\$0.00
Monaro	765 - Carex - Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion	No	Montane Bogs and Fens >90%	18.87%	\$275.19	1.4573	\$8,453.01	170	\$1,437,011.97
Monaro	1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion	Yes	Monaro Tableland Cool Temperate Grassy Woodland in the South Eastern Highlands Bioregion	18.83%	\$206.12	2.4527	\$6,329.34	8	\$50,634.72
Monaro	999 - Norton's Box - Broad-leaved Peppermint open forest on footslopes, central and southern South Eastern Highlands Bioregion	No	Southern Tableland Dry Sclerophyll Forests <50%	19.23%	\$119.08	2.2898	\$3,668.56	9	\$33,017.06

Assessment Id

00031339/BAAS21028/22/00031340

Proposal Name

Billilngra Solar - All Cleared

Page 4 of 8



Biodiversity payment summary report

Monaro	1289 - Wallaby Grass - Red-grass - Tall Speargrass - Kangaroo Grass dry tussock grassland of the North-western and Eastern Southern Tablelands in the South Eastern Highlands Bioregion	No	Temperate Montane Grasslands >=50% and <70%	20.69%	\$643.48	2,0318	\$20,058.85	274	\$5,496,124.77
Subtotal (excl. GST)								\$7,016,788.52	
GST								\$701,678.85	
Total ecosystem credits (incl. GST)								\$7,718,467.37	

Species credits for threatened species

Species profile ID	Species	Threat status	Price per credit	Risk premium	Administrative cost	No. of species credits	Final credits price
10061	<i>Aprasia parapulchella</i> (Pink-tailed Legless Lizard)	Vulnerable	\$463.67	20.6900%	\$80.00	1429	\$913,993.15
10124	<i>Caladenia tessellata</i> (Thick Lip Spider Orchid)	Endangered	\$865.08	20.6900%	\$80.00	20	\$22,481.30
10135	<i>Calotis glandulosa</i> (Mauve Burr-daisy)	Vulnerable	\$158.64	20.6900%	\$80.00	20	\$5,429.25
10140	<i>Calyptrorhynchus lathamii</i> (Glossy Black-Cockatoo)	Vulnerable	\$463.67	20.6900%	\$80.00	14	\$8,954.45

Assessment ID

00031339/BAAS21028/22/00031340

Proposal Name

Billilngra Solar - All Cleared

Page 5 of 8



Biodiversity payment summary report

10155	<i>Cercartetus nanus</i> (Eastern Pygmy-possum)	Vulnerable	\$495.24	20.6900%	\$80.00	26	\$17,620.33
10211	<i>Delma impar</i> (Striped Legless Lizard)	Vulnerable	\$495.24	20.6900%	\$80.00	1071	\$725,822.22
10246	<i>Dodonaea procumbens</i> (Creeping Hop-bush)	Vulnerable	\$54.59	20.6900%	\$80.00	1350	\$196,944.31
10308	<i>Eucalyptus pulverulenta</i> (Silver-leafed Gum)	Vulnerable	\$173.02	20.6900%	\$80.00	20	\$5,776.36
10329	<i>Euphrasia scabra</i> (Rough Eyebright)	Endangered	\$865.08	20.6900%	\$80.00	20	\$22,481.30
10345	<i>Gentiana baeuerlenii</i> (Baeuerlen's Gentian)	Endangered	\$865.08	20.6900%	\$80.00	470	\$528,310.57
10462	<i>Lepidium hyssopifolium</i> (Aromatic Peppergrass)	Endangered	\$173.02	20.6900%	\$80.00	1728	\$499,077.22
10491	<i>Litoria raniformis</i> (Southern Bell Frog)	Endangered	\$309.97	20.6900%	\$80.00	313	\$142,134.17
10495	<i>Lophoictinia isura</i> (Square-tailed Kite)	Vulnerable	\$463.67	20.6900%	\$80.00	9	\$5,756.43
10534	<i>Miniopterus orianae oceanensis</i> (Large Bent-winged Bat)	Vulnerable	\$741.31	20.6900%	\$80.00	508	\$495,141.02
10549	<i>Myotis macropus</i> (Southern Myotis)	Vulnerable	\$741.31	20.6900%	\$80.00	327	\$318,722.66
10561	<i>Ninox connivens</i> (Barking Owl)	Vulnerable	\$173.02	20.6900%	\$80.00	26	\$7,509.26
10562	<i>Ninox strenua</i> (Powerful Owl)	Vulnerable	\$463.67	20.6900%	\$80.00	26	\$16,629.69

Assessment Id

00031339/BAAS21028/22/00031340

Proposal Name

Billilunga Solar - All Cleared

Page 6 of 8



Biodiversity payment summary report

10604	<i>Petaurus norfolcensis</i> (Squirrel Glider)	Vulnerable	\$495.24	20.6900%	\$80.00	12	\$8,132.46
10607	<i>Petroica rodinogaster</i> (Pink Robin)	Vulnerable	\$173.02	20.6900%	\$80.00	26	\$7,509.26
10613	<i>Phascogale tapoatafa</i> (Brush-tailed Phascogale)	Vulnerable	\$463.67	20.6900%	\$80.00	12	\$7,675.24
10666	<i>Prasophyllum petilum</i> (Tarengo Leek Orchid)	Endangered	\$865.08	20.6900%	\$80.00	327	\$367,569.27
10736	<i>Commersonia prostrata</i> (Dwarf Kewawang)	Endangered	\$173.02	20.6900%	\$80.00	327	\$94,443.43
10739	<i>Rutidosis leptorrhynchoides</i> (Button Wrinklewort)	Endangered	\$173.02	20.6900%	\$80.00	2600	\$750,926.38
10783	<i>Swainsona sericea</i> (Silky Swainson-pea)	Vulnerable	\$158.64	20.6900%	\$80.00	327	\$88,768.28
10791	<i>Synemon plana</i> (Golden Sun Moth)	Endangered	\$5,974.37	20.6900%	\$238.97	2592	\$19,308,953.54
10802	<i>Thesium australe</i> (Austral Toadflax)	Vulnerable	\$17.30	20.6900%	\$80.00	245	\$24,715.45
10817	<i>Tympanocryptis pinguicolla</i> (Grassland Earless Dragon)	Endangered	\$309.97	20.6900%	\$80.00	1728	\$784,689.63
10852	<i>Zieria citriodora</i> (Lemon Zieria)	Endangered	\$147.57	20.6900%	\$80.00	150	\$38,715.33
10975	<i>Callocephalon fimbriatum</i> (Gang-gang Cockatoo)	Vulnerable	\$463.67	20.6900%	\$80.00	26	\$16,629.69
20037	<i>Eucalyptus macarthurii</i> (Paddys River Box, Camden Woollybutt)	Endangered	\$3,460.33	20.6900%	\$138.41	60	\$258,881.13
20128	<i>Eucalyptus aggregata</i> (Black Gum)	Vulnerable	\$173.02	20.6900%	\$80.00	160	\$46,210.85

Assessment Id

00031339/BAAS21028/22/00031340

Proposal Name

Billilngra Solar - All Cleared

Page 7 of 8



Biodiversity payment summary report

20131	<i>Hieraaetus morphnoides</i> (Little Eagle)	Vulnerable	\$463.67	20.6900%	\$80.00	1315	\$841,078.37
20147	<i>Pelargonium sp. Striatellum</i> (Omeo Storksbill)	Endangered	\$173.02	20.6900%	\$80.00	470	\$135,744.38
20258	<i>Leucochrysum albicans</i> var. <i>tricolor</i> (Hoary Sunray)	Not Listed	\$86.51	20.6900%	\$80.00	700	\$129,086.24
Subtotal (excl. GST)							\$26,842,512.62
GST							\$2,684,251.26
Total species credits (incl. GST)							\$29,526,763.88
Grand total							\$37,245,231.25

Assessment Id
00031339/BAAS21028/22/00031340

Proposal Name
Billilngra Solar - All Cleared

Page 8 of 8

Appendix F: Terms and abbreviations

Terms and abbreviations used in this report

Abbreviation	Terminology	Description
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>	The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. This Act contains schedules relating to the listing of threatened species, populations and communities in NSW. It also outlines the framework regulating development impact assessments in relation to biodiversity.
	<i>Biosecurity Act 2015 (NSW)</i>	<p>The broad objectives for biosecurity in NSW are to manage biosecurity risks from animal and plant pests and diseases, weeds and contaminants by</p> <ul style="list-style-type: none"> • Preventing their entry into NSW • Quickly finding, containing and eradicating any new entries • Effectively minimising the impacts of those pests, diseases, weeds and contaminants that cannot be eradicated through robust management arrangements. <p>The <i>Biosecurity Act 2015</i> provides a statutory framework to help achieve these objectives.</p>
CAMBA	China-Australia Migratory Bird Agreement	A bilateral migratory bird agreement with China entered into in 1986. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
	Cumulative impacts	Impacts, when considered together, lead to a stronger impact than any impact in isolation.
	Direct impacts	Directly affect the habitat and individuals. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat. When applying each factor, consideration must be given to all of the likely direct impacts of the proposed activity or development.
DAWE	Australian Government Department of Agriculture, Water, and the Environment	DAWE designs and implements the Australian Government's policies and programmes to protect and conserve the environment, water and heritage and promote climate action.
DP	Deposited Plan	A plan of land deposited in Land and Property Information (part of the Land Management Authority) and used for legal identification purposes. They most commonly depict a subdivision of a parcel of land.
EEC	Endangered Ecological Community	An ecological community identified by relevant legislation likely to become extinct or is in immediate danger of extinction.
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i> .	Provides the legislative framework for land use planning and development assessment in NSW.
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i> .	Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>	The objects of this Act are to conserve, develop and share the fishery resources of the State for the benefit of present and future generations. This Act protects aquatic habitats and species which are not protected under the BC Act.
IBRA	Interim Biogeographic	The Interim Biogeographic Regionalisation for Australia (IBRA) is a biogeographic regionalisation of Australia developed by the Australian Government's Department of the Environment. Each region is a land area

	Regionalisation of Australia	made up of a group of interacting ecosystems repeated in similar form across the landscape.
	Indirect impacts	Occur when project-related activities affect species, populations or ecological communities in a manner other than direct loss. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, fertiliser drift, or increased human activity within or directly adjacent to sensitive habitat areas. As with direct impacts, consideration must be given, when applying each factor, to all of the likely indirect impacts of the proposed activity or development.
JAMBA	Japan-Australia Migratory Bird Agreement	A bilateral migratory bird agreement with Japan entered into in 1974. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
KTP	Key Threatening Process	A key threatening process is defined as a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities. A requirement of their listing on the TSC Act is that the process adversely affects two or more threatened species, populations or ecological communities, or may cause species, populations or ecological communities not threatened to become threatened.
	Native Vegetation	<ol style="list-style-type: none"> For the purposes of this Part, native vegetation means any of the following types of plants native to New South Wales: <ol style="list-style-type: none"> trees (including any sapling or shrub or any scrub), understorey plants, groundcover (being any type of herbaceous vegetation), plants occurring in a wetland. A plant is native to New South Wales if it was established in New South Wales before European settlement. The regulations may authorise conclusive presumptions to be made of the species of plants native to New South Wales by adopting any relevant classification in an official database of plants that is publicly accessible. For the purposes of this Part, native vegetation extends to a plant that is dead or that is not native to New South Wales if: <ol style="list-style-type: none"> the plant is situated on land that is shown on the native vegetation regulatory map as category 2-vulnerable regulated land, and it would be native vegetation for the purposes of this Part if it were native to New South Wales. For the purposes of this Part, native vegetation does not extend to marine vegetation (being mangroves, seagrasses or any other species of plant that at any time in its life cycle must inhabit water other than fresh water). A declaration under Section 14.7 of the BC Act that specified vegetation is or is not marine vegetation also has effect for the purposes of this Part.
	Local population (species)	<p>A local population of a threatened plant species comprises those individuals occurring in a defined area or a cluster of individuals extend into habitat adjoining and contiguous with the study area where the individuals could reasonably be expected to cross-pollinate.</p> <p>A local population of fauna species comprises those individuals known or likely to occur in in a defined area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area.</p> <p>The local population of migratory or nomadic fauna species comprises those individuals likely to occur in the study area from time to time.</p>
	Local occurrence (EEC)	The ecological community present within the study area. However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of the ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.

	Low condition (vegetation)	<p>Vegetation in low condition means:</p> <p>a) woody native vegetation with native over-storey percent foliage cover less than 50% of the lower value of the over-storey percent foliage cover benchmark for that vegetation type, and where either:</p> <ul style="list-style-type: none"> - less than 50% of ground cover vegetation is indigenous species, or - greater than 90% of ground cover vegetation is cleared <p>OR</p> <p>b) native grassland, wetland or herbfield where either:</p> <ul style="list-style-type: none"> - less than 50% of ground cover vegetation is indigenous species, or - more than 90% of ground cover vegetation is cleared <p>If native vegetation is not in low condition, it is in moderate to good condition. The percentages for the ground cover calculations must be made in a season when the proportion of native ground cover vegetation compared to non-native ground cover vegetation in the area is likely to be at its maximum.</p> <p>NOTE: Clearing the habitat of threatened species, populations or communities for the purposes of reducing its condition prior to assessment under the methodology may be a breach of environmental legislation, including sections 118A and 118D of the <i>National Parks and Wildlife Act 1974</i> (NPW Act), the <i>Native Vegetation Act 2003</i> (NV Act) and/or the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act).</p>
MNES	Matters of national environmental significance	Refers to the seven matters of national environmental significance outlined under the EPBC Act.
NPW Act	<i>National Parks and Wildlife Act 1974</i> (NSW)	<p>The objects of this Act are as follows:</p> <ul style="list-style-type: none"> • The conservation of nature, including, but not limited to, the conservation of: • habitat, ecosystems and ecosystem processes, and • biological diversity at the community, species and genetic levels, and • landforms of significance, including geological features and processes, and • landscapes and natural features of significance including wilderness and wild rivers, <p>The conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to:</p> <ul style="list-style-type: none"> • places, objects and features of significance to Aboriginal people, and • places of social value to the people of New South Wales, and • places of historic, architectural or scientific significance, • Fostering public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation, • Providing for the management of land reserved under this Act in accordance with the management principles applicable for each type of reservation. <p>The objects of this Act are to be achieved by applying the principles of ecologically sustainable development.</p>
PoEO Act	<i>Protection of the Environment Operations Act 1997</i>	<p>The objects of this Act are as follows:</p> <ul style="list-style-type: none"> • to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development, • to provide increased opportunities for public involvement and participation in environment protection, • to ensure the community has access to relevant and meaningful information about pollution, • to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms promoting: • pollution prevention and cleaner production, • the reduction to harmless levels of the discharge of substances likely to cause harm to the environment, • the elimination of harmful wastes, • the reduction in the use of materials and the re-use, recovery or recycling of materials,

			<ul style="list-style-type: none"> • the making of progressive environmental improvements, including the reduction of pollution at source, • the monitoring and reporting of environmental quality on a regular basis, • to rationalise, simplify and strengthen the regulatory framework for environment protection, • to improve the efficiency of administration of the environment protection legislation, • to assist in the achievement of the objectives of the <i>Waste Avoidance and Resource Recovery Act 2001</i>.
RAMSAR	Convention on Wetlands of International Importance		The Ramsar Convention's broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those remaining. This requires international cooperation, policy making, capacity building and technology transfer.
	Risk of extinction		The likelihood that the local population will become extinct either in the short-term or in the long-term as a result of direct or indirect impacts on the viability of that population.
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement		A bilateral migratory bird agreement with the Republic of Korea entered into in 2007. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
RF Act	<i>Rural Fires Act 1997</i>		<p>The objects of this Act are to provide:</p> <ul style="list-style-type: none"> • for the prevention, mitigation and suppression of bush and other fires in local government areas (or parts of areas) and other parts of the State constituted as rural fire districts, and • for the co-ordination of bush firefighting and bush fire prevention throughout the State, and • for the protection of persons from injury or death, and property from damage, arising from fires, and • for the protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires, and • for the protection of the environment by requiring certain activities referred to in paragraphs (a)-(c1) to be carried out having regard to the principles of ecologically sustainable development described in section 6 (2) of the <i>Protection of the Environment Administration Act 1991</i>.
Significant impact			A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity.
SIS	Species Impact Statement		<p>A document included with an Environmental Impact Statement which details a full description of the action proposed, including its nature, extent, location, timing and layout and, to the fullest extent reasonably practicable, the information referred to in this section.</p> <p>The requirements as to the contents of an SIS for different categories of protected species are given in section 110 of the TSC Act.</p>
Strahler stream order			<p>Strahler stream order and are used to define stream size based on a hierarchy of tributaries.</p> 